Collaborative Print Repositories: A Case Study of Library Directors' Views

Cathy Maskell Dr.
University of Windsor

Jennifer Soutter
University of Windsor

Kristina Oldenburg

Recommended Citation
Journal of Academic Librarianship

Collaborative Print Repositories: A Case Study of Library Directors' Views

By: Cathy Maskell , Associate University Librarian, Jennifer Soutter, Digital Resources Librarian and Kristina Oldenburg

Introduction

The academic library is a different place, both physically and virtually, than it was 10 or even 5 years ago. Students and faculty demand access to digital collections at any time and from any place. Bricks-and-mortar libraries increasingly house technology labs, multimedia rooms, group study rooms, and cafés. Often, the library is one of the main computing centers on campus, facing ever-increasing calls for adequate electrical and network connections, more computer workstations, and a wide range of printing and scanning services.1 Developing these user spaces usually means re-purposing existing physical facilities by shrinking collection footprints, since there is rarely money for new buildings. Thus many academic libraries are undertaking large-scale evaluations of their print collections to decrease the footprint of stacks and liberate space to expand technology and service areas. With the increasing duplication of print content in digital resources, the focus of this evaluation is often on journal collections.

As the size and use of digital collections increases, the use of print resources decreases, particularly print journals. With pressures on space intensifying, these journal collections are being earmarked as candidates for storage, either within the institution or in some form of collaborative facility with other libraries. This leaves librarians grappling with what storage option best fits their needs and capabilities. Cooperative efforts to maintain at least one print copy of what is available digitally present an attractive option.2 This collaboration usually involves libraries working together to house print serial volumes duplicated in digital, providing a backup in case access to the electronic version is lost, as well as archiving a print copy in case it is needed for future research.

As academic libraries recognize the need to evaluate print collections and even weed those collections to liberate space, they also have a number of concerns about the effects of such initiatives on research, learning, and teaching support for their academic communities. Issues include the reliability of digital content, how well the digital replicates the print, and the possible long-term value the print artifact may have for research and scholarship.

This article presents the results of a survey of library directors regarding their respective institutions' need for wide scale evaluation of print collections. It examines their need to weed or relocate items, their views on last copy print archiving, and their opinions on their consortium's role in any cooperative or shared last-print copy initiative.3 The institutions are members of the Ontario Council of University Libraries (OCUL). Ontario

university libraries face issues, noted in the literature review below, that confront academic libraries in locations around the world. The article begins with an overview of current issues relating to collaborative storage facilities for print collections. The literature review examines issues, practices, and context presented in scholarly articles, as well as in policy documents available on the open web. Following the overview, data gathered from OCUL directors is presented. The directors' discussions reveal the increasing urgency for more storage space, and an interesting diversity of opinion about what print content should be stored and how.

Existing Literature

Terminology
There are a variety of terms used to discuss facilities that house low-use materials. These include repository, depository, archives, and storage. For print materials, Payne stresses the ownership of materials deposited as the difference between a depository and a repository.4 In a depository, libraries retain ownership of submitted materials, and in a repository, libraries transfer ownership of submitted materials to the facility. For digital resources the terms digital archive, digital repository, trusted digital repository and institutional repository have all been used to discuss long-term archiving of digital resources.5 For the purposes of this paper the term print storage facility is used when discussing facilities or initiatives for print materials, as the issue of ownership is not the central focus of this study. The term digital repository is used when discussing storage initiatives for digital resources.

Collaborative Print Storage
Collaborative print storage efforts have many champions, whether for a distributed model at a regional, consortial, or national level, or sharing a common facility for which all members share costs for construction and operations. Schottlaender describes a vision that includes a distributed collection model, with print storage responsibilities spread amongst local collections, regional repositories, and archival repositories.6 Even with the lower costs of electronic journals, there is ongoing demand for some access to print, therefore "it is most cost-effective if a group of libraries can share the cost of one print subscription housed in off-site storage."7 While Agee and Naper describe global resource sharing as "a distant goal,"8 the dean of the Drexel Libraries states that it is viable. Indeed, he expresses a willingness to discard low-use material, trusting that someone, somewhere, is retaining copies. He states that:

> archival storage in most subject areas is not part of the mission of the Drexel Library. On a national, even international, basis archiving of old, little-used materials would be much more cost-effective if done centrally or in a few places for redundancy. This is true of both electronic and print formats. We are willing to make the leap of faith necessary in believing that this will happen, and are ready to pay the cost of access to the archived materials when they are needed.9

Whatever the organizational structure or strategy, the overarching theme of much of the literature on print collections storage is one of libraries working together to ensure

ongoing access to the intellectual content of material. Academic libraries are collaborating to store or preserve last-copy print and low-use collections that take up valuable floor space.

Existing Collaborations
Many libraries are already working together to establish storage facilities for such materials, and this is apparent in the library literature. O'Connor, Wells, and Collier surveyed the research on cooperative or shared storage, examining initiatives in the United Kingdom, Australia, Finland, France, the United States, and Canada.10 O'Connor and Jilovsky updated the international survey in 2009. They stress repurposing within library buildings, noting that the primary impetus for reviews of print collection footprints "has not been the advent of the digital book replacement but new directions for library physical space."11 In her study of library storage facilities in North America, Lizanne Payne identifies the key trends: a. shared print journal archive agreements for consortia or library systems; b. the development of last copy preservation agreements; c. the development of virtual storage wherein members may rely on items already stored by other members; d. mass digitization initiatives; and e. the implementation of local scanning and print-on-demand technology.12

Su provides some examples and opinions of these trends in his 2006 report for the Canadian Association of Research Libraries' (CARL) Committee on Scholarly Communication.13 This includes the recommendation that last print copy and low-use copy storage solutions should be regional responsibilities. He also describes print storage facility initiatives at eight individual institutions and four regional or provincial groups.14 The Book and Record Depository (BARD), located in Alberta, is one of these provincial groups. There are two member universities; one owns the space and charges rental fees to the other. The goal is to store one "definitive copy of a particular holding," with ownership transferred to BARD upon deposit.15 The Annex, in the province of Ontario, is an example of regional storage collaboration. The TriUniversity Group (TUG) of Libraries – the University of Guelph, the University of Waterloo, and Wilfrid Laurier University – share storage but retain ownership of their materials. This facility had been filling faster than anticipated, so the members developed agreements and procedures for weeding paper copies of journals for which there were stable electronic versions.16

As in so many other libraries, space was the concern driving the print storage initiatives described in the CARL report. Institutions wanted to maximize existing facilities to accommodate changing demands, as well as the growth of their in-house collections. A consortium in Atlantic Canada, for example, was prompted by the recognition that "new methods of information delivery, access and management require new library spaces: or reallocation and redesign of existing spaces to accommodate new needs."17 Su also notes the need for further collaboration among libraries to develop more comprehensive storage initiatives and manage those initiatives on a long-term basis.

Policy Development for Collaboration
Libraries that are contributing to collaborative storage facilities often follow jointly-developed policies.18 These govern such things as the ownership of stored materials,

selection processes for adding materials to the facility, duplication policies, and services provided.19 Effective collaborations share a number of traits. Knoche20 and Shelton21 both interviewed librarians to identify key characteristics of successful joint projects. Shelton described a number of features that were integral to achieving shared collection development goals. Good communication, objectives, and technology – combined with flexibility – were all essential for the organizations to achieve their common objectives. Knoche found many of the same attributes and also noted the importance of trust, committed leadership, and a positive climate. Proximity is another important factor.22

Institutions that had worked together before, had senior administrators committed to the project from the outset, and had clear-yet-flexible goals were likely to succeed. Good technological support, infrastructure, and expertise are also evident in successful facilities. Successful collaborations allowed time for member institutions to consult and deliberate before the project got started. An equal commitment from all institutions was important, along with a willingness to consider the goals of the groups, rather than just the individual institutions.23 Seaman describes this attitude in his case study of the Preservation and Access Service Center for Colorado Academic Libraries (PASCAL) collaborative storage facility. He notes that, "each library brought unique collections and user demands to the partnership, but it also was recognized that such a collaborative facility could contribute to a shared storage solution and could offer unique services for the benefit of a much larger community."24 Preventing duplication can prove complicated, as PASCAL contributors learned. "Subtle" differences between practices, such as one institution cataloguing by unique title and another by series, can make avoiding duplication difficult.25

Shelton also identified potential barriers to the success of collaborative storage facilities.26 These included resistance by participating libraries or uneven participation by member libraries, difficulties agreeing on governance and priorities, and uneven funding sources. However, advisory committees can help win librarians' support for a project. It is also important to make sure that the academic communities do not lose access to the materials they need for research and teaching.

Affects on Research and Use
There is general agreement that most scholarly research would not be disrupted by the removal of older print journal volumes; patrons do not usually need access to the print version of a serial when it is available electronically. Tyler and Zillig reported that older print journals rarely circulated, leading them to conclude that volumes "simultaneously available electronically…could profitably be moved to storage without causing patrons any great distress."27 Kaplan, Steinberg and Doucette reported similar findings after examining use patterns, citations, and interlibrary loan statistics of older print journals.28 Newby's survey of mathematicians revealed "a majority" of respondents preferred access to the electronic version, when both formats of the same resources were available.29 McCarthy likewise described "an evolving absence of need" for print journals, and noted "little or no reaction" when access was further limited for serials in remote storage.30 Like their patrons, many librarians are seeing less and less value in holding on to print versions of electronic journals.31

There are still library users and librarians, however, who have concerns about the relative value and reliability of digital resources. Some scholars continue to assert that libraries should maintain access to print copies, due to the specific nature of their research, or because of their individual reading styles. McKinzie, citing Guthrie, states "most faculty agree that… 'it will always be crucial for libraries to maintain hard-copy archives'"32 As one of Newby's surveyed mathematics scholars wrote, "…sometimes it is fun to sit in the library reading old journals."33 Other users found the print versions easier to skim through. Carignan spoke with faculty members who argued that they could not conduct their research using electronic copies.34 Their reasons included being able to scan tables of contents faster or needing to examine paper and ink quality to obtain more evidence about printing dates and motives. For some faculty, it seems the print journal as an artifact still has relevance.

McDonald also adds that libraries have an archival responsibility.35 Research institutions need to keep copies of resource materials in their original format in order to best serve current and future scholars. Nichols and Smith,36 Schottlaender et al.,37 Henebry, Safley, and George,38 Crawford,39 and Weston and Acton40 all provide compelling arguments for retention of materials in original paper format, including incomplete content, the accuracy of content, and the divergence of content in dual-publishing models. They also raise concerns about the loss of advertising, book reviews, and color in electronic versions.

There are also lingering worries about image-reproduction technologies for electronic formats, despite recent improvements in this area. Electronic journal backfiles may have inferior-image quality, rendering them less useful for researchers in certain fields.41 Even amongst scholars with an expressed preference for electronic journals, Newby found complaints about the quality of figures.42 Bracke and Martin's research had similar findings.43 Comparing print journals to electronic by looking at text and images, they uncovered "the reality that the electronic backfiles were not always adequate substitutes for print copies."44 Despite their findings, a "significant amount of print content was ultimately withdrawn."45 It must be noted that some publishers, such as Elsevier, are starting to address these concerns. A project is underway to improve the quality of images and missing pages and issues, and they report, for example, that missing issues are now down to .1%.46

Notwithstanding these concerns, surveys by JSTOR47 and HeinOnline48 show that some libraries are discarding material. The JSTOR survey collected data from 207 institutions. Results revealed that 97 institutions had discarded some of their titles, while another 47 institutions had plans to do so in the future. HeinOnline's 2006 survey showed that of 74 respondents, 17 (23%) were discarding print volumes duplicated in HeinOnline, and 9 of 66 respondents (14%) had plans to discard print volumes. Interestingly, the number of respondents discarding volumes did not rise substantially over the 3 years, with 23% discarding in 2006, 18% discarding in 2005, and 23% discarding in 2004.

Digital Resource Repositories — A Contributing Factor

Adding yet another dimension to the issue of print collection storage is the argument that rather than focusing efforts on long-term print collection storage, academic libraries should instead be concentrating on establishing and maintaining repositories of digital collections. It is unclear how many library-based efforts to establish digital repositories are underway. According to a 2008 survey of library directors in the United States, even though digital preservation was considered important, 66% of respondents were "not yet participating in an e-journal archiving initiative."49 The survey also showed that the directors were unsure just how urgent e-journal preservation was and that they were uncertain how to proceed with digital preservation.50

Differing views between libraries and publishers on the meaning of ownership and the meaning of perpetual access create significant difficulties for libraries trying to establish their own digital archives.51 Libraries are often required to go through a complex process of establishing legal ownership of the digital content they wish to archive to ensure perpetual access. As well, creating and maintaining a digital archive entails ongoing commitments to migrating digital content through any changes in technology to sustain full access.

Publisher-based collections are the most common digital archives model; libraries subscribe to digitized backfiles and the publisher undertakes responsibility for maintaining the content of, and access to, those backfiles. McKinzie notes, however, that reliance on vendor archiving is dubious as it is dependent on the solubility of a company.52 The last decade has seen the merging of major publishers for economic reasons. Sadie Honey comments more specifically on the lack of financial motivation for publishers, as "expenditure[s] made by a publisher must be covered by the expected profits. If print content is no longer of commercial use to the owner of that content, then there is a loss of motivation on the part of the owner to maintain that content… Given the added expense of upgrading content to new formats as technology advances, they cannot be relied upon to maintain the collection of their back issues electronically either."53

The legal and market pressures publishers face also contribute to the unpredictability of publisher-based digital archives. Publishers may pull content from archives for financial or legal reasons.54 There are cases in which journals have been withdrawn from existing electronic packages, or else have come very close to being withdrawn. For example, in 2007 the American Association for the Advancement of Science (AAAS) announced plans to stop providing the journal Science to JSTOR. Instead, the nonprofit publisher would do its own digitizing, and sell subscriptions to the electronic content itself. AAAS chief executive Alan I. Leshner commented that "it makes more sense to control our own archive than to fundamentally give it away for free."55 Although AAAS later buckled to pressure from library consortia and stayed with JSTOR, this case remains an example of publishers wanting to regain control of back issues and, as a result, causing uncertainty for libraries on what e-content they own, as well as the stability of that content.56

The uncertainties and complexities of establishing and maintaining digital repositories further complicate the question of whether and how to develop and maintain a last-copy/low-use storage facility for print collections. Academic libraries may recognize the

value in working together to establish a collaborative last-copy/low-use print repository solution but the myriad of issues involved make it difficult to know how and where to begin.

A Consortial Case Study: The Ontario Council of University Libraries
The Ontario Council of University Libraries (OCUL) is a consortium of 20 university libraries in the vast province of Ontario, Canada. The member libraries cooperate to enhance information services through collective purchasing (mainly of digital content), a shared infrastructure for digital access and services, document delivery, and many other similar activities. The sizes of the member institutions range from roughly 2000 full-time equivalent (fte) registered students up to 66,000, delivering various combinations of undergraduate, professional, and graduate programs. Currently, there are five print storage facilities in operation, servicing seven OCUL institutions. The University of Toronto, the University of Western Ontario, the University of Ottawa, and Carleton University each have their own facilities. As noted earlier, Guelph, Waterloo, and Wilfrid Laurier share storage as members of the Tri-University Group.

Scholars Portal is an infrastructure developed by OCUL to manage and deliver digital resources and services to member institutions' 380,000 students and researchers.57 Scholars Portal is housed at the University of Toronto, where several staff members monitor its growing array of content and services. One key element of Scholars Portal is the loading of many full-text journals and books – as well as indexes and abstracts – on local servers. Member institutions access this locally-loaded content via servers at the University of Toronto rather than through individual publishers' sites. A key current initiative for OCUL is to bring Scholars Portal into conformance with emerging standards for trusted digital repositories so that it can meet the OCLC standard of providing "reliable, long-term access to managed digital resources to its designated community, now and in the future."58

OCUL library directors questioned the value of maintaining collections of print holdings duplicated by digital content. This was prompted by the increasing popularity of digital forms of scholarly communication, pressure to re-tool buildings and facilities to accommodate user needs, and Scholars Portal's offering reliable long-term storage and access for consortium digital resources.

Surveying Members
In 2008 OCUL undertook a survey of its members to determine what the members were doing, if anything, with respect to re-evaluating their print collection footprints, the reasons for the re-evaluation, their views on the need for a consortial print collection storage solution and what form that solution might take. The review took the form of in-depth interviews with the directors of each institution.59 The questions asked of each director were:

1. Do you see the need for an archive of published research materials (print and/or electronic) in Canada?

2. Do you see the need for an Ontario archive?

3. Is it a priority that Scholars Portal be developed to the standard of a recognized trusted digital repository?

4. Do you need to retain a last print copy of all e-journals in Scholars Portal?

5. What are your priorities with respect to print repository development?

The interview discussions were free-flowing, directed along the general lines of the five questions but open to pursuit of tangents and other questions that came up during the interview. Some interviews took place with the director alone; other interviews were with a group of individuals (the director and others invited by the director). There were 20 interviews, one at each OCUL institution. The interviews were recorded and loosely transcribed to discern patterns, common opinions, and areas of contention. To aid in data analysis each institution was assigned to a size category based on fte for the institution. The categories were: VL, "very large" (n = 4, > 30,000 fte); L, "large" (n = 6, 20,000–30,000 fte); M, "medium" (n = 3, 10,000–20,000 fte); and S, "small" (n = 7, < 10,000 fte).

Results
The interviews revealed a wide range of opinions with six main themes emerging: 1. the nature of library as a place is changing; 2. OCUL digital collection development must be considered when developing any print storage initiative; 3. costs are a key factor; 4. the level of print storage facility (i.e., international, national, OCUL level), if any, must be determined; 5. service and content issues are a concern; and, 6. if there is an OCUL print storage initiative, preference for a central or distributed model must be determined.

Library as a Place
The urgent need to relocate physical collections or at least the ability to plan for longer term collection relocation was an overarching theme across all of the interviews. Seven institutions (2VL, 1L, 1M, 3S) were in desperate need for space, four institutions (1L, 1M, 2S) were tight for space estimating a need in the next 2–3 years, three (1VL, 1L, 1M) believed their space needs were met for the next 5 years, and six (1VL, 3L, 2S) either did not predict any space issues for at least 7–10 years or felt they did not have any foreseeable space needs. One institution desperate for space already had access to a storage facility. Overall 11 of 20 OCUL institutions (55%) were either desperate or tight for space. Whether pressed for space or not, though, all of the directors acknowledged the changing nature of the library as a place and that planning for new or re-visioned facilities was a central theme for their libraries and their role as director.

The Importance of Digital Collections
Another common theme was that any planning for print repositories had to be done as a complement to OCUL's growing repertoire of digital resources supported and maintained on Scholars Portal. Tens of thousands of e-journal titles are locally-loaded on, and available through, Scholars Portal. The shift to digital monographs is also picking up

steam with e-book package deals and monograph digitization projects becoming more commonplace. OCUL has invested millions of dollars developing the Scholars Portal infrastructure. Across all 20 interviews, it was clear that any OCUL print repository strategy would be directly informed by ongoing development of Scholars Portal specifically, and more generally, by the broad shift to digital scholarly communication and scholarly publishing. Success in making Scholars Portal a trusted digital repository would have significant impact on what type of print repository, if any, is necessary. All 20 directors indicated that it was important that Scholars Portal be recognized as a trusted digital repository (TDR). Eight further qualified that positive response with questions or concerns about what it will cost to make Scholars Portal a TDR, what it means to become a TDR, and what the process is for becoming a TDR. There was also concern over whether making Scholars Portal a TDR would slow the continued development of Scholars Portal content and services.

Costs are a Key Factor
Across all 20 institutions a common thread that emerged was that any OCUL print storage initiative would have to first and foremost be sustainable within the member institutions' budgets, many of which are already constrained. The costs related to any recommendations for print storage have to be defined. The availability of any external funding for print storage facility development is also an unknown. Building facilities for last-print or low-use print material was seen by most directors as a difficult sell to external funding agencies. Twelve directors (1VL, 3L, 2M, 6S) expressed significant concern about the costs and funding of any print storage strategy, with smaller institutions expressing this concern more than the large or very large institutions. Many are already dealing with significant cost outlays for Scholars Portal and expect further costs in developing Scholars Portal as a TDR. This led several directors to wonder how they would pay for a print storage project. Any plans for an OCUL collaborative print storage initiative would have to be set in consideration of current and future costs and funding possibilities. Notwithstanding the funding concern, however, some of the directors felt it would be feasible to explore the cost savings that might be realized with a centrally managed facility. Funding proposals could be made in terms of cost savings in the space liberated for other uses, in terms of staff and facilities savings as the need for ongoing management of in-house stacks is reduced, and in terms of staff savings in areas such as interlibrary loans as significant amounts of interlibrary loans are directed to one central facility.

What Kind of Print Storage Facility is Needed?
This theme prompted the most discussion and the most diverse range of responses from the OCUL directors. As they discussed what type of OCUL collaborative print storage initiative, if any, might be needed, they considered the storage needs for three main categories: A. print serial collections that duplicate serials locally-loaded on Scholars Portal; B. print serial collections not locally-loaded on Scholars Portal; C. print monographs and government documents not necessarily duplicated in digital format. Within those three main categories the responses were grouped based on whether the respondents felt an international, national, or provincial collaborative strategy would be

most appropriate. Two institutions (1VL, 1L) questioned the need for any type of coordinated print storage initiative, so the totals reported below are for 18 institutions.

Journals Locally-Loaded on Scholars Portal
Seven directors (1VL, 2L, 2M, 2S) felt that an international initiative to store print runs of serials locally-loaded on Scholars Portal would be sufficient. They felt that Scholars Portal was a stable and trusted source, so the availability of a last print copy of the journals on Scholars Portal anywhere in the world would meet any need for possible future access to the print format. Five directors (1L, 1M, 3S), felt that even though Scholars Portal provided reliable access, it would be prudent to maintain at least one print run somewhere in Canada. That is, a national print storage option would suffice. The uncertainty about future access across national borders was often cited by those holding this view. Six directors (2VL, 2L, 2S) felt that OCUL should maintain a provincial level print storage initiative for journals locally-loaded on Scholars Portal. Three of the six indicated that ideally a national approach would be the best, but in reality it was more feasible to implement and maintain a provincial approach.

Digital Serials not Locally-Loaded on Scholars Portal
Six directors (1VL, 2L, 1M, 2S) felt that an international collaboration for serials duplicated by digital, but not locally-loaded on Scholars Portal, would suffice. They felt that many of these serial titles were produced by well-respected commercial publishers or vendors with lots of copies around the country or around the globe, thus an international repository would meet OCUL's needs. This was especially true for collections such as JSTOR, which already has two print repositories in the United States.60 Six directors (1L, 2M, 3S) felt that a national strategy would be best and six (2VL, 2L, 2S) felt that a provincial strategy was the best route to take. Again, three of the six directors who preferred a provincial repository indicated that though ideally a national approach would be the best, a provincial initiative was more realistic.

Monographs and Documents
Eleven of 18 directors (1VL, 3L, 3M, 4S) felt that the best goal for OCUL with respect to collaborative print storage was one which would see storage of unique Ontario collections, including monographs, serial collections, and Ontario government documents. The goal would be to develop a storage program that contributed to an Ontario research collection while at the same time addressing ongoing needs to re-allocate space in local facilities.

Content and Service Issues
Fourteen directors (3VL, 4 L, 3M, 4S) indicated that the service model developed for any collaborative print storage initiative would play a key role in the success of that initiative. The majority of respondents who raised this issue felt that the development of a "light" storage solution would be preferable; items would be available through digital delivery to desktop, interlibrary loan of physical items, and on-site access. Digital delivery would allow a reasonable turnaround time for requested information, as well as provide geographic flexibility for any central facility, for any type of distributed solution.

Fifteen directors (3VL, 5L, 2M, 5S) felt that an analysis of content of materials being considered for removal to storage was necessary. Specifically, the concern over content was in not knowing how closely the digital versions matched or duplicated the print version being discarded or sent to storage. Another content verification issue that was discussed several times was the need to establish a process to determine, with some degree of reliability, the true print and electronic holdings of each institution. The answers to these content concerns may affect decisions about whether materials should go to storage or be discarded.

A Central or Distributed Model
Nine directors (2VL, 2L, 1M 4S) felt that a central model would be the most appropriate for any type of OCUL collaborative print storage initiative. The majority preferred a central facility attached to and managed by a specific OCUL institution, with the rest of OCUL contributing on some sort of cost-share metric. The central management model presumes a single facility to which each OCUL institution would send items. The management of such a facility could be contracted out to a third party or be attached to one specific OCUL institution. Regardless of affiliation, there would be a staff presence to deal with additions and deletions of material and requests for access. The advantages of the central model include maximizing and focusing staff costs to deal with repository management and service, and increased probability of long term sustainability. The disadvantages of a central model are that it would demand significant and immediate up-front costs to build and staff a facility. It would also require extensive initial planning to determine the logistics of what materials came into the repository and how those materials would be stored and serviced.

Seven directors (2VL, 2L, 2M, 1S) felt that a distributed model would be the most appropriate. It could take advantage of the storage facilities already in place at some OCUL institutions and would be relatively quick and easy to get something underway to address immediate space needs. The distributed model presumes that individual OCUL institutions would act as local repositories for the rest of the consortium for specific titles. Each participating institution would agree to maintain those titles and to meet common service parameters. The advantages of a distributed model are relatively low start-up costs and the ability to implement the repository relatively quickly. The disadvantages include difficulty sustaining activity and commitment over time.

Discussion
Despite the wide range of opinions, it was possible to glean some common points of interest. From those, some first steps for OCUL with respect to print collections storage can be developed. Eleven OCUL institutions are either in desperate need to liberate space or very tight with respect to space. Only one in that group has access to a storage facility, so addressing these immediate needs may be an obvious first step. Overall, there was considerable interest in some sort of collaborative strategy, but that interest generated significant questions about structure, costs and sustainability. There was unanimous agreement that academic libraries are changing, with demands for new user spaces creating significant pressures on physical collections. Collaborative action to alleviate that pressure makes sense but there was a broad and diverse range of opinion on the need

for an OCUL print storage solution, the level of collaborative action to pursue and for which print collections, and of course the ongoing cost and service issues.

There was a majority opinion that the most appropriate OCUL collaborative print storage initiative would not be to preserve last print runs of commercial serials, that is, those locally-loaded in Scholars Portal and other digital serials such as those in JSTOR. The availability of other repositories elsewhere in Canada, North America, or internationally would most likely be sufficient to address needs for those materials. The need for further information and international collaboration so academic libraries around the world know who is collecting and storing and preserving what, is needed.

Establishing Scholars Portal as a trusted digital repository was seen as important before determining what OCUL needs to do with respect to any print storage program development. Knowing that OCUL owns the digital content locally-loaded on Scholars Portal and knowing Scholars Portal is a recognized archive with appropriate technology migration is crucial.

There were several questions about whether a print repository should more appropriately be done on a national or even international level. Some directors expressed their preference for a provincial facility. Exploring the opportunities for national collaboration and clarifying what is – or is not – happening nationally and in the other regional groups is important. In light of what may be developed nationally, just over half of the directors indicated that a strategy for long-term storage of unique Ontario print resources would be most appropriate.

Content verification and service models were important factors with respect to what type of print storage program OCUL might develop. The general consensus was that an open service model is desirable for whatever repository might be developed with print on demand, and digital desktop delivery as the preferred focus for access. Work would need to be done to address questions on content. A review of research on the match between digital and print, and developing a process for a reasonable amount of collection analysis – so OCUL knows who owns what – would help to clarify how the consortium would determine what print materials would go into storage.

Conclusion
The survey of the literature and other institutional activities, as well as the results of the survey of the OCUL directors, combine to clearly illustrate the complex mix of issues related to establishing a consortial level solution to the management of print collections.61 What is clear is that many academic libraries across North America have identified the need to address how they deal with their print collections in light of the increasing focus on digital resources and in light of the increasing demands placed on physical library facilities. It appears that many libraries recognize the need to reduce print collection footprints, especially those print collections which duplicate digital, but have many questions and hesitancies about how that reduction might happen. There are still many questions about how the digital and the print compare. Is it an exact match? If it is not an exact match, how close is close enough?

The survey of the directors of Ontario university libraries shows diverse opinions on how to approach print collection archiving. The value of the print volume as an artifact is a concern. Even if research articles are exactly duplicated in digital, how important is other content that is in the print volume but not in the digital version? If there is one copy of the print journal within easy reach, or within easy interlibrary loan range, is that sufficient? Can libraries trust digital resources to deliver reliable content to our patrons over the long-term? Should we hang on to our print collections that duplicate the digital just in case?

There seems to be consensus that the answer to these difficult questions lies in partnerships between institutions. Whether through already-existing consortial partnerships or by building new collaborations between institutions, libraries working together to manage print collections presents a range of options. Yet collaboration itself comes with risks. A library must have trustworthy partners to maintain print collections to an agreed-upon level. Choices must be made on whether to use a distributed or a centralized model. Library administrators must also determine how much any collaborative effort will cost, how each partner will pay for its share, and whether one collaborative effort should duplicate the work being done by another. If there is more than one consortium in the United States dedicated to maintaining a specific print collection, does Canada need to duplicate that effort?

The Ontario Council of University Libraries has built an impressive infrastructure for its digital resources through Scholars Portal. How can OCUL institutions leverage that infrastructure to help them evaluate and manage their print collections? As illustrated by the responses from the OCUL directors, different libraries have different needs. Some are in urgent need to weed print collections and others have time to plan for future weeding. A number feel a distributed network of print collection management would work well, still others advocate for a centralized facility to ensure a last print copy is retained in the province. All agree that cost is an over-riding factor and the unknowns with respect to future budgets make committing to any long-term plan difficult.

Though this conclusion seems to only pose more questions, and admittedly many more could be listed, what is clear is that this issue is of immense interest, and immense importance for the academic library community. Continuing the conversation is essential as is the need to ensure we work together across regions, states, provinces, countries, and even internationally to develop strategies.

Notes and References

1. Paul Genoni, Current and Future Print Storage for Australian Academic Libraries: Results of a Survey, Library Collections, Acquisitions, & Technical Services 32 (2008): 31-41, and, American University Library, "The Academic Library in 2010: A Vision, Report of a Symposium 2010, March 14-15, 2005". Online (November, 2009) Available: http://www.library.american.edu/Symposium_2010.pdf.

2. Lizanne Payne, Library Storage Facilities and the Future of Print Collections in North America. OCLC (2007) Available: www.oclc.org/programs/publications/reports/2007-01.pdf (October 1, 2009).

3. Cathy Maskell, "Last Copy and Low Use Print Repositories: A Vision and First Steps for OCUL" (report submitted to OCUL Directors Meeting, September 2008).

4. Lizanne Payne, Are Duplicate Copies the Double Edged Sword for Last Copy Repositories?: Perspective on Consortium Repository. (Slide presentation as transcribed by Jean Ann Croft, and Atalanta Grant-Suttie, Preservation issues in small to mid-sized libraries discussion group in email to PADG mailing list). Online (July 2005) Available: http://palimpsest.stanford.edu/byform/mailing-lists/padg/2005/07/doc00000.doc (April 28, 2009).

5. RLG and OCLC, Trusted Digital Repositories: Attributes and Responsibilities: An RLG-OCLC Report. RLG & OCLC (2002) Available: http://www.oclc.org/research/activities/past/rlg/trustedrep/repositories.pdf (October 1, 2009).

6. Brian E.C. Schottlaender, You say you want an evolution…' The Emerging UC Libraries Shared Collection, Library Collections, Acquisitions, & Technical Services 28 (2004), pp. 13–24. Article | PDF (694 K) | View Record in Scopus | Cited By in Scopus (2)

7. Brian E.C. Schottlaender, Gary S. Lawrence, Cecily Johns, Claire Le Donne, and Laura Fosbender, Collection Management Strategies in a Digital Environment: A Project of the Collection Management Initiative of the University of California Libraries. Online. University of California, Office of the President, Office of Systemwide Library Planning. (2004) Available: http://www.ucop.edu/cmi/finalreport/cmireportfinal.pdf, viii. (April 28, 2009).

8. Jim Agee and Sarah Naper, "Off-site storage: An analysis," Collection Building 26 (2007): 20-5, 21.

9. Carol Hansen Montgomery, "'Fast Track' Transition to an Electronic Journal Collection: A Case Study," New Library World 101 (2000): 294-302, 295-296.

10. Steve O'Connor, Andrew Wells and Mel Collier, A Study of Collaborative Storage of Library Resources, Library Hi Tech Journal 20 (2002), pp. 258–269. Full Text via CrossRef

11. Steve O'Connor and Cathie Jilovsky, Approaches to the storage of low use and last copy research materials, Library Collections, Acquisitions, & Technical Services 32 (2009), pp. 121–126.

12. Payne, "Library Storage Facilities.".

13. Geoffrey Su, Print Repository Initiatives at Canadian University Libraries: An Overview. Online. CARL ABRC (2006) Available: http://www.carl-abrc.ca/projects/preservation/pdf/print_repos_overview.pdf (April 28, 2009).

14. The institutions described in the report were the University of British Columbia, Carleton University, the University of Manitoba, the University of Ottawa, the Quebec universities, the University of Saskatchewan, the University of Toronto, and the University of Western Ontario. The shared initiatives described in the report were the BARD project in Alberta, the Council of Atlantic University Libraries (CAUL) Regional Consortium for the Preservation of Scholarly Materials, the (OCUL) Collaborative Collection Continuity Initiative, and the TriUniversity Group (TUG) Libraries Annex.

15. Su, "Print repository initiatives," p. 27.

16. Tri-University Group of Libraries. Policies - TUG Libraries Last Copy. Online. Guelph University Library. (2006) Available: http://www.lib.uoguelph.ca/about/policies/TUG_libraries_last_copy.cfm (April 29, 2009).

17. Su, "Print repository initiatives," p. 29.

18. O'Connor, Wells, and Collier, "A Study of Collaborative Storage of Library Resources."

19. Payne, "Are Duplicate Copies the Double Edged Sword.".

20. Charlotte Marie Knoche, Critical Factors for Successful Collaboration in Academic Libraries," PhD diss., University of Minnesota (1997).

21. Cynthia Shelton, Best Practices in Cooperative Collection Development: A Report Prepared by the Center for Research Libraries Working Group on Best Practices in Cooperative Collection Development, Collection Management 28 (2004), pp. 191–222. Full Text via CrossRef

22. Scott Seaman, Collaborative Collection Management in a High-Density Storage Facility, College & Research Libraries 66 (2005), pp. 20–27 and Knoche, "Critical Factors.". View Record in Scopus | Cited By in Scopus (5)

23. Shelton, "Best Practices," p. 205.

24. Seaman, "Collaborative collection management," p. 21.

25. Ibid., p. 26.

26. Shelton, "Best Practices," p. 208.

27. David C. Tyler, and Bryan L. Pytlig Zillig, "Caveat Relocator: A Practical Relocation Proposal to Save Space and Promote Electronic Resources." Technical Services Quarterly 21 (2003): 17-30, 21.

28. Richard Kaplan, Marilyn Steinberg and Joanne Doucette, Retention of Retrospective Print Journals in the Digital Age: Trends and Analysis, Journal of the Medical Library Association: JMLA 94 (Oct 2006), pp. 387–393.

29. Jill Newby, An Emerging Picture of Mathematicians' Use of Electronic Resources: The Effect of Withdrawal of Older Print Volumes, Science & Technology Libraries 25 (2005), pp. 65–85. Full Text via CrossRef | View Record in Scopus | Cited By in Scopus (2)

30. James P. McCarthy, "The Print Block and the Digital Cylinder," Library Management 26, (2005): 89-96, 92.

31. Harriet Bell, The Value of Online Journal Backfiles to University Libraries. Online. Elsevier ScienceDirect. (2005) Available: http://info.sciencedirect.com/content/backfiles/optimizing_backfiles/ (April 28, 2009).

32. Steve McKinzie, "Op Ed – Troubling Choices: Full-text Access and the Old Hard Copy Back Runs," Against the Grain 17 (2005): 60-1, 61.

33. Newby, "An Emerging Picture," p. 75.

34. Yvonne Carignan, Who Wants Yesterday's Papers? The Faculty Answer, Collection Management 31 (2006), pp. 75–84.

35. John McDonald, "'No One Uses Them So Why Should We Keep Them?': Scenarios for Print Issue Retention," Against the Grain 15 (2003): 22-4, 24.

36. Stephen G. Nichols et al., The Evidence in Hand: Report of the Task Force on the Artifact in Library Collections, CLIR pub103, Washington, DC: CLIR, November 2001.

37. Schottlaender, "Collection Management Strategies.".

38. Carolyn Henebry, Ellen Safley and Sarah E. George, Before You Cancel the Paper, Beware: All Electronic Journals in 2001 are NOT Created Equal, Serials Librarian 42 (2002), pp. 267–273. Full Text via CrossRef | View Record in Scopus | Cited By in Scopus (4)

39. Walt Crawford, Here's the Content - Where's the Context?, American Libraries 31 (Mar 2000), pp. 50–52.

40. Beth Weston and Deena Acton, Managing Divergence of Print and Electronic Journals, Serials Librarian 56 (2009), pp. 181–198. Full Text via CrossRef | View Record in Scopus | Cited By in Scopus (1)

41. Jacquelyn Marie Erdman, Image Quality in Electronic Journals: A Case Study of Elsevier Geology Titles, Library Collections, Acquisitions, & Technical Services 30 (2006), pp. 169–178. Article | PDF (474 K) | View Record in Scopus | Cited By in Scopus (3)

42. Newby, "An Emerging Picture," p. 75.

43. Marianne Stowell Bracke and Jim Martin, Developing Criteria for the Withdrawal of Print Content Available Online, Collection Building 24 (2005), pp. 61–64. Full Text via CrossRef | View Record in Scopus | Cited By in Scopus (8)

44. Ibid., p. 61.

45. Ibid., p. 63.

46. ScienceDirect, Backfiles Re-Scanning Project. Online. Elsevier B.V. (N.D.) Available: http://info.sciencedirect.com/content/backfiles/optimizing_backfiles/ (April 28, 2009).

47. JSTOR, JSTOR Bound Volume Survey Results. Online. (2003) Available: http://www.jstor.org/page/info/about/news/surveys/bvs2003.jsp.

48. Brian Jablonski. 2006 Bound Volume Survey Results. (email to HeinOnline mailing list) Online. (October 10,2006) Available: http://lists.washlaw.edu/pipermail/heinonline/2006-October/000244.html (April 28, 2009) Selected or comprehensive discarding and whether it includes any sort of agreement with other institutions for access to print was not investigated in this survey.

49. Portico/Ithaka, Digital Preservation of E-journals in 2008: Urgent Action Revisited. Results from a Portico/Ithaka Survey of U.S. Library Directors. Online. (2008) Available: http://www.portico.org/comment/wp-content/uploads/2008/05/porticosurveyondigitalpreservation.pdf (April 29, 2009).

50. Ibid., p. 5.

51. Andrew Waller and Gwen Bird, We own it: Dealing with perpetual access in big deals, Serials Librarian 50 (2006), pp. 179–196. Full Text via CrossRef | View Record in Scopus | Cited By in Scopus (1)

52. McKinzie, "Op ed," p. 61.

53. Sadie L. Honey, "Preservation of Electronic Scholarly Publishing: An Analysis of Three Approaches," Portal: Libraries & the Academy 5 (2005): 59-75, 59.

54. McKinzie, "Op ed," p. 61.

55. Peter Monaghan, Critics Balk at Withdrawal of Journal from Archive, Chronicle of Higher Education 54. (8) (2007), pp. A1–A12. View Record in Scopus | Cited By in Scopus (1)

56. Andrew Albanese, Science Rejoins JSTOR, Library Journal 133 (2008), p. 16.

57. Scholars Portal (www.scholarsportal.info) consists of roughly 8,100 full-text journals representing eighteen commercial publishers and 130 databases from eight publishers. It hosts a single-search platform Illumina, an Interlibrary Loans platform RACER, and bibliographic management software RefWorks. Scholars Portal also uses the open-URL resolver SFX, and is testing an electronic resources management tool Verde . Some of the projects currently in development include the development of a new interface to replace its ejournals server, the development of a local delivery platform for electronic books, (in conjunction with ebrary) and a web-based data extraction system, the Ontario Data Documentation, Extraction Service and Infrastructure project (ODESI).

58. RLG-OCLC, Trusted Digital Repositories: Attributes and Responsibilities, an RLG-OCLC Report. Online. (May 2002) Available: http://www.oclc.org/programs/ourwork/past/trustedrep/repositories.pdf (April 28, 2009).

59. OCUL (http://www.ocul.on.ca/) contracted with C. Maskell to do this survey. Data was collected in the summer of 2008 and the report was submitted to the OCUL Directors at the winter 2008 directors' meeting. C. Maskell wishes to express her sincere thanks to OCUL for the opportunity to do the survey and their support with it, as well as their permission to report the results of the survey.

60. Two JStor repositories are at the University of California (http://www.srlf.ucla.edu/Jstor/Default.aspx) and Harvard University (http://hul.harvard.edu/hd/).

61. After presentation of the report on the survey at the winter 2008 OCUL directors meeting, the Thunder Bay agreement was crafted and passed by the directors. The agreement stipulates two action strategies: a. OCUL will implement a distributed model based on the coordinated retention and collaborative storage of print journals to address immediate short-term space needs. Decision-making will reside at the local level. It will be incumbent on individual libraries who wish to discard print journals to determine whether they hold the last OCUL print copy. If so, they are obliged to keep the volumes or find another OCUL library that will do so; and b. OCUL will explore collaboration opportunities with other regional and national organizations to determine the status of any print repositories being developed or discussed.