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Creating NISO's Library Physical Delivery Recommended Practices

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Abstract

The volume of materials shipped between libraries and branches has grown very quickly. This growth caused service and budget problems for libraries, library networks, and commercial couriers. NISO formed a working group comprised of practitioners from various types of libraries and systems to recommend practices to improve performance and reduce costs for moving physical materials between libraries. The recommended practices include an introduction and sections related to management, automation, the physical move, and the future. In addition to describing the recommended practices, the authors briefly review the cause of the growth in library delivery volume, i.e., the development of patron-placed hold capability in integrated library systems and the issues and reactions in the library delivery community resulting from the rapid growth, as well as prospects for a future with declining delivery volume.

Keywords: NISO; document delivery; Physical Delivery Working Group; resource sharing; integrated library systems

Introduction

In July 2009, National Information Standards Organization (NISO) formed the Physical Delivery Working Group to develop recommended practices for physical delivery of library materials. Long a forgotten part of library science, delivery has been gaining attention over the past decade. Two national conferences, a dozen articles[1], and three working groups[2] have formed to expand the professional knowledge base related to physical delivery. NISO's decision to create physical delivery recommendations demonstrates that delivery has now found an attentive audience within the profession.

Physical Delivery of Library Resources (NISO RP-12-2012) can be found at:

http://www.niso.org/apps/group_public/download.php/7932/RP-12-2012.pdf

What has spurred the increased interest? There is a simple answer – demand! Physical delivery rates have been skyrocketing: a 2008 national survey found many large library systems deliver more than 10 million items a year[3]. OCLC alone accounted for more than 10 million interlibrary loan transactions nationally annually, many of which require physical delivery of the requested item. Massachusetts reported a 38-fold increase in 21 years[4]. Statistics tracked by Horton found that between 2004 and 2011 Colorado's resource sharing networks increased usage by 211%.

Growing demand increased costs. The United States Postal Service's Media Mail costs between $3.50 and $4.00 per one-way shipment when all expenses including materials and labor are added in, and postal rates are steadily rising. A 2008 national survey found that the smallest library paid $1,100 annually while the largest responding library system was paying $2,250,000. An interlibrary loan study of academic libraries found that the mean annual cost for delivery was $6,856 with some libraries paying over $60,000.[5] Frequently, large public li-

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brary systems with high volumes and numerous branches end up with very high delivery costs.

The chart below shows annual delivery costs reported by a few large systems around the country.[6]

	Cost	Items Delivered
Denver Public Library (CO)	$282,000	7,000,000+
Madison Public Library (WI)	$290,000	5,250,000+
Upper Hudson Library System (NY)	$171,000	2,752,000+
Michigan Libraries	$676,000	3,750,000+
South Central Library System (WI)	$986,000	6,600,000+
Colorado Library Consortium	$875,000	5,900,000+

Prices vary significantly due to many factors, including the volume of material shipped, the miles driven, distance between libraries, and difficulty of the terrain. Whether delivery is handled internally or outsourced also affects prices. Volume shipped is an important factor in cost-effectiveness. A truism from the logistics industry states that the more items shipped the lower the cost to ship each item. As both volume and costs continue to rise, the demand for information about efficient and effective delivery systems also increases.

Looking Back: Delivery Volume Growth

Library delivery ran fairly smoothly in the 1990s until a new feature, patron-placed holds, was added to integrated library systems (ILS). Patron-placed holds took the librarian out of the mix for interlibrary loan requests. Delivery specialists quickly realized that patrons strongly embraced this feature. For example, in Massachusetts, a state with nine shared library systems, library delivery volume was about one million items in 1999. By 2011, delivery volume exceeded 14 million—an average increase of more than one million items per year for 12 years.

Managers of library delivery services did not anticipate this magnitude of growth. Outsourced commercial courier companies were overwhelmed by the volume increase, and the cost of doing business soared. Library shippers plan their budgets well in advance and were not accustomed to requests for mid-year price increases from contractors. Libraries with in-house delivery services needed more vehicles, more staff, and more sorting capacity to keep up with the growth.

In some cases, the road to a solution was very rocky. The authors are aware of two cases where commercial courier services closed without notice, and one case where a courier was so overwhelmed it allowed huge backlogs of unsorted materials to accumulate in a warehouse. These situations can lead to significantly higher prices or the need to find a new commercial delivery provider on short notice. Systems that needed to change vendors in an emergency situation often saw significant cost increases as they were unable to go through a detailed bidding process.

Delivery contractors and budgets were strained due to the huge increase in volume as patrons used the new hold placement capability with gusto. At the same time, library capacity was being stretched to its limits. Using Massachusetts public libraries as an example, between 1999-2009 library delivery volume increased 500 percent; general in-library circulation volume also increased by about 20 percent. In most cases, libraries were not able to add more space in which to manage this delivery volume, while at the same time, library staffing increased by a mere eight percent. Library staff members had to meet this growing demand without sufficient staff or space resources. A recent Illinois Library Association study titled, "Future of Illinois Library Cooperation", includes best practices on how libraries and library networks can address this workload and space issue.[7]

Library delivery managers sought solutions to handle the increase in demand. Two large systems in the state of Washington, King County Library System and the Seattle Public Library

System, each procured a large-scale automated materials handling system (AMHS). These systems allowed the libraries to manage the sorting and storage of expanded volume more efficiently. AMHS requires participating libraries and branches to use externally placed barcodes or RFID technology to allow a machine to identify each item. The AMHS polls the ILS for a message that includes the destination of each item. The system then moves the items to the correct container for shipment. Some AMHSs sort items at very rapid rates and others at rates similar to manual sorting. The key is the labor savings of a machine that can sort with an extremely low error rate, often in less space than manual sorting and, in many cases, at a lower overall cost. For more information about AMHS, see Jed Moffitt's article about King County in *Library Journal*[8].

Moffitt's article drew the attention of other library delivery managers. Massachusetts and Wisconsin managers sought more information and attempted to calculate the potential return on investment in their own local situations. In Wisconsin, a major innovation in materials handling was developed in the South Central Library System. The "Tote Master" is a wheeled dolly with a removable transportation handle that allows drivers, sorters, and library personnel to move totes full of library items around easily and safely and minimize the need for library staff and delivery staff to lift full totes.

Bruce Smith, head of delivery, said, "The cart is designed so totes can be moved between a central delivery location and libraries without any lifting required. This container moving system enables drivers, sorters and library staff to move delivery totes as needed without risk of injury."

In 2011, the Massachusetts Library System implemented "Sort-to-Light" library materials sorting to reduce the workload and use of paper for delivery labels. This type of system has long been used by the commercial fulfillment industry. Sort-to-Light requires libraries place barcodes on the cover of each item. When an item is scanned in preparation for shipping to another library, it is placed in a shipping container (tote) barcode up. No shipping label is required. At the central sort site, sorting personnel unpack the totes. They scan each item with a wrist/finger-worn barcode scanner, which is linked to a local computer. The local computer is linked over the Internet to the shared integrated library system and after scanning, it requests a message to identify the shipping destination of the item. Once the message is received the computer turns on an LED over the appropriate tote in the sorting rack, which informs the sorter where to place the items. Sort-to-light was chosen to save libraries time and resources by transferring work and space use from the library to lower-cost sorting personnel in lower-cost warehouse settings.

King County Library System Sorting Facility (2007). Photos courtesy of Greg Pronevitz

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This picture shows Sort-to-Light wrist/finger barcode scanner and LED indicator on destination tote. (Note: Photo enhanced by the authors to emphasize red barcode scan beam and the green LED destination indicator light). Photo courtesy of Optima, 10 Micro Drive, Woburn, MA 01801

NISO Process

NISO responded to the demand from practitioners by forming a working group of 11 academic, public, and consortia delivery experts from the USA and Europe, along with vendors. Members were Valerie Horton, Colorado Library Consortium and Diana Sachs-Silveria, Novare Library Systems (Co-Chairs); Poul Erlandsen, The Royal Library, Denmark; Ken Bartholomew, American Courier; Chaichin Chen, State of Rhode Island, Office of Library & Information Services; Franca Rosen, Jefferson County Public Library System, CO; Kathy Drozd, Minitex Library Information Network; Greg Pronevitz, Massachusetts Library System; Julie Blume Nye, OCLC; Jennifer Kuehn, Ohio State University Libraries; and Michelle Foss Leonard, University of Florida. The group was charged with creating "recommended practices to improve performance and reduce costs of moving materials between a library that own an item and another library whose patron wants to use the item."[9] The

working group is a subunit of NISO's Discovery to Delivery Topic Committee[10] which voted to approve the working group and to accept the working group's final recommendations.

The process of creating the recommended practices was complex which is not surprising given the difficulties inherent in library delivery. The working group struggled to find common ground between a variety of different types and sizes of delivery units. Delivery services considered by the working group included:

- Small, medium, or large public library branch systems
- Large public library systems that have expanded delivery to other nearby library systems
- Small, medium, and large academic libraries consortia
- Small regional consortia system
- Large statewide delivery consortia
- Multi-state delivery consortia

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- Separately administered delivery systems that connect at a state border

The working group communicated by phone calls, about one call about every two weeks. Documents were posted on the NISO working group site and email was used to discuss ideas between meetings. Most of the working group members were familiar with ALA committee work, and quickly discovered that NISO has its own operating procedures. Fortunately, the NISO staff was available to guide the process. The recommendations took longer than anticipated, being completed in about a year and a half.

Guiding Principles

After much debate, the working group settled on a handful of principles that helped to shape the recommended practices. Among those principles:

- *Choose the easiest, quickest, and least resource-intensive options*. When given multiple options for completing a task, we recommended the option that simplified the process and took the least amount of time and materials. This principle produced some disagreements. For instance, a number of delivery systems require that paper bands be taped around items to be shipped. These delivery systems have been using the paper banding for years and are happy with it. However, paper banding is labor and materials intensive and received a lower recommendation than an option like simply placing a small shipping slip into the item.
- *Go Green*. Whenever possible, we looked at methods that took the least amount of resources, used recycled materials, or allowed for the reuse of shipping materials. For information, we were indebted to the work done by Don Massie from OCLC who spoke to the working group about his research on "Greening Interlibrary Loan Practices"[11].
- *Respect local circumstances:* There are significant differences between delivering 10 million items to 40 branches and delivering specialized, archival materials among research institutions. There are also substantial differences between delivering in the

United States and abroad. Throughout the recommendations, we attempted to honor unique circumstances that exist at the local level. An example was the use of sticky labels. While using stick notes works well for a few delivery systems, it was unacceptable to some working group members and public reviewers. The Preservation Standards and Practices Committee (ALCTS-PARS) expressed concerns over sticky labels. The dissenters argued that the use of sticky labels violated several preservation and interlibrary codes.

Using an approach based on principles helped keep the process moving forward. One working group member, Franca Rosen said, "Overall, I am surprised at how well the entire process worked. We managed to get an incredible document together without having to meet face to face… What really surprised me was how well we were all able to work together and bring together our different experiences. I believe this group did an incredible job of ensuring we had a document that would work in any type of library: public, academic or special." Another member, Chaichin Chen, summed up the working group's experience as follows: "Considering the magnitude of the subject, we have accomplished an unbelievable task… The process was hard and at times very tiring. We persevered. We were creative, too."

Community reactions to the recommended practices were mostly positive. Most comments were requests for clarification on technical aspects of the document such as 'hold queue clustering' or how SIP2 works with automated sorting. In a press release, Todd Carpenter, NISO Managing Director said, "Libraries today are looking to resource sharing as one way to meet their reduced budgets. These recommendations will further help libraries to participate in resource sharing using the most cost-effective methods for delivering the shared materials." The authors believe the final document will have great value to the library delivery community.

Photos courtesy of Valerie Horton and Diana Sachs-Silveira, 2010.

The Recommended Practices

The recommended practices are divided into five major sections: introduction, management, automation, the physical move, and the future. The introduction deals with the purpose, process, scope, and includes a glossary. The management section includes recommendations on governance, statistics, contracting, policies, and coordination with other delivery services. The management section also covers international delivery and direct delivery to patrons.

The most controversial area in the management section was the "Reduction of Physical Delivery." Several commenters wondered why the section was included. The working group felt

that, given the costs and wear on materials, it is always wise to look for ways of reducing delivery. We encourage the use of floating collections. The document defines a floating collection as "a single, unifed collection that moves freely between branches and where items are shelved in the library where they are returned, regardless of where they orginated."[12] Also recommended is the use of "destination bins" where items are pre-sorted to go to a specific library thereby removing the need for centralized sorting for those items.
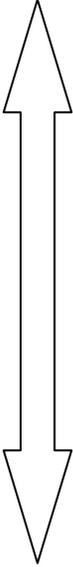
Order of Pref-erence	Label	Product Examples	Direct Cost per Unit	Workflow Impact	Environ-mental Im-pact
Most recom-mended	Label sticking out of the top of the item	Any paper	Low	Low	Low
	Label sticking out the top of the item	Thermal paper	Medium	Low-Medium	High
	Rubber banded	Any heavi-er/wider rubber band: size 64 (3 1/2″ x 1/4″) or 117B (7″ x 1/8″)	Low	Low	Low
	Paper banded	Any paper; regu-lar adhesive tape	Low	High	Medium^A
	Sticky notes	3M brand Post-It® notes 1.5″ x 2.5″	Low	Low	High^B
Least recom-mended	Adhesive re-movable labels	Avery 5164 (4″ x 3.3″) or simi-lar generic label	Medium	Low	High

Table 1: Methods for Affixing Labels

^A Medium Rank if Adhesive is removed

^B http://www.calrecycle.ca.gov/ReduceWaste/Business/officepaper/PSAFacts.htm

The "Automation" section details the use of automated materials handling as discussed in the previous section of this article. The section entitled "The Physical Move" is the lengthiest section and includes details on the actual movement of items. The physical move section deals with issues like what should be on a shipping label, how items should be packaged, what type of bins or totes to use, ergonomic considerations, transportation issues, tracking items, RFID, and reports. This section includes pictures to illustrate different labeling or packaging recommendations. The photos below show different options for transporting items, and the recommendations include the pros and cons of each method.

Some sections include tables of information that go from 'most recommended' to 'least recommended' option as illustrated in the following table. These tables reflect the wide number of options used around the world.

The final section in the document reinforced our philosophy of "less is always better" and encourages readers to join one of the professional organizations related to delivery either through the American Library Association, Rethinking Resources Sharing, or by following the Moving Mountain blog or joining its email list[13]. Finally, a bibliography was included.

Looking Ahead: Physical vs. Electronic Delivery

Library delivery managers have been observing the expansion of electronic content in libraries since the 1990s. Electronic delivery is already predominant in academic and medical libraries for journal articles. This electronic media growth began with online indexes and now includes many online sources. Recently, use and popularity of downloadable ebooks and audiobooks have skyrocketed. Commercial services for streaming music and video raise the likelihood of that physical medium will be replaced by these formats. The question isn't if delivery will become electronic, but rather when the use of e-content will begin to erode the growth of physical delivery. Libraries are already beginning to shift collection development funds to e-content. As patron use patterns are shifting as well, it is likely that the volume of materials requiring physical delivery will eventually decline.

With regard to physical materials, the question needs to be asked, "have we already reached peak volume of physical delivery? A national survey by Hoffert in *Library Journal* found growth of library circulation in 2011 to be "a meager 0.1 percent."[14] The 2010 survey found a 2.2% growth while 2009 was the peak of growth at 7%. Hoffert attributes this shrinking growth to "tight money and the rise of the ebook." Circulation is declining, but the question remains will circulation rates raise once more when funding is restored and library use normalizes after the peak that followed the current international financial crisis?

During a 2012 conference call including more than a dozen library delivery managers from all over the United States, an informal poll on delivery usage found that two services were growing as both had recently expanded or introduced patron-placed holds. Most delivery services were holding even, and a few were seeing slight declines. The authors believe we are likely at the beginning of a tipping point, and we expect to see a decline in physical delivery in the years ahead. However, we believe that it will be a long, slow decline with delivery remaining a

crucial part of libraries services for many years to come.

NISO, the National Information Standards Organization, a non-profit association accredited by the American National Standards Institute (ANSI), identifies, develops, maintains, and publishes technical standards to manage information in our changing and ever-more digital environment. NISO standards apply both traditional and new technologies to the full range of information-related needs, including retrieval, re-purposing, storage, metadata, and preservation.

NISO Mission Statement: NISO fosters the development and maintenance of standards that facilitate the creation, persistent management, and effective interchange of information so that it can be trusted for use in research and learning.[15]

Endnotes

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[1] Moving Mountains Project: Physical Delivery of Library Materials. Bibliography and Studies. http://www.clicweb.org/colleagues-and-connections/moving-mountains/161-moving-mountains-bibliography

[2] American Library Association, Association of Specialized and Cooperative Library Agencies (ASCLA's) Physical Delivery Interest Group http://connect.ala.org/node/64023 , Rethinking Resource Sharing Delivery Committee http://rethinkingresourcesharing.org/delivery.html and Moving Mountains Project http://movingmountainsproject.wordpress.com

[3] Valerie Horton and Bruce Smith, *Moving Materials: Physical Delivery in Libraries* (Chicago: American Library Association, 2010) 13-15.

[4] Legislative Agenda, FY2013, Commonwealth of Massachusetts, Board of Library Commissioners: http://mblc.state.ma.us/mblc/publications/agenda2013.pdf.

[5] Elaine Sanchez, *Higher Education Interlibrary Loan Management Benchmarks* (New York, Primary Research Group, 2009).

[6] Moving Mountain blog discussion, posted July and August 2010. http://movingmountainsproject.wordpress.com

[7] Future of Illinois Library Cooperation: Exploring Effective, Efficient Service Models prepared by the Illinois Library Association, 2012: http://ila.org/aboutila/the-future-of-illinois-library-cooperation.html

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