# Assessing ILL/DD Services: New Cost-Effective Alternatives

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**by Mary E. Jackson**

With
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## FOREWORD

## IMPROVING THE COST EFFECTIVENESS OF LIBRARY SERVICES: ILL/DD

How does a library manager begin to make an assessment of how well their interlibrary loan department is performing? These are complex operations and library directors look to their managers and team leaders to run operations that efficiently and effectively process a large—and steadily increasing—number of requests.

To illustrate, in the last year, on average, a research library needed to manage over 33,000 lending and 22,000 borrowing requests. The demand for each of these services has increased an average of approximately 5 percent a year over the past 18 years.

The book in hand represents the latest in a series of research studies undertaken by the Association of Research Libraries (ARL) about the performance of interlibrary loan and document delivery services. It is exemplary of how data can be collected and presented in a way that can be used by libraries to improve the cost effectiveness of their services.

The data presented, collected across 72 different libraries, provide all libraries with the ability to compare their local interlibrary loan and document delivery (ILL/DD) performance with the benchmarks of the best performers reported here, and to ask the questions: how well do we compare? How can we improve?

There is general agreement that the 1996 ARL ILL/DD Performance Measures study resulted in significant improvements in the operations of interlibrary loan departments. Based on that experience, in 2002, members of the ARL Statistics and Measurement Committee encouraged this study as a follow up to see whether departments had become more efficient and whether costs had been reduced or further contained. This new study updates and expands the 1996 study and, importantly, adds a component measuring user-initiated (unmediated) interlibrary loan and document delivery.

Mary E. Jackson is recognized worldwide as an expert in the study of ILL/DD processes and performance. Her colleagues in this collaboration, Bruce Kingma and Tom Delaney, bring additional expertise in research methodologies and in ILL/DD research and operations. The three of them together form a strong team in assuring quality in the design, conduct, and analysis of the results.

We want to acknowledge that this research project was made possible through the enthusiasm and the financial support of the participating libraries. The staff in participating libraries who collected the data are owed a special thanks. Participants have benefited from institution-specific and, in some cases, consortial reports that were prepared. However, all libraries, if they participated or not, may find benefit from the aggregated data presented in this report.

This publication represents the last step in this specific research project; however the real work is just beginning. As the reader will see, while the study documents continuing improvement in interlibrary loan operations, it also shows there are opportunities for more improvement in mediated ILL/DD services and a compelling case for the implementation of user-initiated (unmediated) ILL/DD. ARL is publishing this study to encourage and show the way to achieving greater efficiencies in ILL/DD operations. After all, the benefits of improved ILL/DD services in libraries accrue to all of our library users.

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University of Arizona
Chair, ARL Statistics & Measurement Committee, 1999-2002

Brinley Franklin
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Chair, ARL Statistics & Measurement Committee, 2003-2004

April 2004

## ACKNOWLEDGEMENTS

The success of this study is a result of the combined efforts and cooperation of many individuals. The Association of Research Libraries continues to promote tools, policies, and programs to ensure enduring, cost-effective, and integrated access to research materials. The Assessing ILL/DD Services study is one strategy that permits libraries to understand the economics of interlibrary loan (ILL) and document delivery (DD) services.

Through its Statistics and Measurement Committee, ARL launched the New Measures Initiative to describe and assess the performance of research libraries and to develop new approaches and models for measuring and improving library service effectiveness. Carla Stoffle, University of Arizona, then-Chair of the Statistics and Measurement Committee, and Brinley Franklin, University of Connecticut, current Chair, were instrumental in including this study as one of the New Measures projects. I thank Carla, Brinley, and current and former members of the committee for their encouragement and support.

The 72 participant libraries self-funded the study, and without their financial support, the work would not have been possible. The study team is especially grateful to the senior administrators and interlibrary loan and document deliver managers who served as project contacts in each of the institutions. Without their energy, cooperation, focus, and significant amount of time spent collecting data, reviewing draft reports, and responding to questions from the study team, this effort would not have succeeded. The study asked ILL managers to collect data during one of the busiest times for interlibrary loan operations during the academic year and they met or exceeded the deadlines in virtually all instances (a characteristic to be expected from ILL managers). We are particularly grateful to the six libraries that tested and commented on the revised instruments.

A special word of gratitude is extended to the high-performers who agreed to have their institutions identified. As with the 1996 ILL/DD Performance Measures study, we expect to find other libraries eager to replicate the workflow, staffing, and performance of this small group of libraries.

Dr. Bruce Kingma, Associate Dean of the Syracuse University School of Information Studies, and Tom Delaney, Head of Interlibrary Loan/Document Delivery, Columbia University Libraries, served as valuable collaborators in this undertaking.

Two individuals at Syracuse University deserve acknowledgement: Stacey Keefe, who was instrumental in preparing the individual reports, and Michael Fudge, who was responsible for much of the database work.

I would also like to thank Collette Mak, OCLC, for sharing unpublished data on the use of the OCLC ILL system, and Lynn Chemlir, Washington State University, for providing a prepublication copy of her article on user-initiated ILL in the Cascade network. Their data provided additional background and context to this study.

At the Association of Research Libraries, several individuals are to be noted. Jaia Barrett, Deputy Director, provided invaluable insight, support, and encouragement throughout the entire process. Martha Kyrillidou and Mark Young provided unpublished LibQUAL+™data, and Kaylyn Hipps applied her eagle eyes to polish the text in this report.

I extend my heartfelt thanks to everyone who made this entire effort a success.

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April 2004

## EXECUTIVE SUMMARY

Assessing Interlibrary Loan (ILL) and Document Delivery (DD) Services is the third study undertaken by the Association of Research Libraries (ARL) to examine the performance and economics of interlibrary loan operations in libraries. Building on the 1992 ILL cost study jointly sponsored by ARL and the Research Libraries Group (RLG) and the 1996 ILL/DD Performance Measures Study, this study is based on a two-year investigation of the performance of ILL/DD operations in 72 research, academic, and governmental libraries, including 59 ARL member institutions. A number of libraries participated for the second or third time. For the 28 current participants that also participated in the 1992 and the 1996 studies and the 16 current participants that also participated in the 1996 study, this study provides new data for evaluating the cost- and service-effectiveness of changes in local services. Ten ARL members participated in the ILL study for the first time.

The purpose of the study is to collect and analyze current data on the performance of mediated and user-initiated (unmediated) ILL/DD services. The study also identifies and describes characteristics of low-cost, high-performing, mediated and user-initiated ILL/DD operations to assist ILL managers to improve their own operations.

New to this study is the collection and analysis of performance data on user-initiated services and local document delivery operations. User-initiated services are defined, for the purpose of this study, as requests that do not require ILL staff to handle or process them, but are received directly by a potential supplier. User-initiated services include: ILLINET Online, INN-Reach, Loansome Doc, RAPID, URSA, and user-initiated commercial document delivery suppliers. In addition, the study collected data from 24 libraries on the performance of local document delivery services, or providing materials owned by the user's library to that individual.

The data-gathering phase of this study, which ran from June 2002 to October 2003, collected 2002 baseline data on mediated ILL/DD services and seven user-initiated services. The 72 participants funded this study.

This effort was one of the activities of the ARL New Measures Initiative. The initiative has developed new ways to describe and measure traditional and networked information, thus promoting the development and use of tools to manage libraries more effectively. This study is one component of the suite of New Measures activities and may serve as a tool to help libraries improve and streamline local operations.

The Assessing ILL/DD Services study examines indicators of mediated and user-initiated operations through the analysis of three performance measures:

*Direct costs:* Costs a library incurs to fill a borrowing or lending request.

*Fill rate:* Percentage of borrowing or lending requests successfully filled in a fiscal year.

*Turnaround time:* Number of calendar days to complete a borrowing request or fill and ship a lending request.

The study tracked borrowing and lending of returnables (e.g., books, microfilm) and nonreturnables (e.g., copies of journal articles). Cost data and fill rates were collected from the most recent fiscal year (FY 2002); a random sample of approximately 100 requests for mediated and from each of the user-initiated services in spring 2003 was used to calculate turnaround time and other characteristics of filled and unfilled borrowing and lending requests. Table A presents the key findings of the study and compares the performance of user-initiated and mediated services. Because of the variation of performance in user-initiated services, ranges are given, rather than a single average.

**Table A: Key Findings of the Assessing ILL/DD Services Study: Mean Performance**

| | Five User-Initiated ILL/DD Services* | Mediated ILL/DD |
|---|---|---|
| Borrowing Unit Cost | $2.39–$14.70 | $17.50 |
| Lending Unit Cost | $3.27–$12.06 | $9.27 |
| Combined Unit Cost | $6.16–$26.76 | $26.77 |
| Borrowing Fill Rate | 84%–90% | 86% |
| Lending Fill Rate | 82%–87% | 58% |
| Borrowing Turnaround Time | 2.5–6.6 calendar days | 7.6 calendar days |
| Lending Turnaround Time | 0.1–1.5 calendar days | 1.5 calendar days |
| Borrowing Transactions | 5,790–37,327 | 16,698 |
| Percent Returnables | 0%–100%** | 44% |
| Lending Transactions | 4,540–30,716 | 41,088 |
| Percent Returnables | 0%–100%** | 45% |

* Includes ILLINET Online, INN-Reach, RAPID, URSA, and user-initiated commercial document delivery (CDD). Loansome Doc is excluded from summary data because only three libraries submitted data. Local document delivery is also excluded from this summary because of the different nature of the service. The number of libraries submitting data for each service varies.

** ILLINET Online, INN-Reach, and URSA handle returnable requests, while RAPID and user-initiated CDD are designed to handle nonreturnable requests.

## User-Initiated Services

**This study confirms that user-initiated ILL/DD provides better service to users than mediated ILL/DD. In most cases, user-initiated services have lower unit costs, higher fill rates, and faster turnaround times than mediated services.** Given the low number of participants submitting data and the system-specific features of the user-initiated services, the study does not identify characteristics of high-performing user-initiated operations but it does confirm that using any one of the user-initiated services improves service to users. **This study recommends moving as much mediated ILL traffic as possible to a user-initiated service, and as soon as possible.** While the results are informative for decision making, results based on such a small sample size of user-initiated services should be viewed with some caution. Other libraries not represented in this study using one of the user-initiated services included in this analysis may have significantly different results. Because of the small sample, no correlations were run on the user-initiated services.

**Staff costs are the major portion of the unit cost for user-initiated transactions. However, one of the reasons user-initiated services have lower unit costs is the amount and type of staff deployed in these services.** Staff salaries for ILLINET Online, INN-Reach, RAPID, and URSA average $5.36 per request, compared with $10.15 for mediated ILL, or 47 percent less than mediated ILL. **The type of staff also varies, with lower representation of each of the five staff categories in user-initiated systems.** For example, the support staff category is represented in 97 percent of mediated borrowing operations but only 74 percent of the user-initiated operations.

## Mediated ILL/DD Services

**Staff costs continue to represent the major portion of the unit cost for a mediated ILL/DD transaction.** Staff costs represent 58 percent of the borrowing unit cost, down from 65 percent in the 1996 study. Lending staff costs have remained more constant, accounting for 75 percent in the current study compared with 76 percent in 1996.

This study identifies characteristics of low-cost, high-performing mediated ILL operations. As defined by the study, a high-performing operation is a library that ranks among the top five libraries in one or more performance measures.

**For borrowing, Colorado State University is the only library that ranks in the top five in two of the three borrowing measures:** high fill rate and low unit cost. Thirteen other libraries rank in the top five for high fill rate, low unit cost, or fast turnaround time, for a total of fourteen high-performing borrowers.

The following borrowing and lending characteristics set the high-performers apart from all ARL participants.

Mediated **borrowing** departments with **very low unit costs:**

- use a different mix of staffing (FTE): 50 percent more support staff, and nearly 2.5 times the number of student FTE;
- employ seven percent fewer FTE;
- process 53 percent more requests per FTE;
- use OCLC to send 91 percent of their borrowing requests;
- use commercial document suppliers 50 percent less; and
- use reciprocal agreements 16 percent more.

Mediated **borrowing** departments with **very high fill rates**:

- use a different mix of staffing (FTE): nearly double the number of professional supervisors, approximately 40 percent fewer professional nonsupervisors, nearly triple the average number of support-staff supervisors, nearly double the number of support staff, and one-third fewer students;
- do not count requests for locally owned materials as either filled ILL requests or unfilled ILL requests;
- receive over 80 percent of user requests electronically;
- use the OCLC ILL system to send virtually all of their borrowing requests;
- use OCLC's custom holdings, ILL Fee Management, and First Search-Direct Request; and
- have a unit cost approximately one-quarter lower than the mean, even with employing approximately three more FTE than the mean.

**Turnaround time for mediated borrowing is the one measure that has shown the greatest improvement since 1996.** Books and other returnables are now ready for user pickup in 9.3 calendar days on average, compared with 16.9 calendar days in 1996. This is a 45 percent reduction in turnaround time. Photocopies of journal articles are now ready for pick up or are sent to users in 6.1 calendar days, down from 14.9 calendar days in 1996, or a 59 percent reduction in turnaround time. The area of greatest improvement is in the amount of time it takes the borrowing library to send the request to the first potential lender. In 1996, it took four days; in 2002, it took just less than one day. This dramatic reduction in the first three steps of the ILL process may be a direct result of changes in how users submit requests: via electronic rather than paper forms.

Mediated **borrowing** departments with **very fast turnaround times:**

- send ILL requests to potential lenders in less than a half day after requests are submitted by users;
- have 91 percent of their requests filled by the first lender;
- use Ariel to receive articles and other nonreturnables and commercial courier services to receive books and other returnables; and
- post articles on secure Web sites as the preferred "delivery" method to local users.

**One library ranks in the top five for all three lending measures: the University of Minnesota. Two libraries rank in the top five for low unit costs and high fill rates: the University of Alberta and the University of Illinois at Chicago Health Sciences Library.** Seven additional libraries rank in the top five for one measure, for a total of ten high-performing lenders.

Like borrowing, the characteristics of high-performing lenders are distinctive. Mediated **lending** departments with **very low unit costs:**

- fill over three times the number of requests;
- have one-half the support-staff supervisors, nearly one-half the professional supervisors, and double the number of student FTE;

- charge to fill loan and copy requests, and fill 20 percent fewer requests via reciprocal agreements; and
- handle 70 percent more requests per FTE.

Mediated **lending** departments with **very high fill rates**:

- fill over four times more requests;
- process two times the number of requests per FTE;
- process three copy requests for each loan request;
- use nearly 50 percent fewer supervisory staff (professional and nonprofessional), and nearly double the number of students; and
- receive only one-third of their lending requests via OCLC.

Mediated **lending** departments with **very fast turnaround times**:

- do not use a professional nonsupervisor in their operations;
- employ twice as many supervisors (professional and nonprofessional), use 15 percent fewer support staff, and use 2.5 times the number of students; and
- receive and fill nearly 20 percent more photocopy requests.

Eight correlations are statistically significant, two related to mediated borrowing activities and six related to mediated lending activities:

1) As the number of borrowing staff increases, the number of filled transactions increases.
2) As the number of borrowing requests increases, the borrowing unit cost decreases.
3) As the lending fill rate increases, the lending unit cost decreases.
4) As the number of lending staff increases, the lending fill rate increases.
5) As the number of lending staff increases, the number of filled lending transactions increases.
6) For two libraries filling the same number of lending requests, the one with the greater percentage of photocopy requests will have the lower unit cost.
7) For two libraries filling the same number of lending requests, the one with the greater percentage of photocopy requests will have the higher fill rate.
8) As the number of lending transactions increases, the lending fill rate increases.

## Weighted Performance

Approximately two-thirds of the participants submitted data for one or more user-initiated services. To identify best practices for the combination of services used by the participants, averages for each measure were aggregated to produce a single measure of weighted performance. Specifically, the study calculated the weighted unit cost, weighted fill rate, and weighted turnaround time for all participants. Weighted averages for unit cost, fill rate, and turnaround time were calculated for all participants by dividing a participant's total costs, total transactions, and total turnaround time by the total number of filled transactions. **The five participants with the lowest weighted borrowing unit costs rely on user-initiated systems rather than mediated ILL for two-thirds of their borrowing.**

The study examined the five libraries with the highest weighted fill rates, lowest weighted unit costs, and fastest weighted turnaround times. **For borrowing, Ohio State University had a low weighted unit cost and a high weighted fill rate. For lending, the University of Alberta had a high weighted fill rate and a low weighted unit cost, and the University of Minnesota had a fast weighted turnaround time and a high weighted fill rate.**

This study reports new and extensive data on the performance of user-initiated services and relates those findings with current and extensive data on mediated ILL/DD operations in North American libraries. These findings will provide fresh incentives for ILL managers and library administrators to improve both mediated and user-initiated ILL/DD services.

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# CHAPTER 1

## INTRODUCTION

## 1.1 Introduction and Background

Assessing ILL/DD Services is the third study of the economics and performance of interlibrary loan (ILL) operations undertaken by the Association of Research Libraries (ARL). These three ILL/DD studies undertaken by ARL over the past decade build on the Association's long-standing interest in measuring the effectiveness of ILL operations in research libraries, beginning as early as 1971 when ARL sponsored a national study of the costs of interlibrary loan operations.[1] ARL is a not-for-profit membership organization comprised of the largest research libraries in the United States and Canada.

ARL continues to promote enduring, cost-effective, and integrated access to research materials. This focus comes in part from the continued growth of demand for ILL borrowing and lending in ARL member institutions; this growth shows few signs of moderating or decreasing. In 2001–02, ARL members filled nearly 3 million ILL requests for local users and nearly 5.5 million requests from other libraries.[2] This study is the latest effort to identify and promote strategies that will help libraries handle this continuing demand in a cost-effective and timely manner.

In 1992, ARL and the Research Libraries Group (RLG) collaborated to collect detailed information on 1991 costs incurred by research libraries for interlibrary loan (ILL) transactions. Findings from that study indicated that a research library spent an average of $18.62 to borrow a document or receive a photocopy, and $10.93 to lend a document or supply a photocopy to another library.[3]

In 1995, ARL received a grant from The Andrew W. Mellon Foundation to study the performance of ILL/DD operations in research and college libraries. The ILL/DD Performance Measures Study built on the 1992 study and provided 1996 baseline data to enable librarians to identify and understand local performance of mediated ILL/DD operations and to compare the performance of their operations to other participants' operations. The study tracked borrowing and lending unit costs, borrowing and lending fill rates, borrowing turnaround time, and borrowing user satisfaction for 97 research and 22 college libraries.[4]

Findings from the latter study indicated that research libraries spent an average of $18.35 on a borrowing transaction, $9.48 on a lending transaction, took an average 15.6 calendar days to receive a borrowing request, and reported fill rates of 85 percent and 58 percent for borrowing and lending respectively. College library performance was better overall: $12.08 borrowing unit cost, $7.25 unit lending cost, borrowing turnaround time of 10.8 days, and 91 percent and 65 percent fill rates for borrowing and lending.

The findings were widely distributed through a publication, in 12 ARL-sponsored workshops, and more than a dozen other workshops, speeches, and publications.[5] Libraries of all types and sizes have adopted many of the characteristics of high-performing borrowing and lending operations identified in the 1996 study. The current study tracks the effect of those changes for the 44 libraries that participated in the 1996 study as well as provides new

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[1] Vernon Palmour, et. al., *A Study of the Characteristics, Costs, and Magnitude of Interlibrary Loan in Academic Libraries*, prepared for the Association of Research Libraries by Westat Research, Inc. (Westport, CT: Greenwood Publishing, 1972).

[2] Martha Kyrillidou and Mark Young, *ARL Statistics, 2001–2002* (Washington, DC, Association of Research Libraries, 2003): 47.

[3] Marilyn M. Roche, *ARL/RLG Interlibrary Loan Cost Study: A Joint Effort by the Association of Research Libraries and the Research Libraries Group* (Washington, DC: Association of Research Libraries, 1993).

[4] Mary E. Jackson, *Measuring the Performance of Interlibrary Loan Operations in North American Research & College Libraries* (Washington, DC: Association of Research Libraries, 1998).

[5] Mary E. Jackson, "A Spotlight on High-Performing ILL/DD Operations in Research Libraries," *ARL: A Bimonthly Report on Research Library Issues and Actions from ARL, CNI, and SPARC* #198 (June 1998): 6–8, <http://www.arl.org/newsltr/198/illdd.html>; Mary E. Jackson, "Measuring Performance, Applying Results, Improving Service," *InCite* 22 (September 2001), <http://alia.org.au/publishing/incite/2001/09/performance.html>.

baseline data for the 10 first-time participants.

The methodology developed for the 1996 study was modified and used by Australia's National Resource Sharing Working Group with the assistance of the National Library of Australia. A consortium of Nordic academic libraries also adapted and used the methodology. The results from both foreign studies confirmed the adaptability and reliability of the instrument. The Australian study included 90 national/state, university, special, and public libraries and the Nordic study included approximately 50 academic libraries.[6]

This new study defines *interlibrary loan/document delivery* as the library process of obtaining or supplying books, microfilm, and other materials the lending library expects to have returned, or the library process of obtaining or supplying copies of journal articles and other excerpts the library does not expect to have returned. This report uses *ILL* and *ILL/DD* interchangeably. For this study, *local document delivery* is used to describe the library process of supplying books or copies to local users, and *commercial document delivery* as the user-initiated service that permits users to order copies of journal articles directly from commercial suppliers. The study tracks both borrowing and lending of books (returnables) and journal articles (nonreturnables).

The study identifies attributes of high-performing ILL/DD departments in ARL libraries against which other research and academic libraries can compare their local performance. Because analysis of the findings confirms significant differences in ARL and non-ARL member participants, this report presents aggregate data for the 59 ARL member participants only. The non-ARL member participants received copies of their Individual Institutional Reports that compared their performance with the other 13 non-ARL member participants. Even within ARL institutions, ILL departments vary by the type and number of staff used, the range of user-initiated services offered, the type and quantity of requests processed, and the adoption and use of technology in the ILL operation. Therefore, the performance ranges presented in this report may be more meaningful as a local comparison tool than the means or medians.

It is worth repeating the cautionary note from the report of the 1996 study. The findings presented in this report should not be used as measures of library quality. Institutional and local goals and characteristics shape how ILL/DD services are provided. However, the findings in this report may be considered indicators of the range of performance of ILL/DD departments in North American research and academic libraries.

## 1.2 Current Project Objectives

Sponsored by the Association of Research Libraries, the Assessing ILL/DD Services Study obtained current data on the performance of mediated and user-initiated ILL/DD operations in 72 research, academic, and special libraries in the United States and Canada. The study is part of the ARL New Measures Initiative.

The objective is to update, replicate, and expand the 1996 ARL ILL/DD Performance Measures Study. In addition, the study seeks to identify characteristics of high-performing mediated and user-initiated ILL operations.

## 1.3 Methodology

In June 2002 ARL extended an invitation to participate in the new study and approximately 75 libraries expressed interest.

The current study adapted the methodology and worksheets used in the 1996 ARL ILL/DD Performance Measures Study. The General Characteristics Questionnaire (see Appendix F) and the Cost Worksheets (see Appendix G) were revised slightly to capture current data on mediated ILL/DD services and a small number of questions were deleted. The questionnaire and cost worksheets were then adapted to capture

[6] National Resource Sharing Working Group, *Interlibrary Loan and Document Delivery Benchmarking Study* (Canberra: National Library of Australia, 2001): 10, <http://www.nla.gov.au/initiatives/nrswg/illdd_rpt_sum.html>.

data for each of the user-initiated services included in the study.

A number of user-initiated services were considered for inclusion in the study. The ones selected were chosen because they have minimal staff involvement in either the borrowing or lending side of the operation, may run parallel to the traditional mediated ILL process, and offer a circulation-like process.

The study excluded services that are user-enhanced in one or more steps of the borrowing process but require some borrowing staff involvement in other aspects of the process. The study specifically excluded OCLC's DirectRequest as one of the user-initiated services. DirectRequest permits users to search OCLC's World Cat and generate ILL borrowing requests, which, depending on the library's preference may be sent directly to lenders without borrowing staff mediation. Although such borrowing requests are user-generated, it was impossible to determine what percentage was sent to the first potential lender without any borrowing staff mediation. In addition, these requests arrive at a lending library mixed with mediated lending requests and are processed identical to mediated lending. Likewise, when the requested item arrives, borrowing staff still handle the item the same as a mediated transaction.

Other systems and services, such as Innovative Interface Inc.'s ILL module within its INNOPAC system, that transfer users' requests into the OCLC ILL system for review (using a process similar to DirectRequest) were excluded from the study's examination of user-initiated services for similar reasons. **The impact of these "user-enhanced" services on the performance of mediated ILL services is an area for future research and may be a contributing factor to the improvement in mediated ILL service.**

The following user-initiated systems were selected: ILLINET Online, INN-Reach, Loansome Doc, RAPID, URSA, and user-initiated use of commercial document delivery suppliers. In addition, the study collected data on the performance of local document delivery services in 24 ARL and non-ARL libraries.

Six libraries that offered one or more of the user-initiated services were invited to test both revised instruments in fall 2002. The University of California, Berkeley; Colorado State University; Michigan State University; University of Missouri; Ohio State University; and Yale University were selected as representatives of the different user-initiated services included in the study.

The mediated and user-initiated instruments were modified slightly based on testing by the six pilot libraries. Examples of changes include: a change in depreciation from a study-defined four years to a locally defined period, elimination of the volunteer staff category, and elimination of questions about changes made to ILL procedures since the 1996 study. An electronic mailing list was established for the participants, thus facilitating communication and providing a timely way to respond to questions from the participants.

In fall 2002, all participants were invited to submit data for mediated ILL services and for any of the user-initiated services included in the study. The study team asked participants to submit data for the July 2001 to June 2002 fiscal year, or the participant's most recent fiscal year. Each participant received a copy of the General Instructions (see Appendix E) customized Microsoft Excel-based General Characteristics Questionnaire (see Appendices F and H), a set of Excel Cost Worksheets (see Appendices G and I) for each service they indicated they would be tracking, and turnaround time worksheets and summary sheets (see Appendix J). The study team sent the documents to the participants via email rather than mailing paper forms and diskettes like the 1996 study. Seventy-two participants (59 ARL members and 13 non-ARL members) submitted complete data by the May 2003 deadline. Data were analyzed and draft "Individual Institutional Analysis" reports were generated for each participant in late July 2003. Participants reviewed the draft summaries and the dean or director signed a form indicating whether any revisions were required, and revisions were submitted as appropriate.

A final "Individual Institutional Analysis" report was sent to each participant in early fall 2003. This electronic report included summary data on the participant's mediated

ILL service, any user-initiated services, and aggregate data for all the ARL participants. The non-ARL participants received a report that included identical summaries, except that the average unit costs reported the 13 non-ARL participants. The "Individual Institutional Analysis" reports summarized the turnaround time performance of all 72 participants, but turnaround time for the ARL member participants was subsequently disaggregated for inclusion in this report.

Mary E. Jackson, ARL, served as Principal Investigator for the study. She was assisted by Bruce Kingma, consulting economist for the 1996 study and Associate Dean at Syracuse University School of Information Studies, and Tom Delaney, Head, Interlibrary Loan/Document Delivery, Columbia University Libraries.

## 1.4 The Three Measures: Summary and Definitions

This study uses three performance measures to evaluate mediated and user-initiated borrowing and lending services: direct cost, fill rate, and turnaround time. Unit costs and fill rates are calculated using fiscal year (FY) 2001–02 data reported on the General Characteristics Questionnaire. Turnaround time is calculated using a sample of borrowing and lending requests.

**Direct costs** include the same seven categories used in the 1996 study: staff, network/communication (shortened in this report to network), delivery, photocopy, supplies, equipment, and (for borrowing) borrowing fees. As with the two previous studies, the costs of general library functions, such as acquisitions, serials, or circulation, are not included, nor are costs of general library overhead such as heat and utilities. Collection development, acquisitions, and circulation are necessary preconditions for an ILL service and would be a cost to the library whether or not the library provided ILL services. Also excluded are central administrative or consortium costs, such as a state-run delivery service, and user costs, such as the users' time to print out articles or the cost of their printer, toner, or paper.

**Fill rate** is calculated using transaction data from the General Characteristics Questionnaire. Totals represent the percentage of requests successfully filled.

**Turnaround time** is calculated using a sample of approximately 100 borrowing and 100 lending requests for all applicable services. A total of 7,166 forms were submitted with sufficient data to calculate borrowing turnaround time for filled requests for mediated and user-initiated services. Turnaround time is still counted in calendar days for borrowing and lending. Although only one percent of articles were received the same day they were requested, over half (57 percent) of the lending requests were filled the same day as they were received. **Any future study should track turnaround time in hours as well as calendar days.**

Borrowing turnaround time is calculated using the following elements:

A. Date on user form or date request was submitted electronically
B. Date accepted at service point
C. Date processed by ILL staff
D. Date sent to first supplier
E. Date material received
F. Date user notified
G. For unfilled requests, the date the request was determined to be unfilled.

Lending turnaround time uses the following elements:

A. Date request was received
B. Date request was filled (or not)
C. Date item sent to mailroom for shipment
D. Date shipped or sent electronically
E. Date online request was updated

Turnaround time is the elapsed time from the date of the initial request to the date the specific step was completed. The mean borrowing turnaround time is calculated from the date on the form to the date the user was notified (or the item was shipped to the user). The mean lending turnaround time is calculated from the date the request was received at the supplying library to the date the item was shipped.

As with the last study, participants were asked to report annual transaction totals based on the previous fiscal year. The turnaround time, and sampling of costs, if

done, tracked current fiscal year transactions. A few participants reported that during the previous year they had significantly changed staffing or added electronic delivery. As a result, the turnaround time recorded for those participants might be significantly faster than the turnaround time in the fiscal year in which the totals and fill rates were reported. **Any future study should explore the feasibility of tracking turnaround time in the spring and having participants submit data for the fiscal year ending in June so that the turnaround time data and lending volume and fill rates come from the same fiscal year.**

This study did not collect data on user satisfaction because the 1996 study results suggested that ILL users were extremely satisfied with very average ILL service. ARL's LibQUAL+™ program measures user perceptions of, and satisfaction with, library services. One question relating to interlibrary loan was included in the 2002 version of the LibQUAL+™ survey instrument. Examination of data from the 24 participants that participated in the 2002 LibQUAL+™ study and this study is included in section 3.5.17.

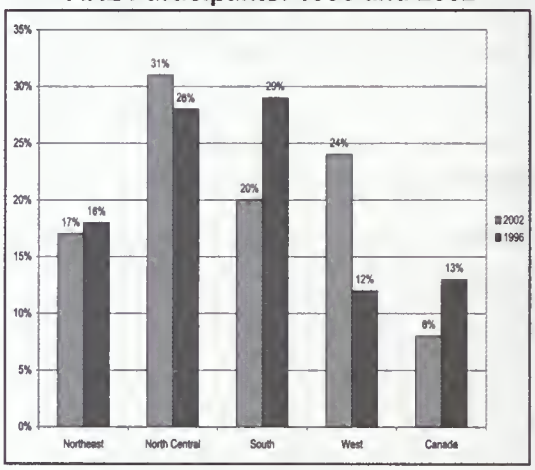
## 1.5 The Participants

The 72 participants (see Appendix A) include 59 ARL member institutions and 13 non-ARL participants. The participants represent all geographic regions of the U.S. and Canada and reported a range of collection sizes. Five of the participants are branch or departmental libraries, and five Canadian libraries reported data. The 13 non-ARL participants represent a range of university, college, and governmental libraries.

For the 28 ARL libraries that participated in the 1992, 1996, and 2002 studies, the 16 ARL libraries that participated in the 1996 and 2002 studies, and the 5 ARL libraries that participated in the 1992 and 2002 studies, this investigation provides new data that can be used to evaluate the cost- and service-effectiveness of changes in mediated ILL services. Ten ARL member institutions participated in the study for the first time.

Most (54) of the 59 ARL participants submitted data from a central ILL department that provides borrowing and lending services for multiple branch or departmental libraries across a university or institution; the other five were branch or departmental libraries. One-quarter (15) of the 59 ARL participants are private institutions; 44 are public institutions. Two ARL participants are non-university, government libraries that provide ILL/DD services for a broad range of users. Figure 1 compares the geographic distribution of the ARL participants between the current study and the 1996 study.

**Figure 1: Geographic Distribution of the ARL Participants: 1996 and 2002**




## 1.6 Overview of the Report

Like the 1996 study, the findings of the 59 ARL member participants and the 13 non-ARL member participants are calculated separately. Unlike the 1996 study, the averages for mediated ILL/DD for the non-ARL participants are not included in this report as the characteristics of those ILL departments makes comparison misleading. However, the non-ARL participants are included in summary data on the user-initiated services if they reported data.

Data are presented using the mean, or average, to facilitate comparison with the two previous studies. To provide for confidentiality of the institutions as well as to remove any possible distortion provided by extreme values, data on libraries in the highest (90–100$^{th}$ percentile) and lowest (0–10$^{th}$ percentile) performance ranges are excluded from all figures and tables in this

report. Thus, all charts, tables, and diagrams present findings for the middle 80 percent of the ARL participants. The mean and median values reported are calculated using data from all ARL participants, and in the case of several of the user-initiated services, all ARL and non-ARL participants that reported data. In this report, the terms *on average, average,* and *mean* are used interchangeably.

In a number of tables, the sum of costs at the 10th percentile for each category will not equal the Total Unit Cost at the 10th percentile. This is because different participants reported data for each category and different participants may fall at the 10th percentile for each of the categories, while the Total Unit Cost represents a single institution whose Total Unit Cost falls at the 10th percentile. For example, participant A falls at the 10th percentile for staff costs and participant B has network unit costs at the 10th percentile. Participant C, with unit costs falling at various levels in each of the categories, could have an overall Total Unit Cost at the 10th percentile. Thus, Total Unit Cost reflects the sum of an institution's individual costs, not a composite of the costs at the 10th percentile incurred by participants A, B, and C. This caveat applies to the mean, median, and the 90th percentiles as well.

All costs included in this report are presented in U.S. dollars. The conversion rate used for this study was the same as used for the *ARL Statistics 2001-2002*, that is, 1.56878 Canadian dollars to 1 U.S. dollar.[7]

All 59 ARL participants submitted data on their mediated lending operations, and 58 of the 59 submitted data on their mediated borrowing operations. Thus, the aggregate data reflect these slightly different groups. Most of the participants submitted a sample of their borrowing and lending requests from which turnaround time is calculated. The phrase, *sample requests,* refers to the sample of approximately 100 requests.

After this introductory chapter, Chapter 2 summarizes the performance and characteristics of each of the seven studied user-initiated services. The services are organized by type of request. ILLINET Online, INN-Reach, and URSA handle returnables. User-initiated commercial document delivery, Loansome Doc, and RAPID handle primarily photocopy, non-returnable requests. Local document delivery services follows. Section 2.9 compares the performance of several of these user-initiated services.

Chapter 3 provides a general overview of the performance of mediated ILL/DD operations in the 59 ARL participants. This chapter includes sections on direct costs, fill rates, turnaround times, and summarizes general characteristics of mediated ILL/DD operations.

Chapter 4 compares the performance of the 44 ARL libraries that participated in the 1996 and 2002 studies. Highlights of libraries that most improved and several other characteristics follow.

Chapter 5 summarizes the performance and characteristics of high-performing, mediated borrowing and lending operations in ARL libraries.

Chapter 6 presents a summary of the weighted averages, or the overall unit cost when all costs for all the reported services are divided by total filled transactions.

Chapter 7 discusses how to improve local operations. Chapter 8 completes this report with a concluding chapter, followed by Appendices that include a summary of the findings and the instruments used in the study.

References to relevant publications and studies are included throughout the report and in the selected bibliography (see Appendix L). The study did not undertake a comprehensive literature review.[8]

[7] *ARL Statistics 2001–2002*, p. 20.

[8] Extensive literature reviews may be found in: Joan Stein, "Measuring the Performance of ILL and Document Supply: 1988 to 1998," *Performance Measurement and Metrics* 2 (2001): 11–72 and Thomas E. Nisonger, "Assessing Information: The Evaluation Research," *Collection Management* 26, no. 1 (2001): 1–23.

# CHAPTER 2

## PERFORMANCE OF USER-INITIATED SERVICES

## 2.1 General Overview

**This study confirms that user-initiated ILL/DD provides better service than mediated ILL/DD. In most cases, user-initiated services have lower unit costs, higher fill rates, and faster turnaround times than mediated services.** Given the low number of participants submitting data and the system-specific features of each user-initiated service, the study does not identify characteristics of high-performing user-initiated operations. This study confirms that using any one of the user-initiated services studied improves service. **This study recommends moving as much mediated ILL traffic as possible to a user-initiated service, and as soon as possible.** While the results are informative for decision making, results based on such a small sample size should be viewed with some caution. Other libraries not represented in this study using one of the user-initiated services included in this analysis may have significantly different results. Because of the small sample, no correlations were run on the user-initiated services.

**One of the reasons user-initiated services have lower unit costs is the amount and type of staff deployed in these services.** Staff salaries for ILLINET Online, INN-Reach, RAPID, and URSA average $5.36 per request, compared with $10.15 for mediated ILL, or 47 percent less. **The type of staff also varies, with lower representation of each of the five staff categories in user-initiated services.** For example, the support staff category is represented in 97 percent of mediated borrowing operations but only 74 percent of the user-initiated services.

User-initiated services are defined, for the purpose of this study, as requests that do not require ILL staff to handle or process them, but are initiated by a library user and received directly by a potential supplier. User enhanced services such as OCLC's DirectRequest and Innovative Interfaces Inc's ILL module were not included in this analysis for reasons explained in the methodology section. (See Section 1.3.) User-initiated services studied include: ILLINET Online, INN-Reach, Loansome Doc, RAPID, URSA, and users ordering directly from commercial document delivery suppliers. In addition, the study collected data on the performance of local document delivery services in 24 libraries.

The performance and characteristics of each of the seven user-initiated services are described below. Common to these services is a strong user-orientation. The systems are self-service, permitting the user to be self-sufficient. They are intuitive, easy to use, and require little effort on the part of the user to identify and obtain an item. The systems provide fast delivery of materials because all use expedited courier or delivery services. Finally, the user has a clear indication that the item is available and should be sent by the owning library, as circulation information is available for the systems that handle returnables and detailed serial holdings information is available for the systems that process nonreturnable requests. Appendix K includes two charts that outline the typical steps of the borrowing and lending process. The charts compares mediated ILL/DD with user-initiated ILL/DD by noting whether the step is completed by users, library staff, ILL management software, the circulation system, or the user-initiated system.

Approximately two-thirds of the 72 library participants submitted data on at least one user-initiated service. A list of participants and the services for which they submitted data is included in Appendix A. The measures used in this section are the same as those used for mediated ILL, and thus the definitions included in general instructions for mediated ILL/DD services in Appendix E also apply.

In 1992, only two of the 79 ARL libraries surveyed for SPEC Kit 184, *Interlibrary Loan Trends: Making Access a Reality*, allowed users to initiate ILL requests to other institutions without first going through the local library.[9] Just a decade later, well over half of the 59 participants in the current study use software that either permits users to place a circulation hold on an item in a remote library or send ILL requests directly to a remote library without local staff intervention.

[9] *Interlibrary Loan Trends: Making Access a Reality*, SPEC Kit 184 (Washington, DC: Association of Research Libraries, May 1992).

This study does not examine how many requests can be "pushed through" a single system. However, given the structure of the various user-initiated systems, the study team speculates that all of the user-initiated systems can handle greater quantities than are currently directed to the systems.

The averages in this section include only the participants that submitted data for a given category. Not all participants submitted data for all categories because some use different configurations of staffing or because some categories were not applicable (such as photocopy costs, delivery, or borrowing fees). In addition, some participants did not incur the upfront costs to implement and/or maintain the system and software. No "zeros" were added for participants that did not submit a value for a category.

An example might help clarify why the sum of the borrowing and lending staff categories do not always equal the unit cost for that category. If five participants reported costs of $3,000, $2,555, $6,487, $8,000, and $6,943 for the professional nonsupervisor category in lending, the average lending unit cost for that category is $5,397 ($26,985/5). The alternative would be to assign a zero cost to the 54 ARL participants that did not report costs for that category. If that were done, than the staff unit cost for all 59 ARL participants would be $457 ($26,985/59). The study determined that the unit cost for each category would be more accurate if the number of participants reporting data was used to calculate the unit cost for that category.

The following sections detail the six user-initiated systems as well as local document delivery. The services supporting returnable requests are listed alphabetically and are reported first, followed by services processing nonreturnable requests. The local document delivery service is presented last.

## 2.2 User-Initiated Returnables: ILLINET Online

Two ARL participants reported data for the ILLINET Online service. The directors of both libraries, University of Illinois at Urbana-Champaign (UIUC) and Southern Illinois University (SIU), gave written permission for their institutions to be identified. Thus, this section reports on the averages of UIUC and SIU.

ILLINET Online is a service for returnables, based on a union catalog. Table 1 summarizes the mean total transactions, unit cost, fill rate, and turnaround time for borrowing and lending. Neither library reported the number of unfilled borrowing transactions, so the mean borrowing fill rate could not be calculated. Table 2 breaks down borrowing and lending unit costs into the cost components.

**Table 1: Performance of ILLINET Online (2 libraries)**

| Performance Measures | Mean Borrowing | Mean Lending |
|---|---|---|
| Number of Filled Transactions | 37,327 | 30,716 |
| Unit Cost | $2.39 | $3.93 |
| Fill Rate | NA | 82% |
| Turnaround Time (Returnables) | 4.7 days until user notified | 1.5 days until item shipped |

**Table 2: ILLINET Online Unit Cost by Cost Category (2 libraries)**

| Cost Category | Mean Borrowing | Mean Lending |
|---|---|---|
| Staff | $2.31 | $4.56 |
| Network | $0.03 | $0.01 |
| Delivery | $0.03 | $0.00 |
| Photocopy | $0.00 | $0.00 |
| Supply | $0.03 | $0.02 |
| Equipment | $0.03 | $0.03 |
| Borrower Fees | $0.00 | NA |

### 2.2.1 Characteristics of ILLINET Online Participants

In both libraries, two or more departments share responsibility for the service, and it is a parallel process to their mediated ILL service. Both libraries permit undergraduates, graduate students, faculty,

and staff to place requests via a union catalog. Requests may also be submitted via Web forms, in person, or on the phone.

Borrowing requests are sent directly to potential lenders. In one library the ILL department prints incoming lending requests and in the other printing is shared by two or more departments. In one library, ILL retrieves items, and in the other library two or more departments retrieve materials. Both ILL departments are responsible for shipping the items, via a state courier, to the main library or to the user's preferred campus library. Users pick up materials at the circulation desk of the main library or their preferred library. Neither library charges users for the service. The software used to run ILLINET Online is purchased and managed by the Illinois Library Computer Systems Organization (ILCSO) consortium.

Neither library pays any delivery charges as both use the courier system paid for by the state.

The sample requests did not include reasons requests were not filled or the language of the requested item, so no analysis was possible.

In a 1998 article, Bernie Sloan characterized resource sharing among 700+ member libraries participating in ILCSO, whose primary service is the ILLLINET Online union catalog.[10] His article addresses eight research questions and provides a good overview of the ILLINET Online environment.

## 2.3 User-Initiated Returnables: INN-Reach

INN-Reach is a direct consortial borrowing system developed by Innovative Interfaces, Inc.[11] INN-Reach enables a user to search the physical union catalog of the participating libraries, identify the needed item, and place a request. INN-Reach automatically selects a potential lender (using load balancing as desired) from the libraries that own the item. This process is comparable to placing a circulation hold on a locally owned item. The owning library prints off the call slip, retrieves the item, checks it out to the user's library, and ships the item to the user's library. INN-Reach notifies the user when the item is available for pickup, and the user then checks out the item as if it were an item from the home library. **Key to INN-Reach and other user-initiated services is the availability of item-level details, including the circulation status.** As a result, a library that owns the item but has it circulating to a user will not receive a request for the item. In addition, if the item is listed as not on shelf, INN-Reach routes the request to another potential lender. INN-Reach was first implemented by the OhioLINK consortium in the mid-1990s and is often referred to by Ohio libraries as "p-circ." The 1996 study included a chapter on the performance of ILL operations in OhioLINK libraries, and discussed the impact of including "p-circ" transactions on their mediated ILL transaction totals.[12]

As implemented in the nine ARL participants and two non-ARL participants, INN-Reach is used to request books and other returnables. The participants do not currently use INN-Reach to request photocopies. It is also important to note that the eleven libraries that reported data belong to at least six different consortia using the software, so the summary of characteristics of the service and related policies should not be interpreted to apply to all consortia running the INN-Reach software. Table 3 summarizes the overall performance of the INN-Reach service and Table 4 presents the cost components of the borrowing and lending unit costs.

[10] Bernie Sloan, "Testing Common Assumptions about Resource Sharing," *Information Technology and Libraries* 17, no. 1 (March 1998): 18–29.

[11] <http://www.iii.com/innreach/>

[12] Jackson, *Measuring the Performance*, pp. 37–40.

**Table 3: Performance of INN-Reach (11 libraries)**

| Performance Measures | Mean Borrowing | Mean Lending |
|---|---|---|
| Number of Filled Transactions | 16,515 | 18,553 |
| Unit Cost | $2.89 | $3.27 |
| Fill Rate | 86% | 87% |
| Turnaround Time (Returnables) | 2.5 days until user notified | 0.1 days until item shipped |

**Table 4: INN-Reach Unit Cost by Cost Category (11 libraries)**

| Cost Category | Mean Borrowing | Mean Lending |
|---|---|---|
| Staff | $2.14 | $2.56 |
| Network | $0.17 | $0.23 |
| Delivery | $0.57 | $0.60 |
| Photocopy | $0.00 | $0.02 |
| Supply | $0.08 | $0.04 |
| Equipment | $0.17 | $0.18 |
| Borrower Fees | $0.00 | NA |

### 2.3.1 Characteristics of INN-Reach Participants

All 11 libraries use INN-Reach for borrowing and lending, although not all reported data on the number of unfilled transactions. On average, an INN-Reach library fills 16,515 borrowing requests and 18,553 lending requests. The median number of filled borrowing requests is 10,490, and 11,701 for lending. For the libraries that reported filled and unfilled transactions, the average borrowing fill rate is 86 percent, with a range from 76 to 94 percent. The average lending fill rate is 87 percent, with a range from 77 to 94 percent.

INN-Reach is managed by the access services department in four libraries, by the circulation department in four libraries, and by other departments in three libraries. It is a parallel process to mediated ILL in ten of the eleven libraries; it is integrated into ILL in only one library. All libraries permit undergraduates, graduate students, faculty, and staff to place orders via the union catalog. Four libraries also permit courtesy/community users to place requests. Most requests are sent directly to the owning library, where they are printed off and the material is retrieved by access services (4) or circulation (4). Access services (4) and the mailroom (3) ship materials via a state, regional, or consortium courier (8) or a commercial courier other than FedEx or UPS (3). Items are shipped to the user's main library (9) or a branch library (5). Users pick up materials at the circulation desk (10) of the main or branch library. Users are not charged for the service.

Eight of the eleven libraries have purchased the software and/or pay an annual maintenance fee. The three remaining libraries did not report any software or maintenance fees, as those fees are likely paid by the consortium.

About one-third of the sample requests (225 of 690) included the language of the item. Nine languages were reported, with English representing 96 percent. Too few sample requests included the reason the request was not filled, so no analysis was completed.

In a 1996 report, OhioLINK's Governing Board cited an $8 unit cost, although the report did not specify whether the unit cost was borrowing, lending, or combined.[13] The report noted that over half of the cost is attributable to the staff to retrieve and circulate the item. Of that unit cost, about $3 (or about 40 percent) is attributable to the central organization's staff, hardware, and software. The report cited a cost of less than 40 cents per shipped item using the statewide courier service. The report also noted that almost 75 percent of requested items arrive at the user's home library within three days.

Several postings on the discussion list of the International Coalition of Library Consortia (ICOLC) provide still other views of the INN-Reach user-initiated system. John

[13] OhioLINK Governing Board, "Expectations Fulfilled, Expectations Yet to Keep: Results of the OhioLINK Governing Board Planning Session of May 22 – 23, 1996 and in Support of Fiscal 1998-99 Biennium Operation Funds Requests," pp. 13–14.

Helmer cited a 90 percent fill rate in FY02/03 for the 19 college and university libraries participating in Orbis, which uses the INN-Reach software.[14] In October 2003, the libraries using the merged union catalog, Summit, generated approximately 30,000 requests with a resulting fill rate of 94 percent.[15] The OhioLINK consortium filled 592,000 user-initiated requests between November 2001 and October 2002, a 12 percent annualized growth rate.[16]
Scott Van Dam, Jennifer Block, and Richard Pettitt examined the impact of OhioLINK on mediated ILL at Miami University in Ohio.[17] The percentage of nonreturnable requests borrowed by Miami in 1992-93 was 57 percent, and in 1995-96 it was 76 percent, predictable given OhioLINK handles returnables and not returnables. They also noted that although the increase in borrowing was directly attributable to the increase in photocopy requests, the overall borrowing growth rate slowed by nearly two-thirds compared with the pre-OhioLINK decade.

Chandra Prabha and Edward O'Neill of the OCLC Office of Research examined the characteristics of over 40,000 user requests placed on OhioLINK in February 1997.[18] Several of the findings are similar to the findings of this study. Seventy-six percent of the requests were for items published in the United States. Half of the requested items were published within seven years of the request, and language and literature was the most heavily requested subject. Forty-two percent of the users who submitted requests were undergraduates, suggesting that the turnaround time of OhioLINK is fast enough to meet their needs.

## 2.4 User-Initiated Returnables: URSA

Five participants, all ARL member institutions, reported URSA borrowing and lending data for returnables; the participants do not use URSA to request photocopies. URSA is software owned by Dynix that permits users to search remote catalogs and order books and other returnables.[19] Like other user-initiated software, URSA blocks requests for ineligible items through a series of internal algorithms and prevents users from requesting items available at their home libraries, items circulating in a remote library, and non-circulating items.

The five participants use the URSA software in three different consortia, so the characterization of URSA performance may not be representative of any single consortium. For those five libraries, Table 5 summarizes the overall performance of the URSA service, and Table 6 details the components of the borrowing and lending unit costs.

**Table 5: Performance of URSA (5 libraries)**

| Performance Measures | Mean Borrowing | Mean Lending |
|---|---|---|
| Number of Filled Transactions | 4,545 | 4,540 |
| Unit Cost | $14.70 | $12.06 |
| Fill Rate | 84% | 84% |
| Turnaround Time (Returnables) | 6.6 days until user notified | 1.0 days until item shipped |

[14] Posting on The Consortium List, 2 November 2002, by John Helmer.
[15] Posting on The Consortium List, 25 November 2003, by John Helmer.
[16] Posting on The Consortium List, 1 November 2002, by Tom Sanville.
[17] Scott Van Dam, Jennifer Block, Richard N. Pettitt, Jr., "The Impact of the OhioLINK Network on Traditional Interlibrary Loan," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 8, no. 1 (1997): 1–19.
[18] Chandra G. Prabha and Edward T. O'Neill, "Interlibrary Borrowing Initiated by Patrons: Some Characteristics of Books Requested via OhioLINK," *Annual Review of OCLC Research, 1998* (Dublin, Ohio: OCLC, 1998), <http://digitalarchive.oclc.org/da/ViewObject.jsp?objid=0000002>.
[19] <http://www.dynix.com>

**Table 6: URSA Unit Cost by Cost Category (5 libraries)**

| Cost Category | Mean Borrowing | Mean Lending |
|---|---|---|
| Staff | $12.67 | $10.25 |
| Network | $0.19 | $0.19 |
| Delivery | $0.58 | $0.58 |
| Photocopy | $0.00 | $0.09 |
| Supply | $0.04 | $0.15 |
| Equipment | $0.68 | $0.64 |
| Borrower Fees | $1.31 | NA |

### 2.4.1 Characteristics of URSA

The average number of filled borrowing requests is 4,545, with a fill rate of 84 percent. For lending, the average number of filled requests is 4,540, with an 84 percent fill rate. Borrowing turnaround time averages 6.6 calendar days until the user is notified, and lenders take on average 1 day to ship an item.

The ILL department manages the service in two libraries, the circulation department manages the service in two libraries, and the remaining library divides responsibility between two or more departments. For all participants, URSA is managed as a parallel process to mediated ILL.

All five libraries offer the service to undergraduates, graduate students, faculty, and staff. One also extends the service to all other user categories served by mediated ILL, and a second participant permits continuing education students to place requests.

Requests are placed via a Web form, from a virtual union catalog, from the local catalog, or via a request button in a remote catalog. For some participants, requests are sent directly to the potential lender; others have requests sent to the local circulation department for review, depending on the material. At the potential lender, requests are printed in the circulation department in two libraries, and in ILL, an office dedicated to the service, or shared by one or more departments. The circulation department (2), access services (1), ILL (1), or a dedicated office retrieves materials.

Materials are shipped by mailroom staff in three participating libraries and by circulation staff in two. All five use UPS to ship materials to the user's main (5) or branch library (1). Users pick up materials at the main circulation desk (5) and/or at a branch library (2).

None of the participants charges users for the service. None of the five participants purchased the software. In all cases, the software was purchased and/or managed by a consortium, and in some cases, the consortium pays the annual software maintenance fees. The average number of suppliers tried was 1.24. A total of 132 sample requests included the language of the item. Nine languages were reported, with English representing 76 percent. Too few sample requests included the reasons requests were not filled, so no analysis was completed.

Dynix, the owner of the URSA software, reported user-initiated costs for Tampa Bay Library Consortium of $8 per item, with a savings of more than $200,000 for the members of the consortium in the first year URSA was used.[20] There is no indication of the methodology used to calculate the unit cost or whether the unit cost represents a borrowing cost, a lending cost, or a combined unit cost.

The cost of a Borrow Direct transaction, which uses the URSA software, was cited in the University of Pennsylvania Library's annual report to the University. According to Bob Krall, "acquiring a book through Borrow Direct costs us almost a tenth of what it used to through regular interlibrary loan. Just as important, delivery time has dropped from two weeks to three and a half days."[21]

## 2.5 User-Initiated Nonreturnables: Commercial Document Delivery

[20] "Tampa Bay Library Consortium: Sharing Resources, Cutting Costs," <http://www.dynix.com/solutions/consortia/success.asp>.

[21] University of Pennsylvania Library, *The Penn Library 2002: A Report to the University*, p. 19, <http://www.library.upenn.edu/publications/annualreport2002.pdf>.

Four ARL participants and one non-ARL participant submitted data on user-initiated commercial document delivery (CDD) services. For the purpose of the study, commercial document delivery is defined as users ordering documents (generally copies of articles, but occasionally books or other returnables) directly from a company or service that supplies documents for a fee. Examples of such suppliers include the British Library Document Supply Centre (BLDSC), Canada Institute for Scientific and Technical Information (CISTI), Ingenta, and Infotrieve. This service excludes mediated photocopy requests sent to document delivery suppliers by ILL staff, as those costs are included in the mediated borrowing costs.

User-initiated commercial document delivery is the only kind of user-initiated service studied that recorded a higher unit cost than mediated ILL. The $23.64 unit cost is 35 percent higher than the $17.50 unit cost for mediated borrowing. Table 7 summarizes the performance of user-initiated commercial document delivery, and Table 8 details the components of the borrowing unit cost. No lending unit costs are presented as, for the purpose of this study, this service is considered a borrowing function.

**Table 7: Performance of User-Initiated CDD (4 libraries)**

| Performance Measures | Mean Borrowing |
|---|---|
| Number of Filled Transactions | 9,925 |
| Unit Cost | $23.64 |
| Fill Rate | 90% |
| Turnaround Time (Nonreturnables) | 2.4 days until user notified |

**Table 8: User-Initiated CDD Unit Cost by Cost Category (4 libraries)**

| Cost Category | Mean Borrowing |
|---|---|
| Staff | $0.97 |
| Network | $0.94 |
| Delivery | $0.00 |
| Photocopy | $4.78 |
| Supply | $0.00 |
| Equipment | $2.04 |
| Borrower Fees | $15.22 |

### 2.5.1 Characteristics of User-Initiated Commercial Document Delivery

For all five libraries, the average number of filled requests was 9,925, and the median was 5,294. Four of the five libraries reported total transactions; one did not report the number of unfilled requests. The average fill rate was 90 percent for the four libraries. The unit cost was $23.64. Three participants submitted turnaround time samples; the average turnaround time for those libraries was 2.4 days.

As expected, CDD is usually limited to nonreturnable copies. The service is offered to all user categories, except courtesy borrowers. Users place orders via a Web form or from the document supplier's Web site. Suppliers ship articles via Ariel, electronic delivery, or fax directly to users. The service is free to users in four of the five libraries as those libraries subsidize the full costs.

The borrower fees include fees paid to suppliers, which include the copyright royalty fees, but participants were not asked to separate the supplier charge from the royalty fee.

A total of 161 requests from the turnaround time sample included the name of the supplier. Infotrieve filled 45 percent of the requests, CISTI filled 32 percent, and BLDSC filled 23 percent. Only 15 requests included reasons for not filling the request; 60 percent of those requests were rejected because the local library owned the items, and 40 percent were not filled because the supplier's charge exceeded the limit set by the library or user.

Did commercial suppliers with their own collections or the suppliers that offer tables-of-contents services and use other libraries collections provide higher fill rates? The study is not able to answer that question as the turnaround time sample for commercial document suppliers only listed filled requests. It appears that, if a user-initiated request sent to a commercial supplier was not filled, the request was either not included in the sample or was filled by a second document delivery supplier. Three different commercial document suppliers were listed as suppliers, but the data at hand

were insufficient for confirming whether suppliers with collections provide higher fill rates than suppliers that retrieve from library collections.

Many libraries offer unmediated document delivery to local users. Louis Houle has written extensively on McGill University's experiences using CISTI Source.[22] In 2001, Downes and Naylor concluded that, although a few individuals used unmediated document delivery exclusively, the majority of faculty at Wichita State University continued to use traditional ILL for some or all of their information needs, with many faculty increasing their use of ILL over the study period.[23] Other authors have reported varied results on the user-initiated commercial document delivery.[24]

## 2.6 User-Initiated Nonreturnables: Loansome Doc

Three medical or health sciences libraries in ARL institutions reported data on the Loansome Doc service. Loansome Doc is software developed by the National Library of Medicine and used primarily by medical libraries to facilitate users to submit requests to their own library or to another library. One participant views the service as a borrowing operation and two consider it a lending service. The service provides photocopies of journal articles and other nonreturnables. Two of the three libraries have their ILL department manage the service, including retrieving material and photocopying items. In the third, two or more departments jointly manage the service. One library has integrated Loansome Doc into the mediated ILL operation, and two maintain a parallel process. All three charge (either their own users or the borrowing library) the full cost-recovery.

Because only three participants submitted data, no further breakdown of Loansome Doc is provided. Loansome Doc is not included in section 2.9 that compares user-initiated services.

## 2.7 User-Initiated Nonreturnables: RAPID

The RAPID software, developed by Colorado State University Libraries, permits users to order photocopies from members of the consortium. RAPID builds holdings by extracting year and volume information from an export of data from the local catalog. The result of this process is a RAPID catalog designed to function as a union list. RAPID handles photocopy requests, thus this service has no returnable traffic. For the eight libraries participating in the study that use RAPID, Table 9 summarizes the performance of the service and Table 10 details the components of the borrowing and lending unit costs.

**Table 9: Performance of RAPID (8 libraries)**

| Performance Measures | Mean Borrowing | Mean Lending |
|---|---|---|
| Number of Filled Transactions | 5,790 | 5,272 |
| Unit Cost | $5.41 | $5.01 |
| Fill Rate | 86% | 82% |
| Turnaround Time | 3.4 days until user notified | 1.1 days until item shipped |

[22] Louis Houle and B. Scott, "The CISTI/SUMO Experience at McGill University: Four Years Later," *Serials Librarian* 42, no. 3/4 (2002): 217–221; Louis Houle, "Ownership versus Access: The CISTI Source/SUMO Experience at McGill University," *Interlending & Document Supply* 28, no. 3 (2000): 116–122.

[23] Kathy A. Downes and Ted E. Naylor, "The Impact of Unmediated Document Delivery on Faculty Use of Traditional Interlibrary Loan at Wichita State University," *Journal of Interlibrary Loan, Document Delivery, and Information Supply* 12, no. 1 (2001): 41–53.

[24] Elizabeth Arkin, "User Initiated Interlibrary Loan," *Interlending & Document Supply* 26, no. 3 (1998): 119–22; Carol Ann Kochan and John A. Elsweiler, "Testing the Feasibility of Unmediated Document Delivery Services with EBSCOdoc: The Utah State University Experience," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 9, no. 1 (1998): 67–77; Gwyneth H. Crowley, "Unmediated Document Delivery: A Project Using FirstSearch and EBSCOdoc," *Interlending & Document Supply* 27, no. 3 (1999): 122–27; Mary Anthes, "An Experiment in Unmediated Document Delivery: EBSCOdoc at Wichita State University," *Library Collections, Acquisitions, & Technical Services* 23 (Spring 1999): 1–13.

**Table 10: RAPID Unit Cost by Cost Category (8 libraries)**

| Cost Category | Mean Borrowing | Mean Lending |
|---|---|---|
| Staff | $4.30 | $4.54 |
| Network | $0.89 | $0.05 |
| Delivery | $0.27 | $0.00 |
| Photocopy | $0.07 | $0.26 |
| Supply | $0.16 | $0.08 |
| Equipment | $0.45 | $0.26 |
| Borrower Fees | $0.43 | NA |

### 2.7.1 Characteristics of RAPID

Seven ARL participants and one non-ARL participant submitted data on their RAPID service. These eight libraries handled on average 5,790 filled borrowing requests and 5,272 filled lending requests via RAPID. The median filled borrowing total was 5,119 and 5,479 for lending. The borrowing fill rate was 86 percent, with a range between 81 percent and 95 percent. The lending fill rate was 82 percent, and the range was slightly wider, from 75 to 95 percent.

In six of the eight libraries, the ILL department is responsible for RAPID, and in two libraries, two or more departments share the responsibility. In seven of the eight libraries, the RAPID service is integrated into the main ILL process; in the eighth, borrowing is integrated and lending is parallel.

All eight libraries offer the RAPID service to undergraduates, graduate students, faculty, and staff. One library extends the RAPID service to courtesy/community users, and two extend the service to other user categories.

Seven of the eight do not limit the number of requests a user can submit at one time. All eight permit users to order via a Web form, and a few libraries permit orders to be placed in person, through the mail, via fax, or from a union catalog.

The ILL departments in all eight libraries receive RAPID requests from users, and seven of the eight ILL departments review requests before sending them to the first potential lender. As suppliers, seven of the eight libraries have those requests printed by the ILL department, with the remaining library using the photocopy department to print requests. In half of the libraries, ILL staff retrieve items and the other half use staff in access services, the photocopy department, or have retrieval shared between two or more departments. The ILL department photocopies materials in three libraries, with other libraries assigning responsibility to the photocopy department or sharing responsibility between two or more departments. ILL is responsible for sending the items in four libraries, sending is shared in three other libraries, and one library did not respond to the question. All eight use Ariel or electronic delivery to send the items. Half send directly to the user, and the others send to the user's main or branch library. In all libraries, users retrieve the items from a Web site, but some users obtain the materials at their main or branch library, or have the printed copy delivered to them.

In seven of the eight libraries, the user is not charged. In the eighth library, users not affiliated with the university are charged a nominal amount.

The software is developed and maintained by the RAPID consortium.

A total of 117 sample requests included the language of the item. Seven languages were reported, with English representing eighty-six percent of the requests. Fifty-two of the sample requests included the reason the request was not filled, and the most common reason was that the library lacked the requested volume or issue.

## 2.8 Local Document Delivery

Many libraries offer a service that delivers locally owned material or copies of such material to local users. For the purpose of this study, this service is called local document delivery (LDD) and is considered a borrowing function. A total of 24 participants, including 3 non-ARL member institutions, submitted data for their local document delivery services. Four additional libraries submitted turnaround time data for local document delivery, but did not submit the General Characteristics Questionnaire or Worksheets. This summary is based on the

24 that submitted the Questionnaire and Worksheets, but the turnaround time averages include the four additional libraries.

Anecdotes shared by ILL managers suggest that some ILL users are consciously selecting items that are not locally owned because ILL is more convenient and delivery is electronic, compared to having to come into the library, retrieve the item, and photocopy it. One of the unintended consequences of reducing turnaround time for ILL is the new pressure on libraries to offer delivery of locally owned materials in a manner that is as convenient and fast as ILL. The rise in local document delivery services is evidence that libraries are reevaluating all of their local services.

Table 11 summarizes the performance of the local document delivery service, and Table 12 details the components of the unit cost of local document delivery.

**Table 11: Performance of Local Document Delivery (24 libraries)**

| Performance Measures | Mean |
|---|---|
| Number of Filled Transactions | 10,260 |
| Unit Cost | $11.75 |
| Fill Rate | 84% |
| Turnaround Time (User Notified) (includes 28 libraries) | 1.6 days |

**Table 12: Local Document Delivery Unit Cost by Cost Category (24 libraries)**

| Cost Category | Mean |
|---|---|
| Staff | $10.40 |
| Network | $0.56 |
| Delivery | $0.54 |
| Photocopy | $0.25 |
| Supply | $0.16 |
| Equipment | $0.41 |
| Borrower Fees | $0.77 |

## 2.8.1 Characteristics of Local Document Delivery

Seventeen of the twenty-four libraries permit users to place requests for returnables and nonreturnables, and the remaining seven libraries limit local document delivery to nonreturnables. Overall, the 24 participants filled an average of 10,260 requests at an average unit cost of $11.75.

Five of the seventeen that handle returnables and nonreturnables did not report the number of unfilled requests; for the remaining twelve, the average fill rate was 84 percent, with the mean fill rate of 85 percent for returnables and 84 percent for nonreturnables. The sample requests included the type of material supplied. This sample confirmed that participants are providing a range of materials, from monographs and government documents to copies from print and online journals, databases, and microfilm.

The interlibrary loan department is responsible for LDD services in 12 libraries. The access services department manages LDD in three libraries, and the service is also administratively housed in circulation, public services, technical services, or shared by two or more departments. ILL most often receives requests (11), retrieves items (11), and photocopies items (10). These functions are also handled by access services, circulation, public services, technical services, or shared by one or more departments in other libraries.

The LDD process is a parallel process in 15 libraries, and integrated into the ILL process in 9 libraries. Most libraries offer the service to their primary clientele; a few also offer the service to courtesy or community users. Table 13 summarized the user categories eligible to use local document delivery services.

**Table 13: User Category Eligible for LDD**

| User Category | Number of Libraries |
|---|---|
| Faculty | 22 |
| Graduate Students | 20 |
| Staff (including Library) | 19 |
| Undergraduates | 15 |
| Courtesy/Community | 5 |
| Other | 5 |

All but one participant has a Web form for users to place orders. Other ordering options include: in person (10); fax (9); e-mail (8); mail (7); a form in a union catalog (6); and telephone (5).

The most frequently used methods for users to receive nonreturnable materials include: post to Web (17); mail to user (14); deliver to user (11); and pick up at the circulation desk (10). Returnables are picked up at the circulation desk (12), delivered to the user (11), or mailed to the user (10).

Nine of the twenty-four (38 percent) libraries do not charge for returnables or nonreturnables; seven libraries (29 percent) charge only for nonreturnables; and six libraries (25 percent) charge only for returnables. Of the libraries that charge, 11 charge partial cost-recovery. Departmental charge is the most common payment method, but all other common payments methods (invoice, credit card, check, cash, or deposit account) are used by at least one library.

Over three-quarters (180 out of 210) of the unfilled requests included in the turnaround time sample included a reason the participant was not able to fill the request. **The study did not ask if the library automatically passed an unfilled LDD request to ILL staff, but that would be a useful question to ask in a future study.** Table 14 lists the reasons local document delivery requests were not filled.

The University of Wisconsin–Madison undertook a comparable study of their local document delivery requests.[25] Of a total of 26,582 requests, 23,779, or 89 percent, were filled. Table 15 summarizes the reasons the 11 percent of requests were not filled by Wisconsin's LDD service.

**Table 14: Reasons Local Document Delivery Requests Were Not Filled**

| Reason | Number of Requests | Percentage of Total |
|---|---|---|
| Not owned | 63 | 35% |
| Lacking Volume or Issue | 22 | 12% |
| Not on Shelf | 19 | 11% |
| Other | 18 | 10% |
| In Use or on Loan | 14 | 8% |
| Not Found as Cited | 11 | 6% |
| At Bindery | 6 | 3% |
| Policy Problem | 5 | 3% |
| In Process | 4 | 2% |
| Lacks Copyright Compliance | 4 | 2% |
| Lost | 4 | 2% |
| Volume/Issue Not Yet Available | 3 | 2% |
| Noncirculating | 2 | 1% |
| User Canceled | 2 | 1% |
| Poor Condition | 2 | 1% |
| On Hold | 1 | 1% |
| Total | 180 | 100% |

**Table 15: University of Wisconsin LDD Unfilled Requests**

| Reason | Percentage of Total |
|---|---|
| Not on Shelf | 34% |
| User Canceled | 20% |
| Item Not Eligible | 14% |
| In Use or on Loan | 11% |
| Other | 10% |
| Request Expired | 7% |
| On Reserve | 3% |
| On Order or in Process | 1% |
| Total | 100% |

[25] University of Wisconsin Voyager Circulation Implementation Group, "Keeping Circulation Services Relevant: Implementing a New Campus Book Retrieval Service," handout for a poster session presented at the American Library Association Annual Conference, Toronto, Ontario, June 21, 2003.

## 2.9 Comparing User-Initiated Services

Twenty-three ARL and non-ARL participants reported data for ILLINET Online, INN-Reach, RAPID, URSA, or user-initiated commercial document delivery. Since several participants submitted data for more than one service, the total number of user-initiated services included in the study is 29. Participants submitted both borrowing and lending data for ILLINET Online, INN-Reach, RAPID, and URSA. Because commercial document delivery is defined as a borrowing operation, the total for borrowing services is 29 participants, and the total for lending is 24 participants.

A few participants reported more transactions being handled by one of the user-initiated services than by their mediated ILL. However, with the exception of OhioLINK, user-initiated services still account for a small proportion of overall ILL transactions. For borrowing transactions, just over half of the participants (13) had more loans or copies filled by user-initiated services than by mediated ILL. For lending, just under half (11) filled more loans or copies via user-initiated services than by mediated ILL.

Because local document delivery is sufficiently different, and because only three participants submitted data for Loansome Doc, this section compares the performance of ILLINET Online, INN-Reach, RAPID, URSA, and the user-initiated commercial document delivery service. Tables 16 and 17 compare the performance of these five user-initiated services with mediated ILL/DD.

As with the other total transactions, the number of filled borrowing and lending requests is not identical because not all libraries that use the same system participated in the study. For example, borrowers using URSA sent requests to libraries in the study and to libraries not included in the study. If a study participant filled the request, it would be counted in the borrowing and lending totals, but if a nonparticipant filled the request, it would be counted only as a borrowing request in this study.

**Table 16: Comparing the Mean Borrowing Performance of User-Initiated Services (29 libraries)**

| | ILLINET Online | INN-Reach | RAPID | URSA | Commercial Document Delivery | Mediated ILL/DD |
|---|---|---|---|---|---|---|
| Number of Filled Transactions | 37,327 | 16,515 | 5,790 | 4,545 | 9,925 | 16,698 |
| Unit Cost | $2.39 | $2.89 | $5.41 | $14.70 | $23.64 | $17.50 |
| Fill Rate | NA | 86% | 86% | 84% | 90% | 86% |
| Turnaround Time (Until User Notified) | 4.7 days | 2.5 days | 3.4 days | 6.6 days | 2.3 days | 7.6 days |

**Table 17: Comparing the Mean Lending Performance of User-Initiated Services (24 libraries)**

| | ILLINET Online | INN-Reach | RAPID | URSA | Mediated ILL/DD |
|---|---|---|---|---|---|
| Number of Filled Transactions | 30,716 | 18,553 | 5,272 | 4,540 | 41,088 |
| Unit Cost | $3.93 | $3.27 | $5.01 | $12.06 | $9.27 |
| Fill Rate | 82% | 87% | 82% | 84% | 58% |
| Turnaround Time (Until Item Shipped) | 1.5 days | 0.1 days | 1.1 days | 1.0 days | 1.5 days |

Table 18 compares the range of ratios of user-initiated borrowing and lending to mediated borrowing and lending. There is great variation in the number of transactions handled by mediated and user-initiated services. For example, one participant received 56.1 borrowing requests via INN-Reach for each borrowing transaction filled via mediated ILL. At the other extreme, another participant received only .11 requests via INN-Reach for each mediated borrowing transaction (or, for every 11 mediated borrowing transactions, the library's users generated one INN-Reach transaction).

**Table 18: Range of Ratios of User-Initiated to Mediated Borrowing and Lending**

| | Range of User-Initiated to One Mediated Borrowing Transaction | Range of User-Initiated to One Mediated Lending Transaction |
|---|---|---|
| ILLINET Online | 5.17–4.09 | 1.08–0.54 |
| INN-Reach | 56.1–0.11 | 22.01–0.12 |
| RAPID | 1.77–0.02 | 0.91–0.05 |
| URSA | 2.87–0.03 | 1.18–0.11 |
| CDD | 0.002–5.57 | NA |

Of the 11 participants that reported INN-Reach data, 3 process more borrowing and lending transactions via INN-Reach than via mediated ILL, 6 have higher borrowing and lending mediated ILL totals than INN-Reach totals, and 2 transact more borrowing on INN-Reach while their mediated ILL lending handles more requests.

In comparison, the six Washington libraries described by Lynn Chmelir, Assistant Director for Collections, Washington State University, averaged 4.54 borrows on INN-Reach for each mediated borrowing transaction and 1.83 loans for each one mediated lending transaction in 2001/02, the same fiscal year of this investigation.[26] Chmelir's unpublished study of the Cascade network concluded that in 2002/2003, 70.9 percent of total returnable transactions were handled via Cascade rather than mediated ILL.[27] Demand for nonreturnables by local users remained steady during the four years of her study.[28]

## 2.9.1 Comparing User-Initiated Unit Costs

Not all participants reported data for all cost categories. This variation may impact the mean unit costs for borrowing or lending. For example, some libraries reported only annual maintenance costs, not initial purchase costs, because an outside organization or consortium purchased the

[26] Lynn Chmelir, "Patron-Initiated Borrowing via Cascade and Traditional Interlibrary Loan at Six Public Institutions in Washington State: 1999/2000 to 2002/2003," unpublished manuscript submitted for publication.
[27] Ibid., p. 16.
[28] Ibid., p. 12.

software. Delivery is another category for which data were reported by some participants but not all. Likewise, the consortium or a state agency may underwrite the costs of the courier for physical delivery, or the service is focused on nonreturnables where electronic delivery is used.

Table 19 lists the number of participants reporting data for each cost category for all of the user-initiated services except local document delivery.

**Table 19: Number Reporting Data for Each Cost Category**

| | Number of the 29 Libraries Reporting Borrowing Data | Number of the 24 Libraries Reporting Lending Data |
|---|---|---|
| Staff | 29 | 26 |
| Network | 21 | 16 |
| Delivery | 16 | 13 |
| Photocopy | 6 | 8 |
| Supplies | 19 | 23 |
| Equipment | 28 | 26 |
| Borrower Fees | 4 | NA |

Recognizing that the various user-initiated services are not identical in terms of type of materials handled, software used, or level of staff deployed in libraries, Table 20 presents the borrowing cost components as percentages for each of the user-initiated services and for mediated ILL/DD.

Comparing unit costs by percentages may be misleading. Table 21 presents the borrowing cost components for the user-initiated services and for mediated ILL/DD. Most of the unit costs for the various user-initiated services are lower than mediated ILL/DD. The exceptions include: staff costs for URSA; equipment costs for RAPID, URSA, and commercial document delivery; and photocopy costs and borrower fees for commercial document delivery. The largest dollar difference is in staffing.

**One of the reasons most user-initiated services have lower unit costs is the amount and type of staff deployed by these services.** Staff salaries for ILLINET Online, INN-Reach, RAPID, and URSA average $5.36 per request, compared with $10.15 for mediated ILL, or 47 percent less. **The type of staff also varies, with lower representation of each of the five staff categories.** For example, support staff positions are used in 97 percent of mediated borrowing operations and only 74 percent of user-initiated services.

Figure 2 presents borrowing unit costs by cost component for five of the user-initiated services, and includes the mediated ILL/DD unit cost components for comparison purposes. This figure illustrates the wide range of overall unit costs of user-initiated services as well as the difference in the cost categories.

User-initiated lending has lower unit costs than mediated ILL, though the difference between user-initiated and mediated lending staff unit costs is not as dramatic as borrowing. Tables 22 and 23 compare the lending unit cost components by percentages and by unit costs respectively. Figure 3 compares the unit costs by cost components and illustrates the impact of the staff unit cost on the overall unit cost of user-initiated and mediated lending.

**Table 20: Borrowing Unit Cost Category as a Percentage of Borrowing Unit Cost (29 libraries)**

| Cost Category | ILLINET Online | INN-Reach | RAPID | URSA | Mediated ILL/DD |
|---|---|---|---|---|---|
| Staff | 96% | 68% | 65% | 82% | 58% |
| Network | 1% | 5% | 14% | 1% | 14% |
| Delivery | 1% | 19% | 4% | 4% | 5% |
| Photocopy | 0% | 0% | 1% | 0 % | 0% |
| Supplies | 1% | 3% | 2% | 0% | 1% |
| Equipment | 1% | 5% | 7% | 4% | 2% |
| Borrowing Fees | 0% | 0% | 7% | 8% | 20% |
| Total | 100% | 100% | 100% | 100% | 100% |

**Table 21: Comparing Mean Borrowing Unit Cost Categories of User-Initiated Services (29 libraries)**

| Cost Category | ILLINET Online | INN-Reach | RAPID | URSA | Commercial Document Delivery | Mediated ILL/DD |
|---|---|---|---|---|---|---|
| Staff | $2.31 | $2.14 | $4.30 | $12.67 | $0.97 | $10.39 |
| Network | $0.03 | $0.17 | $0.89 | $0.19 | $0.94 | $2.41 |
| Delivery | $0.03 | $0.57 | $0.27 | $0.58 | $0.00 | $0.91 |
| Photocopy | $0.00 | $0.00 | $0.07 | $0.00 | $4.78 | $0.07 |
| Supplies | $0.03 | $0.08 | $0.16 | $0.04 | $0.00 | $0.17 |
| Equipment | $0.03 | $0.17 | $0.45 | $0.68 | $2.04 | $0.36 |
| Borrower Fees | $0.00 | $0.00 | $0.43 | $1.31 | $15.22 | $3.38 |
| Total Unit Cost | $2.39 | $2.89 | $5.41 | $14.70 | $23.64 | $17.50 |

**Figure 2: Comparing User-Initiated Borrowing Unit Cost by Cost Category**

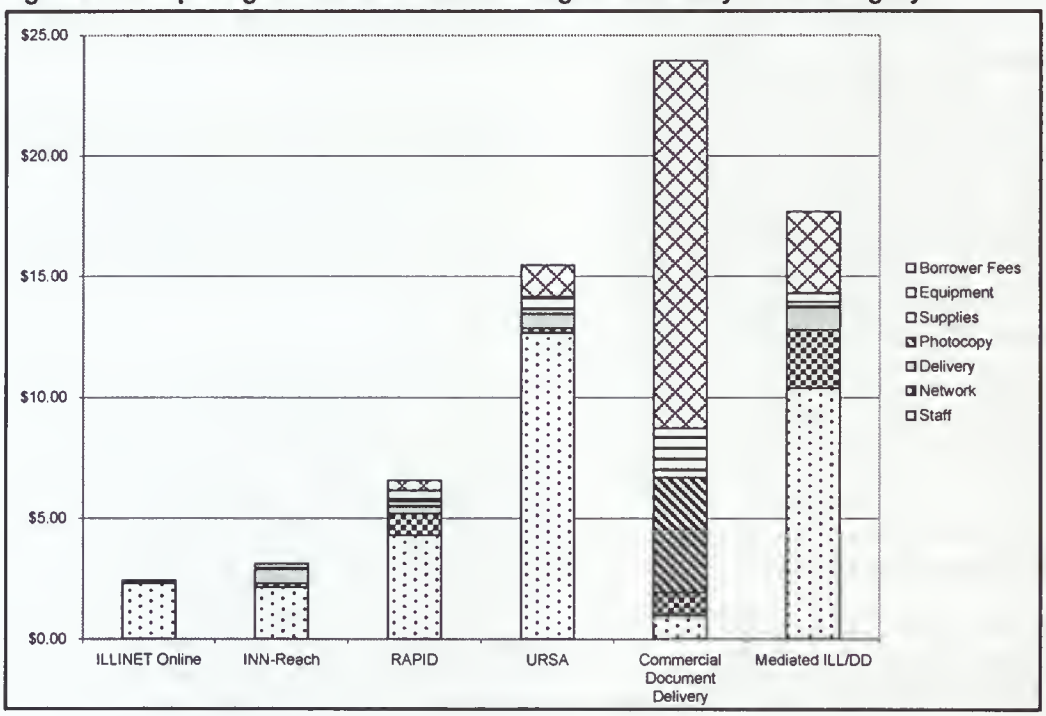


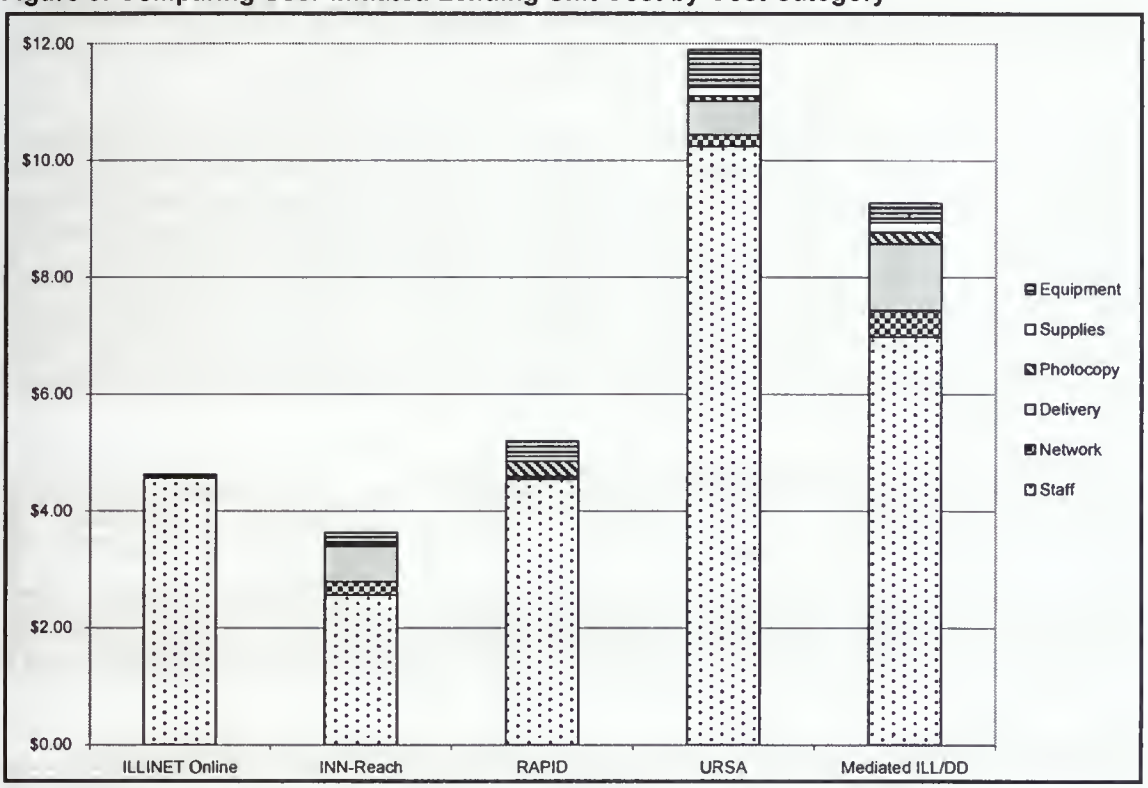

**Table 22: Lending Unit Cost Category as a Percentage of Lending Unit Cost (24 libraries)**

| Cost Category | ILLINET Online | INN-Reach | RAPID | URSA | Mediated ILL/DD |
|---|---|---|---|---|---|
| Staff | 96% | 71% | 87% | 86% | 76% |
| Network | 1% | 6% | 1% | 2% | 5% |
| Delivery | 1% | 17% | 0% | 5% | 12% |
| Photocopy | 0% | 1% | 5% | 1 % | 2% |
| Supplies | 1% | 0% | 2% | 1% | 1% |
| Equipment | 1% | 5% | 5% | 5% | 4% |
| Total | 100% | 100% | 100% | 100% | 100% |

**Table 23: Comparing Mean Lending Unit Cost Category of User-Initiated Services (24 libraries)**

| Cost Category | ILLINET Online | INN-Reach | RAPID | URSA | Mediated ILL/DD |
|---|---|---|---|---|---|
| Staff | $4.56 | $2.56 | $4.54 | $10.25 | $6.98 |
| Network | $0.01 | $0.23 | $0.05 | $0.19 | $0.46 |
| Delivery | $0.00 | $0.60 | $0.00 | $0.58 | $1.14 |
| Photocopy | $0.00 | $0.02 | $0.26 | $0.09 | $0.19 |
| Supplies | $0.02 | $0.04 | $0.08 | $0.15 | $0.17 |
| Equipment | $0.03 | $0.18 | $0.26 | $0.64 | $0.33 |
| Total Unit Cost | $3.93 | $3.27 | $5.01 | $12.06 | $9.27 |

**Figure 3: Comparing User-Initiated Lending Unit Cost by Cost Category**




## 2.9.2 Comparing User-Initiated Staffing Levels

Table 24 illustrates the different staff configurations for the 29 user-initiated borrowing services and the 24 user-initiated lending services. The type of staff used to perform tasks as well as the percentage of each staff member's time devoted to the service will impact total staff cost, and thus an institution's overall unit cost.

User-initiated commercial document delivery is sufficiently different in terms of staffing requirements and type of service it provides that including it with the other user-initiated services may be misleading. ILLINET Online, INN-Reach, RAPID, and URSA are more comparable and thus Table 25 compares the cost categories for these four services. A total of 26 libraries submitted data for at least one of these four services.

**Table 24: Type of Staff Used in ILLINET Online, INN-Reach, RAPID, URSA, and User-Initiated Commercial Document Delivery**

| Staff Position Category | Number Reporting Borrowing Data | Percentage of the 29 Borrowers | Number Reporting Lending Data | Percentage of the 24 Lenders |
|---|---|---|---|---|
| Professional Supervisor | 16 | 55% | 16 | 67% |
| Professional Nonsupervisor | 3 | 10% | 2 | 8% |
| Support-Staff Supervisor | 13 | 45% | 13 | 54% |
| Support Staff | 27 | 93% | 21 | 88% |
| Students | 22 | 76% | 22 | 92% |

**Table 25: Comparing Cost Categories for ILLINET Online, INN-Reach, RAPID, and URSA**

| Cost Category | Number Reporting Borrowing Data | Percentage of the 26 Borrowers | Number Reporting Lending Data | Percentage of the 26 Lenders |
|---|---|---|---|---|
| Staff | 26 | 100% | 26 | 100% |
| Network | 19 | 73% | 16 | 62% |
| Delivery | 16 | 62% | 13 | 50% |
| Photocopy | 5 | 19% | 8 | 31% |
| Supplies | 19 | 73% | 23 | 88% |
| Equipment | 26 | 100% | 26 | 100% |
| Borrower Fees | 4 | 15% | NA | NA |

**Table 26: Comparing Fill Rates for User-Initiated Services**

| | ILLINET Online | INN-Reach | RAPID | URSA | Commercial Document Delivery | Mediated ILL/DD |
|---|---|---|---|---|---|---|
| Borrowing | NA | 87% | 86% | 84% | 90% | 86% |
| Lending | 82% | 87% | 82% | 84% | NA | 58% |

**Table 27: Comparing Turnaround Times for User-Initiated Services (in Calendar Days)**

| | ILLINET Online | INN-Reach | RAPID | URSA | Commercial Document Delivery | Mediated ILL/DD |
|---|---|---|---|---|---|---|
| Borrowing | 4.7 days | 2.5 days | 3.4 days | 6.6 days | 2.4 days | 7.6 days |
| Lending | 1.5 days | 0.1 days | 1.1 days | 1.0 days | NA | 1.5 days |

## 2.9.3 Comparing User-Initiated Fill Rates

**In general, the borrowing fill rates of user-initiated services are comparable to or higher than those of mediated ILL. The mean borrowing fill rate is 89 percent, three percentage points higher than mediated ILL. The mean lending fill rate is 84 percent, 26 percentage points higher than mediated lending.** These higher lending fill rates may reflect the availability of circulation status and/or software that

does not permit a request to be send to a lender if the item is in use or otherwise not available. Table 26 compares the borrowing and lending fill rates for the five user-initiated services and includes the fill rates for mediated ILL/DD for comparison.

The fill rates achieved by the libraries that reported data on user-initiated services may not be reflective of all the libraries using any particular service, so the reader is cautioned not to conclude that any library using one of these services will have comparable fill rates

### 2.9.4 Comparing User-Initiated Turnaround Times

The mean borrowing turnaround times included in Table 27 (above) report the number of calendar days from the date the user submitted the request to the date the user was notified or the item was sent to the user. For lending, the turnaround time reported in Table 27 reflects the number of calendar days between the date the lender received the request and the date the lender shipped the item.

## CHAPTER 3

# MEDIATED ILL/DD SERVICES IN RESEARCH LIBRARIES

**Table 28: 2002 Performance of Mediated ILL/DD Services in 59 ARL Libraries**

| Transactions and Performance Measures | 59 ARL Member Libraries | | | |
|---|---|---|---|---|
| | 10th percentile | Mean | Median | 90th percentile |
| **Transactions** | | | | |
| Total | 21,094 | 58,703 | 37,291 | 74,450 |
| *Borrowing* | 7,741 | 16,698 | 14,571 | 31,933 |
| Returnables | 1,842 | 7,519 | 6,143 | 14,289 |
| Nonreturnables | 3,169 | 9,449 | 7,593 | 21,820 |
| *Lending* | 9,830 | 41,088 | 22,370 | 42,674 |
| Returnables | 3,795 | 12,123 | 9,695 | 21,484 |
| Nonreturnables | 3,897 | 28,965 | 10,684 | 28,527 |
| **Unit Cost** | | | | |
| *Borrowing* | $11.79 | $17.50 | $16.69 | $28.05 |
| *Lending* | $4.58 | $9.27 | $8.07 | $14.11 |
| **Fill Rate** | | | | |
| *Borrowing* | | | | |
| Returnables | 73% | 85% | 87% | 95% |
| Nonreturnables | 73% | 87% | 90% | 96% |
| Total | 74% | 86% | 88% | 95% |
| *Lending* | | | | |
| Returnables | 42% | 59% | 59% | 77% |
| Nonreturnables | 39% | 57% | 56% | 81% |
| Total | 44% | 58% | 58% | 76% |
| **Turnaround Time** | | | | |
| *Borrowing* | | | | |
| Returnables | 0 days | 9.3 days | 8 days | 16 days |
| Nonreturnables | 9 days | 6.1 days | 5 days | 12 days |
| Total | 2 days | 7.6 days | 6 days | 15 days |
| *Lending* | | | | |
| Returnables | 0 days | 1.8 days | 1 day | 4 days |
| Nonreturnables | 0 days | 1.2 days | 1 day | 4 days |
| Total | 0 days | 1.5 days | 1 day | 4 days |

## 3.1 General Overview

The Assessing ILL/DD Services study collected 2002 data on three measures of interlibrary loan operations in 72 North American research, college, and governmental libraries. The study tracks mediated and user-initiated services separately. This section summarizes the performance of mediated ILL/DD operations in the 59 ARL participants. The wide range of characteristics of the ILL/DD operations of the 13 non-ARL libraries makes comparison of their performance misleading.

This chapter presents the findings for the middle 80 percent of the ARL participants, or the 47 libraries whose performance falls between the 10th and 90th percentiles. The following sections present data on unit costs, fill rates, and turnaround time.

**Table 29: Unit Cost for Mediated ILL/DD**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Borrowing | $11.79 | $17.50 | $16.69 | $28.05 |
| Lending | $4.58 | $9.27 | $8.07 | $14.11 |

**Table 30: Borrowing Unit Cost by Cost Category**

| Cost Category | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Staff | $5.36 | $10.39 | $9.24 | $16.29 |
| Network | $0.40 | $2.41 | $2.55 | $3.99 |
| Delivery | $0.34 | $0.91 | $0.87 | $1.62 |
| Photocopy | $0.00 | $0.07 | $0.02 | $0.06 |
| Supplies | $0.04 | $0.17 | $0.16 | $0.37 |
| Equipment | $0.09 | $0.36 | $0.23 | $0.58 |
| Borrowing Fees | $1.65 | $3.38 | $3.13 | $5.80 |

**Table 31: Lending Unit Cost by Cost Category**

| Cost Category | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Staff | $3.02 | $6.98 | $6.54 | $10.79 |
| Network | $0.05 | $0.46 | $0.28 | $0.97 |
| Delivery | $0.28 | $1.14 | $0.93 | $1.81 |
| Photocopy | $0.02 | $0.19 | $0.12 | $0.49 |
| Supplies | $0.04 | $0.17 | $0.16 | $0.32 |
| Equipment | $0.10 | $0.33 | $0.25 | $0.51 |

**Table 32: Borrowing Unit Cost by Cost Category**

| Cost Category | Percentage of Borrowing Unit Cost |
|---|---|
| Staff | 58% |
| Network | 14% |
| Delivery | 5% |
| Photocopy | 0% |
| Supplies | 1% |
| Equipment | 2% |
| Borrowing Fees | 20% |
| Total | 100% |

**Table 33: Lending Unit Cost by Cost Category**

| Cost Category | Percentage of Lending Unit Cost |
|---|---|
| Staff | 75% |
| Network | 5% |
| Delivery | 13% |
| Photocopy | 2% |
| Supplies | 1% |
| Equipment | 4% |
| Total | 100% |

## 3.2 Mediated ILL/DD: Direct Costs

Seven cost categories were used to calculate the unit cost of a mediated ILL/DD transaction: staff, network/communication (cited in this report as network), delivery, photocopy, supplies, equipment and software, and (for borrowing) borrowing fees. **The mean borrowing unit cost for ARL participants is $17.50. The mean lending unit cost is $9.27.** This study continues to use a filled transaction as the basis for calculating unit costs to facilitate comparison with the 1992 and 1996 studies and because a filled request is still considered the "product" of an ILL transaction.

Table 29 provides an overview of the range of borrowing and lending unit costs, and Tables 30 and 31 summarize borrowing and lending unit costs by cost categories. Tables 32 and 33 summarize the borrowing and lending cost categories as a percentage of the total unit cost.

Eight correlations are statistically significant. One of the statistically significant relationships relates to borrowing volume and borrowing unit cost. As the number of filled borrowing transactions increases, the borrowing unit cost decreases. A second statistically significant relationship relates to lenders. As lenders receive and fill more photocopy requests as a percentage of their total filled lending, their unit costs decrease. In other words, for two lenders with the same number of filled lending transactions, the one with the greater percentage of photocopy requests will have the lower unit cost.

### 3.2.1 Staff Costs

**Staff costs continue to represent the major portion of the borrowing and lending unit cost for a mediated ILL/DD transaction.** This section examines the type of staff deployed in ILL departments in the 59 ARL participants. Like the 1996 study, the relationship between staff position categories and borrowing or lending unit costs was examined. **Borrowing and lending unit costs are influenced by, but not necessarily caused by, the number or composition of staff used in any ILL department. Unit cost may be influenced more by how the staff work, the tools they use, the policies that govern their work, and the internal workflow than by the type of positions used in an ILL department.**

Participants were asked to supply annualized salaries for all staff with interlibrary loan responsibilities. They indicated whether each individual worked in the ILL unit or elsewhere in the library, the total number of hours the individual worked, the percentage of that time devoted to ILL, and the percentage of ILL time spent on borrowing and on lending.

**In 2002, borrowing staff in the ILL department assumed a greater responsibility for the overall ILL process compared to staff in other library departments.** In 2002, borrowing staff working in the ILL department account for 95 percent of total borrowing staff; only 5 percent of staff working in other departments in the library have responsibility for borrowing. In 1996, the percentages were 88 percent and 12 percent respectively. Centralizing tasks within the ILL unit was one characteristic of high performing borrowing operations in the 1996 study, so the shift may be a result of participants emulating the staffing configurations identified in the 1996 study. **Support staff positions continue to represent the largest percentage of the borrowing staff unit cost, but the percentage is decreasing.** In 2002, support staff represents 41 percent of the borrowing staff (ILL staff and staff in other library departments) unit cost. In 1996, support staff accounted for 45 percent of the borrowing staff unit cost, and in 1992, the borrowing support staff category represented 65 percent of the borrowing staff cost.

**In 2002, 89 percent of the lending tasks were handled by ILL staff, up from 81 percent in 1996, again perhaps the result of adoption of a characteristic of high-performing lending operations.** Figure 4 compares 1996 and 2002 borrowing and lending staff with responsibility for ILL by library department.

Borrowing staff costs, as a percentage of the total borrowing unit cost, continue to decrease. In contrast, lending staff costs have remained relatively stable as a

percentage of the total lending unit cost. Table 34 displays the percentage of the total unit cost attributed to staff in 1992, 1996, and 2002. As expected, there is a strong positive correlation between total salaries and unit costs. As total salaries increase, so does the borrowing or lending unit cost. Staff costs as a proportion of unit cost varies across libraries. For borrowing, staff represent 42 percent of the unit cost at the 10th percentile, and 73 percent at the 90th percentile, with an average of 58 percent and a median of 46 percent. Lending staff costs range from 62 percent of the lending unit cost at the 10th percentile to 86 percent at the 90th percentile, with the mean and median identical at 75 percent.

**Table 34: Comparing Percentage of Unit Cost Attributed to Staff Cost: 1992, 1996, and 2002**

| | Borrowing | Lending |
|---|---|---|
| 1992 | 76% | 77% |
| 1996 | 62% | 75% |
| 2002 | 58% | 75% |

## 3.2.2 Type of Staff Deployed in ILL Units

The mean unit cost for each staff category is affected by the number of libraries reporting data for each of the five staff categories. This study eliminated the volunteer category as virtually no libraries reported using volunteers in the 1996 study. Definitions for the staff categories are included in the instructions for the "Mediated ILL/DD Services General Characteristics Questionnaire and Cost Data Worksheets" in Appendix E.

In various tables included in this report, the sum of unit costs at the 10th percentile for each category will not equal the total unit cost at the 10th percentile. This is because different participants reported data for each category and different participants fall at the 10th percentile for each of the five staff categories, while the staff unit cost represents a single institution whose total staff unit cost falls at the 10th percentile. For example, participant A could fall at the 10th percentile for professional supervisor, but participant B has support staff unit costs in the 10th percentile. Participant C, with unit costs at various levels in each of the categories, could have an overall staff unit cost in the 10th percentile. Thus, total staff unit costs reflect the sum of an institution's individual costs, not a composite of the costs at the 10th percentile incurred by participants A, B, and C. This caveat applies to the mean, median, and the 90th percentiles as well.

Tables 35 and 36 illustrate the number of libraries reporting borrowing data for each staff category in the ILL department and in other library departments, and the range of unit costs for each staff category. Tables 37 and 38 report data for lending staff, and Table 39 summarizes the mean borrowing and lending staff costs in ILL and other library departments by staff positions.

**Figure 4: Staff with ILL Responsibilities by Library Department (ILL and Other): 1996 and 2002**

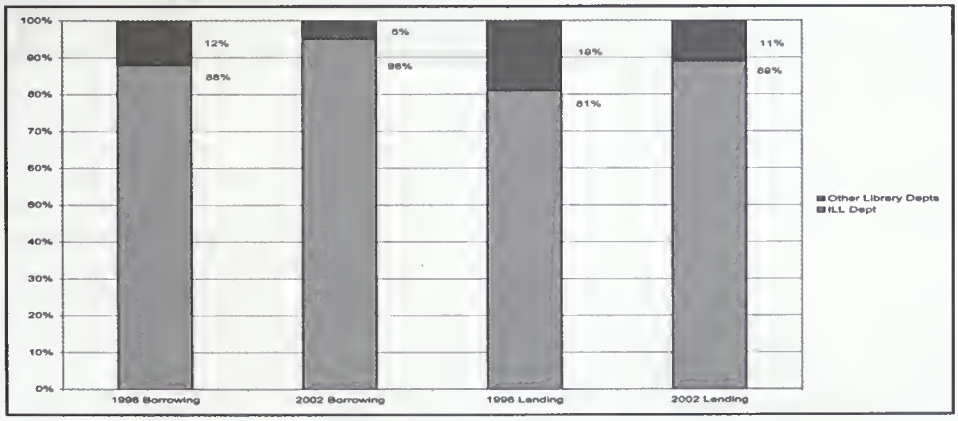


**Table 35: ILL Department Borrowing Staff Unit Cost by Staff Category**

| Position Category | Number Reporting | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|---|
| Professional Supervisor | 50 | $0.44 | $2.14 | $1.96 | $3.93 |
| Professional Nonsupervisor | 6 | NA | $1.37 | $0.93 | NA |
| Support-Staff Supervisor | 35 | $0.41 | $2.78 | $2.01 | $5.57 |
| Support Staff | 56 | $1.98 | $5.06 | $4.02 | $9.56 |
| Students | 52 | $0.30 | $1.05 | $0.89 | $1.81 |

**Table 36: Other Library Department Borrowing Staff Unit Cost by Staff Category**

| Position Category | Number Reporting | Mean | Median |
|---|---|---|---|
| Professional Supervisor | 4 | $0.25 | $4.00 |
| Professional Nonsupervisor | 5 | $0.57 | $5.00 |
| Support-Staff Supervisor | 4 | $0.21 | $4.00 |
| Support Staff | 22 | $0.85 | $22.00 |
| Students | 12 | $0.20 | $12.00 |

**Table 37: ILL Department Lending Staff Unit Cost by Staff Category**

| Position Category | Number Reporting | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|---|
| Professional Supervisor | 50 | $0.20 | $0.90 | $0.67 | $1.93 |
| Professional Nonsupervisor | 6 | NA | $2.32 | $0.53 | NA |
| Support-Staff Supervisor | 42 | $0.23 | $1.36 | $1.06 | $2.26 |
| Support Staff | 57 | $1.02 | $7.83 | $2.52 | $6.61 |
| Students | 56 | $0.16 | $0.99 | $0.74 | $2.39 |

**Table 38: Other Library Department Lending Staff Unit Cost by Staff Category**

| Position Category | Number Reporting | Mean | Median |
|---|---|---|---|
| Professional Supervisor | 4 | $0.13 | $0.13 |
| Professional Nonsupervisor | 4 | $0.21 | $0.22 |
| Support-Staff Supervisor | 10 | $0.47 | $0.23 |
| Support Staff | 28 | $1.38 | $0.42 |
| Students | 19 | $0.56 | $0.17 |

**Table 39: Mean Borrowing and Lending Staff Costs by Staff Category in ILL and Other Library Departments**

| | Borrowing | | | | Lending | | | |
|---|---|---|---|---|---|---|---|---|
| | ILL Staff | | Other Library Staff | | ILL Staff | | Other Library Staff | |
| Position Category | Staff Unit Cost | Percentage of ILL Staff Unit Cost | Staff Unit Cost | Percentage of Other Staff Unit Cost | Staff Unit Cost | Percentage of ILL Staff Unit Cost | Staff Unit Cost | Percentage of Other Staff Unit Cost |
| Professional Supervisor | $2.14 | 17% | $0.25 | 12% | $0.90 | 7% | $0.13 | 5% |
| Professional Nonsupervisor | $1.37 | 11% | $0.57 | 27% | $2.32 | 17% | $0.21 | 8% |
| Support-Staff Supervisor | $2.78 | 22% | $0.21 | 10% | $1.36 | 10% | $0.47 | 17% |
| Support Staff | $5.06 | 41% | $0.85 | 41% | $7.83 | 59% | $1.38 | 50% |
| Students | $1.05 | 9% | $0.20 | 10% | $0.99 | 7% | $0.56 | 20% |
| Total | 12.40 | 100% | $2.08 | 100% | $13.40 | 100% | $2.75 | 100% |

**Table 40: Proportion of Supervisory and Nonsupervisory Staff: 1992 - 2002**

| | Borrowing | | Lending | |
|---|---|---|---|---|
| | Supervisory Staff | Nonsupervisory Staff | Supervisory Staff | Nonsupervisory Staff |
| 1992 | 19% | 81% | 25% | 75% |
| 1996 | 37% | 63% | 28% | 72% |
| 2002 | 40% | 60% | 17% | 83% |

With the caution that the 1992, 1996, and 2002 studies included different participants, it is noteworthy that the percentage of supervisory staff in borrowing is increasing, in contrast to the decrease in lending supervisory staff. Table 40 compares the breakdown of supervisory and nonsupervisory staff as percentages of total staff unit costs. A total of 36 participants employ both a professional supervisor and a support-staff supervisor in their ILL operations. Twenty-five have these two positions oversee their borrowing and lending operations; eight have the two supervisors only in lending; and three use the two supervisors only in borrowing. Six libraries reported a professional nonsupervisor in the lending operations, and, unexpectedly, two participants use no support staff in their lending operations. The study team tested Thomas Waldhardt's hypothesis that libraries in which the professional staff comprise a greater percentage of total ILL staff are libraries with higher unit costs than those in which the support staff predominates.[29] On average, 21 percent of the borrowing staff unit cost is due to professional staff. In the five participants with the highest percentage of borrowing professional staff, professional staff accounts for between 38 to 70 percent of total borrowing staff. The average unit borrowing cost for these five is $15.77, or 10 percent lower than the average unit cost for all 59 participants, negating Waldhardt's hypothesis, at least for this group of participants.

ILL borrowing operations in ARL member institutions have become less labor intensive in relation to the overall staffing for all library services. In 2001–02, staffing accounted for 67 percent of total expenditures in ARL member libraries, excluding material costs, whereas borrowing staff account for 58 percent of the ILL borrowing unit cost. Using the projections noted in section 3.2.8,

[29] Thomas Waldhart, "Performance Evaluation of Interlibrary Loan in the United States: A Review of Research," *Library and Information Science Research* 7 (1985): 321-322.

expenditures for ILL borrowing and lending staff represent 4.4 percent of total staffing expenditures in ARL member institutions.

### 3.2.3 Regional Cost Differences in the U.S.

Staff salaries among participants differ in part because the cost of living and salaries vary from region to region within the United States and between the U.S. and Canada. The impact of regional salary differences was examined for the 28 U.S. ARL libraries for which cost of living data were available.[30] The cost of living index measures relative price levels for consumer goods and services in participating areas of the United States.

This study uses the same four geographic regions as the 1996 study. Table 41 presents the cost of living index number, the mean borrowing and lending unit costs, and the adjusted borrowing and lending unit costs for the 28 U.S. ARL libraries that reported borrowing and lending data. If the average cost of living index for the U.S. is 100, a cost of living index number of less than 100 indicates that it is less expensive in that region. The higher the index number is above 100, the more expensive the area. The mean cost-of-living index numbers for the four regions show that participants in the Northeast have the highest cost of living, and the South the lowest. However, the two columns displaying the ILL unit costs adjusted for cost of living variations show that the Northeast actually has the lowest adjusted borrowing unit cost and the South has the highest adjusted unit cost for both borrowing and lending.

The adjusted mean unit costs for borrowing and lending minimize the impact of regional cost-of-living differences and show unit costs as if all regions of the United States had the identical cost of living in terms of staff salaries, price of equipment, supplies, delivery, etc. In 2002, the adjusted borrowing unit costs varied by $4.71, and the adjusted lending varied by $7.37. In 1996, the comparable differences were $4.36 for borrowing and $3.45 for lending. The wider variation in the adjusted lending unit costs are not attributable to regional salary variations, differential costs of purchasing equipment, etc., but reflect the type of staff used, the organization and internal workflow, number of transactions, etc.

[30] "ACCRA Cost of Living Index Second Quarter 2002," *ACCRA Cost of Living Index* 35, no. 2 (Louisville, KY: American Chamber of Commerce Researchers Association, 2002): 1.1.

### 3.2.4 Comparing ARL Salary Data and Unit Cost

Another method for comparing the relative difference in unit costs is to compare a library's ILL unit cost to its expenditures on salaries as reported in "Rank Order Table 7, Total Salaries and Wages Expenditures" in the *ARL Statistics 2001–2002*. Since salaries and wages still account for the majority of the borrowing and lending unit costs, the study team tested whether the unit cost is related to total salaries. A correlation was run on the borrowing unit cost and the expenditures included in the table cited above and found that the correlation is –0.376. This correlation is weak evidence of economies of scale. Larger libraries have higher salary expenses and more transactions, but unit costs are lower. If costs increased at the same rate that transactions increased, the unit cost would remain the same.

### 3.2.5 Calculating Unit Costs for Filled and Total Transactions

The current study continues to calculate unit costs based on filled, rather than total, transactions for the same reason the two previous studies did: filled transactions are the "products" of interlibrary loan. This methodology is comparable to determining the unit cost of manufacturing based on finished products rather than the raw goods used to produce the finished products.

Table 42 compares the mean unit costs of filled borrowing and lending transactions with the unit costs of total borrowing and lending transactions (filled and unfilled). The variation in unit costs is very similar to 1996. In 2002, the borrowing unit cost for total transactions was 14 percent lower than the unit cost of a filled borrowing transaction, and in 1996 it was 15 percent lower. The lending unit cost for total

transactions was 45 percent lower than the unit cost of a filled lending transaction in 2002, and in 1996, the difference was 42 percent.

**Table 41: Mean Borrowing and Lending Unit Costs Adjusted for U.S. Cost of Living Difference**

| Regions of the United States | Number of Libraries | Mean Cost of Living Index Number | Mean Borrowing Unit Cost | Adjusted Mean Borrowing Unit Cost | Mean Lending Unit Cost | Adjusted Mean Lending Unit Cost |
|---|---|---|---|---|---|---|
| North Central | 11 | 107 | $14.56 | 13.60 | $7.40 | $6.92 |
| West | 8 | 119 | $16.27 | $13.67 | $8.49 | $7.13 |
| South | 6 | 99 | $16.75 | $16.92 | $14.15 | $14.29 |
| Northeast | 4 | 174 | $21.24 | $12.21 | $13.39 | $7.7 |

**Table 42: Comparing Mean Borrowing and Lending Unit Costs for Filled and Total (Filled and Unfilled) Transactions**

| | Filled Transactions | Total Transactions | Difference Between Filled and Total Transactions |
|---|---|---|---|
| Borrowing | $17.50 | $15.02 | 14% lower |
| Lending | $9.27 | $5.01 | 45% lower |

### 3.2.6 Cost of an Unfilled Transaction

Libraries incur costs to process borrowing and lending requests that are ultimately not filled. Because this methodology did not ask participants to track time spent on each part of the process, it was not possible to determine the amount of staff time spent per request, and thus it was not possible to allocate a percentage of total costs to processing unfilled requests.

Stephen Dickson and Virginia Boucher developed a methodology that incorporates filled and unfilled requests.[31] This methodology was adapted to calculate the unit cost based only on filled requests and used in the 1992 ARL/RLG ILL Cost Study. However, there remains interest in finding how much staff time and therefore expense a library incurs when it does not fill a request, and the Dickson/Boucher methodology is one option for calculating the cost of an unfilled transaction.

### 3.2.7 Calculating Processing Time per ILL Request

Dilys Morris, President of the Chronos Group and working with Notre Dame and Vanderbilt universities, has begun a Staff Allocations Project. While the study is looking at all library activities, it has an Interlibrary Loan (ILL) and Document Delivery (DD) Center component.[32] The ILL/DD Center is divided into the following tasks:

- Training, Revision, Procedures, and Policies
- Consulting and Problems
- Administrative Work
- Meetings
- Lending Activities
- Borrowing Activities
- Other

[31] Stephen P. Dickson and Virginia Boucher, "A Methodology for Determining Costs of Interlibrary Lending," *Research Access through New Technology*, edited by Mary E. Jackson (New York: AMS Press, 1989): 137–159.

[32] Dilys Morris, "Time and Cost Analysis: Staff Allocations Project," *ARL: A Bimonthly Report on Research Library Issues and Actions from ARL, CNI, and SPARC* 230/231 (October/December 2003): 23.

The methodology and software (TCA DecisionBase) allows each library to track all the time spent in the ILL/DD Center throughout the library. The libraries also can sort results by ILL/DD staff or by any other administrative group in the library. The Staff Allocations Project expects to collect data for four sample weeks each fiscal year. The four weeks of sample data will allow the participants to project annual time and costs. Although the Morris study does not examine whether it is more costly to process an unfilled request than a filled request, it will use the ARL criteria of filled transactions to determine unit costs, and may be another option for examining ILL costs at a greater level of detail.

### 3.2.8 Calculating Total ILL Expenditures by All ARL Libraries

In 2001–02, the 124 ARL member institutions generated 2,919,708 borrowing transactions and filled 5,437,356 lending transactions.[33] Using mean unit costs for borrowing and lending ($17.50 and $9.27 respectively), the study estimates that in 2002 the 124 ARL members incurred total ILL direct costs of $101,499,180, or $51,094,890 in borrowing expenses and $50,404,290 in lending expenses. The $101 million represents 4.5 percent of FY02 total library expenditures, excluding material costs, incurred by ARL libraries. In 1996, direct borrowing and lending costs represented 3.5 percent of the comparable total library expenditures. Although direct ILL costs as a portion of total library expenditures rose by one percentage point, they still represent a small percentage of overall research library expenditures. The slight increase may be a result of the 7.2 percent annual increase in borrowing transactions and the 3.7 annual increase in lending transactions.[34]

### 3.2.9 Other ILL Cost Studies

In late 2000, Australia's National Resource Sharing Working Group, with the assistance of the National Library of Australia, undertook a study of interlibrary loan operations in 97 Australian national/state, university, special, and public libraries using the ARL methodology. The results of the university library participants compare favorably with those of the performance of research libraries in ARL's 1996 study. For the academic libraries in the Australian study, the average borrowing unit cost was A$35.21, the fill rate was 89 percent, and the turnaround time was 10.8 calendar days. As lenders, Australian university libraries responded to requests within 5.3 days and filled 77 percent of incoming requests at a unit cost of A$18.47.[35]

Forty-nine academic and college libraries in Denmark, Finland, Iceland, Norway, and Sweden adapted the ARL methodology and used it to collect ILL performance data during the 2000–01 fiscal year.[36] In the aggregate the average unit costs were comparable to those found by the North American and Australian studies: €12.56 for borrowing and €7.96 for lending. As might be expected, performance varied within the five countries.

The cost categories in the Nordic performance study are similar to the findings of this study.[37] For borrowing, staff costs accounted for 62.3 percent of the unit cost, with borrowing fees second at 22.6 percent. For lending, staff costs accounted for 68.5 percent, followed by delivery costs at 17.2 percent. That study concluded that libraries with low borrowing cost have decentralized operations, high numbers of transactions, cooperative agreements, and good union catalogs. The lending characteristics include use of lower-level staff, high use of technology, and efficient delivery systems.

Franca Rosen and Leanne Emm used the ARL methodology to calculate ILL unit costs for Jefferson County Public Library in Colorado. They calculated the borrowing unit costs for the user-initiated Prospector service as $1.56 per transaction, and $1.17

[33] *ARL Statistics, 2001–2002*, p. 47.
[34] Ibid., p. 12.
[35] National Resource Sharing Working Group, p. 10.
[36] Pentti Vattulainen, "Performance of Interlending in Nordic Academic Libraries," paper presented at the Eighth Interlending and Document Supply International Conference, Canberra, Australia, October 29, 2003, <http://www.nla.gov.au/ilds/abstracts/theworldsbest.htm>.
[37] Ibid., slides 17–18.

for lending. In comparison, the unit costs using OCLC were $31.28 for borrowing and $8.35 for lending. The mean unit cost for the five mediated and user-initiated services offered by that public library was $2.02 for borrowing and $1.50 for lending.[38]

The Colorado State Library compared the costs of borrowing and lending returnables before and after implementation of SWIFT (StateWide ILL Fast Track), a statewide, Web-based ILL system for public, special, school, and academic libraries. Just over half of the participants are public libraries; school libraries represent one-quarter, with the remainder special and academic libraries. SWIFT uses Fretwell-Downing's Virtual Document eXchange (VDX) software. The study calculated costs for staffing, automation, and delivery. Although the Colorado State Library study did not cite specific borrowing and lending unit costs, figures suggest that borrowing via VDX ranges from approximately $7.50 to about $27.50.[39] Lending unit costs range from less than $5.00 to approximately $20. Small and medium-sized libraries saved money by using SWIFT for borrowing, and large libraries decreased their lending costs. System costs are paid by the state and were estimated at $1.63 per transaction for the period July and December 2002, and is expected to decrease to $1.22 in 2003–04 as the number of transactions increases.

Commissioned by the Dutch Association of University Libraries, Pleiade Management and Consultancy conducted a study between April and August 2003 about the future of the interlibrary document delivery system, as it is called, in the Netherlands. The study cites cost as one of four major obstacles to the future of the system. The report cites direct costs to supply an article of approximately €20 for a university library and approximately €15 for a document delivery library, which is one of four libraries appointed to play a more active role in document delivery system.[40] However, the study does not indicate how those costs were calculated, so comparison with the results from this study should be made with caution.

The full cost to fill a request by the British Library Document Supply Centre (BLDSC) has been estimated at £6.97, excluding VAT (value-added tax).[41] Another U.K. study, involving De Montfort University, Loughborough University, and the University of Leicester was undertaken in 2000 to investigate how the libraries could collaborate more closely.[42] The researchers calculated the cost of implementing a local document delivery system among the three libraries, the cost of obtaining items from the British Library Document Supply Centre, and the cost of users traveling to other libraries to use materials. Their research concluded that establishing a document delivery service among the three institutions was not cost-effective when compared with using BLDSC because only about 11 percent of ILL requests were likely to be filled by the three libraries.

## 3.3 Mediated ILL/DD: Fill Rates

Fill rate is the percentage of all borrowing or lending requests that are successfully filled. For each participant, borrowing and lending fill rates were calculated by dividing the number of filled requests by the total

[38] Franca Rosen and Leanne Emm, "The Cost of Getting What Patrons Want: A Study in Colorado Resource Sharing," *Colorado Libraries* 29 (Fall 2003): 37.

[39] Brenda K. Bailey-Hainer, "SWIFT: Colorado's Statewide Electronic Interlibrary Loan Service," *Colorado Libraries* 27, no. 3 (Fall 2001): 33–35; Jean Madsen, "SWIFT: How Collaboration Using the Internet Helped to Build this Statewide Resource Sharing Program," *Colorado Libraries* 29, no. 2 (Summer 2003): 36–37; Brenda K. Bailey-Hainer, "Multi-Type Statewide Resource Sharing: The Colorado SWIFT Experience," *Journal of Library Administration* 40, no. 1/2, to be published in August 2004.

[40] Maurits van der Graaf, *Naar een toekomstvast interbibliothecair documentleverantiesysteem* [Toward a Future-Resistant Interlibrary Document Delivery System] (Amsterdam: Pleiade Management and Consultancy, 2003). [English summary supplied by author.]

[41] The Higher Education Consultancy Group, *A Report to CURL and the British Library Cooperation and Partnership Programme on Monograph Interlending for the Higher Education Research Community* (n.p., May 2003): 23.

[42] Ian Bloor, *CORSALL: Collaboration in Research Support by Academic Libraries in Leicestershire: Final Report* (February 2001), <http://www.library.dmu.ac.uk/Research/CORSALL/Report/>.

number of requests received in the fiscal year.

Only one library was unable to provide the number of unfilled returnable and nonreturnable borrowing requests; that library's total was excluded from the aggregate borrowing totals, and thus borrowing fill rates. Several libraries provided only the total number of unfilled requests, but did not break down the total into the number of unfilled returnable and nonreturnable requests. For those libraries, the proportion of unfilled returnables and unfilled nonreturnables was calculated using the proportions of filled returnables and nonreturnables; fill rates were then calculated for returnables and nonreturnables. Institution-specific fill rates were totaled and that sum averaged to result in the library fill rate reported in this study. (However, the phrase *library fill rate* has been shortened in this report to *fill rate.*)

Average borrowing fill rates have improved slightly since 1996, but still show a wide variation among individual participants. Borrowing fill rates for the middle 80 percent of the ARL participants ranged from 74 to 95 percent in 2002, compared with 75 to 93 percent in 1996. Over the past six years, the average borrowing fill rate for returnables increased from 83 to 85 percent, and the rate for nonreturnables increased from 86 to 87 percent. Table 43 summarizes the range of borrowing fill rates.

**The mean lending fill rate has not changed over the past six years. In 2002, the overall mean lending fill rate is 58 percent, the same as 1996. The average fill rate for returnables increased by one percentage point to 59 percent while the nonreturnable fill rate dropped by one percentage point to 57 percent.** In 1996, the mean fill rates for returnables and nonreturnables were identical at 58 percent. In 2002, participants at the 90th percentile filled 76 percent of their lending requests, down slightly from 78 percent in the 1996 study. Table 44 summarizes the range of lending fill rates.

A number of correlations were run on the entire data set and four of the eight statistically significant relationships relate to the lending fill rates. The first positively links the number of lending staff and fill rate. As total lending staff increases, the lending fill rate increases. A second statistically significant relationship is found between number of filled lending transactions and fill rate: as the number of filled lending transactions increases, the lending fill rate increases.

**Table 43: Range of Borrowing Fill Rates**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total | 74% | 86% | 88% | 95% |
| Returnables | 73% | 85% | 87% | 95% |
| Nonreturnables | 73% | 87% | 90% | 96% |

**Table 44: Range of Lending Fill Rates**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total | 44% | 58% | 58% | 76% |
| Returnables | 42% | 59% | 59% | 77% |
| Nonreturnables | 39% | 57% | 56% | 81% |

The third relationship is a negative link between lending fill rate and lending unit cost: as the lending fill rate increases, the lending unit cost decreases. The fourth relationship suggests that a library's fill rate increases with the proportion of photocopies a library processes as a percentage of its total lending. In other words, if two libraries have the same number of filled lending transactions, the library with the higher percentage of photocopy requests will have the higher fill rate.

### 3.3.1 Comparing Borrowing and Lending Fill Rates

Borrowing and lending fill rates are not calculated in the same way. The borrowing fill rate is based on the number of requests submitted by local users not the number of libraries to which requests are sent. The lending fill rate is based on whether or not a library fills a specific request, not whether that request is ultimately filled.

As Karen Stabler asserted, "how one counts is probably the biggest factor in the variation of fill rates."[43] Some libraries count requests for locally owned material as filled requests; others count them as unfilled requests; while still others do not include them in either count. Stabler also noted the use of the OCLC monthly statistics as a source of fill-rate data. If the borrowing library generates a second OCLC request because the original request was not filled, OCLC counts (and thus reports on the monthly statistics) them as two requests, rather than one request with one unfilled sub-transaction and one filled sub-transaction.

One of the recommendations from the final report of the 1996 study remains unrealized. "Reaching national agreement on counting strategies for filled and unfilled requests generated on all online ILL systems would enable ILL managers to use statistical reports generated by those systems with confidence that ILL requests are being counted consistently."[44] The OCLC ILL system states that it can "achieve higher fill rates, as high as 95 percent."[45] One assumes that the fill rate being cited is the borrowing fill rate, so the 95 percent fill rate compares favorably with the fill rates of the high-performing borrowers (see section 5.2.4). However, this percentage is the overall system percentage, not the fill rate achieved by all libraries. **Reaching national agreement on counting strategies remains a key recommendation of this study.**

The majority of the participants in this study do not include the number of requests for locally owned items in their total filled borrowing requests; however, 10 participants do count requests for locally owned items as filled borrowing requests. Nine of the ten supplied the number of requests for locally owned items. The fill rates for those nine were recalculated excluding the number of requests for locally owned items in their total filled requests. The decreases in borrowing fill rates due to this recalculation ranged from less than one percentage point to four percentage points, with an average decrease of 1.86 percentage points. This small decrease does not significantly influence the aggregate borrowing fill rate included in this report. Of the six participants with the highest borrowing fill rates, two included requests for locally owned material in their filled totals while four do not include requests for locally owned material in either the total for filled or unfilled requests.

One research library's internal, and confidential, study of borrowing processing in 1998 concluded that total time (processing time plus waiting time) is largely made up of waiting time, or more specifically, waiting time is 78 percent of total processing time. This library compared 10 different scenarios and calculated the impact on waiting time for each. The researchers concluded that removing processing steps was not an efficient method of streamlining the borrowing process because the steps removed did not reduce overall turnaround time. Other scenarios included eliminating the search of the online catalog, eliminating the second review of the request, eliminating the card catalog search, eliminating the search for other potential lenders, limiting searching to OCLC, switching the duties assigned to student staff, switching student staff combined with no second review, and no processing interruptions. The study concluded that adding a part-time worker or switching the duties of the student assistants were the two scenarios that significantly reduced overall turnaround time.

Kim Burke Sweetman reported how New York University's ILL department examined turnaround time of supplying libraries to improve their own borrowing turnaround

[43] Karen Stabler, "Benchmarking Interlibrary Loan and Document Delivery Services: Lessons Learned at New Mexico State University," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 12, no. 3 (2002): 69.
[44] Jackson, *Measuring the Performance*, p. 69.
[45] < http://www.oclc.org/ill/about/default.htm>

time.[46] Choosing "favorite lenders" among the RLG Shares libraries and making changes to internal workflow reduced turnaround time by 2.3 days for returnables and 3.2 days for nonreturnables.

At a poster session at the 2001 American Library Association Annual Conference in San Francisco, staff from the University of Wisconsin–Madison Libraries summarized the changes they made to their borrowing procedures between August 1994 and March 2001. A handout noted four significant changes that reduced turnaround time:[47]

1) patrons searched the Committee on Institutional Cooperation's (CIC) Virtual Electronic Library (VEL) and place requests;
2) patrons searched OCLC's WorldCat and initiate requests, with 75 percent of monographic requests go directly to lenders;
3) the ILL department implemented Clio management software; and
4) the ILL department became a paperless operation.

Fill rates in the Nordic ILL performance measures study discussed in section 3.2.9 vary from those of North American libraries.[48] Overall the Nordic borrowing fill rate was 88.1 percent, with the lending fill rate at 84.6 percent. Borrowing fill rates ranged from 85.5 to 92.9 percent, and lending fill rates ranged from 75.3 to 92.6 percent. Libraries with high borrowing or lending fill rates relied on comprehensive union catalogs, employed technology and electronic delivery, and had liberal lending policies.

### 3.3.2 Unfilled Borrowing Requests

New to this investigation are questions regarding unfilled borrowing and lending requests, a recommendation included in the final report of the 1996 study. Using the sample requests, borrowers were asked to record the reasons why requests were not filled. Not all sample requests included reasons. Tables 45 and 46 summarize the reasons included on the 476 requests for which reasons were given. It is important to note that the borrower listed only one reason when the request was not filled. If the request was sent to multiple suppliers, the borrower likely listed the reason given by the last supplier. **Any future study could encourage borrowers to list all of the lenders' reasons, rather than just the reason the last lender supplied.** Thus, the percentage of requests not filled because the item was not on shelf is lower than might be expected, since the borrower probably tried multiple libraries until finding a library with the item on the shelf.

The 1996 study asserted that examining the "fail points" may be more enlightening than focusing on why the fill rates have not improved over the past 15 years. Sorting the unfilled borrowing requests into requests over which the borrower has some or complete control, and the requests over which the lender has control may help understand the current borrowing fill rates. Table 47 groups unfilled borrowing requests into reasons over which the borrower has control and over which the lender has control. The response of *other* was excluded, as it is impossible to determine whether the borrower or lender had control.

Some might argue that some of the reasons included in the "borrower controlled" section should be included more properly in the "lender controlled" section. These reasons (*in use, at bindery, on reserve*) are ones the borrower could determine if borrowing staff check the lenders' online catalogs, but that would increase the unit cost as it is more labor intensive.

Given how the ILL workflow has developed on OCLC, the dominant messaging system for participants, borrowers typically don't search the online catalogs of individual libraries but simply search the OCLC WorldCat database. **This study suggests that automatic searching of online catalogs of potential lenders would increase fill**

[46] Kimberly A. Burke, "Checking Up on the Joneses: Using Fill Time Data to Improve Interlibrary Borrowing," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 10, no. 2 (1999): 19–30.
[47] Tanner Wray, Judith Tuohy, Heather Ballestad, and Brian Beecher, "Improving Patron Service in Interlibrary Borrowing, a Case Study," handout from a poster session at the American Library Association Annual Conference, San Francisco, CA, June 2001.
[48] Vattulainen, slide 23.

rates. OCLC is encouraged to enhance its ILL system to permit the OCLC ILL system to search the lenders' online catalogs before sending requests to them.

**Table 45: Reasons Borrowing Returnable Requests Were Not Filled**

| Reason | Number of Requests | Percentage of Total |
|---|---|---|
| Locally Owned | 66 | 29% |
| Noncirculating | 57 | 25% |
| Other | 43 | 19% |
| In Use or on Loan | 15 | 7% |
| Locations Not Found | 7 | 3% |
| User Canceled | 7 | 3% |
| Unable to Obtain by Need-by Date | 5 | 2% |
| Lacking Volume or Issue | 4 | 2% |
| Policy Problem | 4 | 2% |
| Volume/Issue not yet Available | 4 | 2% |
| In Process | 3 | 1% |
| Not Found as Cited | 3 | 1% |
| Not on Shelf | 3 | 1% |
| Not Owned | 2 | 1% |
| At Bindery | 1 | 0% |
| Cost Exceeds Limit | 1 | 0% |
| Lost | 1 | 0% |
| On Reserve | 1 | 0% |
| Total | 227 | 100% |

**Table 46: Reasons Borrowing Nonreturnables Requests Were Not Filled**

| Reason | Number of Requests | Percentage of Total |
|---|---|---|
| Locally Owned | 128 | 51% |
| Lacking Volume or Issue | 32 | 13% |
| Other | 27 | 11% |
| Not Found as Cited | 22 | 9% |
| Cost Exceeds Limit | 9 | 4% |
| User Canceled | 7 | 3% |
| Not Owned | 5 | 2% |
| Volume/Issue Not Yet Available | 5 | 2% |
| Locations Not Found | 4 | 2% |
| Noncirculating | 4 | 2% |
| Unable to Obtain by Need-by Date | 4 | 2% |
| In Process | 1 | 0% |
| Not on Shelf | 1 | 0% |
| Total | 249 | 100% |

**Table 47: Unfilled Borrowing Requests by Type of Rejection**

| Borrower Controlled | Number of Requests | Percentage of Total |
|---|---|---|
| Locally Owned | 194 | 67% |
| Not Found as Cited | 25 | 9% |
| In Use or on Loan | 15 | 5% |
| User Canceled | 14 | 5% |
| Locations not Found | 11 | 4% |
| Cost Exceeds Limit | 10 | 3% |
| Unable to Obtain by Need-by Date | 9 | 3% |
| Volume/Issue Not Yet Available | 9 | 3% |
| In Process | 4 | 1% |
| At Bindery | 1 | 0% |
| On Reserve | 1 | 0% |
| Total | 293 | 100% |
| Lender Controlled | | |
| Noncirculating | 61 | 54% |
| Lacking Volume or Issue | 36 | 32% |
| Not Owned | 7 | 6% |
| Not on Shelf | 4 | 4% |
| Policy Problem | 4 | 4% |
| Lost | 1 | 0% |
| Total | 113 | 100% |

**Borrowers are encouraged to review the reasons their requests are not filled, and to make changes for requests over which they have control.** Borrowers should investigate how they can capture requests for locally owned materials before they are received into the ILL process. **Using management software that searches the local catalog after the user submits the request but before it is received by the ILL department may catch a large percentage of the locally owned items. Incorporating an OpenURL resolver into the ILL management software or using a separate OpenURL resolver to check incoming photocopy requests to determine if the title is held will minimize or eliminate photocopy requests for locally held titles.**

**In addition, borrowers are encouraged to change their policies and permit requests for locally owned items to be sent directly to lenders. Monitoring the lending fill rates of individual libraries will identify libraries with low lending fill rates. Borrowers should eliminate those libraries from their preferred groups of lenders or determine whether selective searching of those libraries' online catalogs would increase fill rates.**

### 3.3.3 Unfilled Lending Requests

Using the sample requests, lenders were asked to supply the reasons they were not able to fill lending requests. A total of 1,659 unfilled lending requests included reasons. Tables 48 and 49 summarize the reasons for nonsupply for returnables and nonreturnables.

**Table 48: Reasons for Rejecting Lending Returnable Requests**

| Reason | Number of Requests | Percentage of Total |
|---|---|---|
| In Use or on Loan | 222 | 30% |
| Noncirculating | 166 | 22% |
| Not on Shelf | 114 | 15% |
| Cost Exceeds Limit | 64 | 9% |
| Lacking Volume or Issue | 31 | 4% |
| Not Owned | 31 | 4% |
| Other | 27 | 4% |
| On Reserve | 18 | 2% |
| In Process | 17 | 2% |
| Lost | 15 | 2% |
| Policy Problem | 15 | 2% |
| At Bindery | 6 | 1% |
| Not Found as Cited | 6 | 1% |
| On Order | 5 | 1% |
| Poor Condition | 5 | 1% |
| Unable to Fill by Need-by Date | 4 | 1% |
| On Hold | 2 | 0% |
| User Canceled | 1 | 0% |
| Total | 749 | 100% |

**Table 49: Reasons for Rejecting Lending Nonreturnable Requests**

| Reason | Number of Requests | Percentage of Total |
|---|---|---|
| Lacking | 402 | 44% |
| Not on Shelf | 100 | 11% |
| Not Found as Cited | 91 | 10% |
| Not Owned | 81 | 9% |
| Volume/Issue Not Yet Available | 54 | 6% |
| Other | 52 | 6% |
| Cost Exceeds Limit | 41 | 5% |
| In Use or on Loan | 21 | 2% |
| At Bindery | 16 | 2% |
| Lost | 10 | 1% |
| Noncirculating | 10 | 1% |
| Policy Problem | 10 | 1% |
| Lacks Copyright Compliance | 6 | 1% |
| Poor Condition | 5 | 1% |
| User Canceled | 4 | 0% |
| Unable to Fill by Need-by Date | 3 | 0% |
| In Process | 2 | 0% |
| Locations Not Found | 1 | 0% |
| On Reserve | 1 | 0% |
| Total | 910 | 100% |

As lenders, libraries owned the requested title, but *lacked the specific issue* for just under half (44 percent) of the nonreturnable requests. Given that three-quarters of the ILL transactions generated by the participants in this study are sent and received on the OCLC ILL system, there may be two reasons for this high percentage. First, the library has not maintained current serial holdings on OCLC, and second, borrowing staff did not check the OCLC union lists before placing requests. Just over three-quarters (78 percent) of the borrowers indicated that they check the OCLC union

lists, but it is beyond the scope of this study to determine whether union lists were checked for the sample requests. If lenders maintained current serial holdings in OCLC, their fill rates might increase by as much as 33 percent, according to OCLC's 2000 Strategic Union List study.[49] The OCLC study verified that fill rates would increase as more of a library's serials collection is entered into OCLC and if a library enters more local data records, which details specific serial holdings.

The second most common reason for not filling a lending photocopy request, *not on shelf*, suggests that the physical issues may be heavily used, incorrectly shelved, or that ILL staff were not trained properly to retrieve items. Again, OCLC reported that they owned the title, but ILL staff were not able to find the requested issue.

The most common reason for not filling a returnable request, *in use or on loan*, is not easily discovered by borrowing staff unless the online catalog is checked for each request and for each potential lender. OCLC has explored how it might check lenders' online catalogs before requests are sent to them. **OCLC is encouraged to continue its investigation into how it could determine the circulation status for new lending requests, and forward those requests to the next potential lender if the item is in use at the first lender.** However, the second most common reason, *noncirculating*, is a policy issue, and something over which the lender has control. This study did not ask why the lender decided not to fill specific requests.

Table 50 groups unfilled lending requests into reasons over which the lender has control and reasons over which the borrower has control. Using a scenario in which the lender receives requests via OCLC, the reasons were divided by the "controlling" party.

**Table 50: Unfilled Lending Requests by Type of Rejection**

| Lender Controlled | Number of Requests | Percentage of Total |
|---|---|---|
| Lacking Volume or Issue | 433 | 43.2% |
| Not on Shelf | 214 | 21.4% |
| Noncirculating | 176 | 17.6% |
| Not Owned | 112 | 11.2% |
| Lost | 25 | 2.5% |
| Policy Problem | 25 | 2.5% |
| Poor Condition | 10 | 1% |
| Unable to Fill by Need-by Date | 7 | 0.6% |
| Total | 1002 | 100% |
| Borrower Controlled | | |
| In Use or on Loan | 243 | 42% |
| Cost Exceeds Limit | 105 | 18% |
| Not Found as Cited | 97 | 17% |
| Volume/Issue Not Yet Available | 54 | 9% |
| At Bindery | 22 | 5% |
| In Process | 19 | 3% |
| On Reserve | 19 | 3% |
| Lacks Copyright Compliance | 6 | 1% |
| On Order | 5 | 1% |
| User Canceled | 5 | 1% |
| On Hold | 2 | 0% |
| Locations Not Found | 1 | 0% |
| Total | 578 | 100% |

**Lenders can increase their lending fill rates, sometimes significantly, by maintaining holdings in OCLC, updating OCLC records when items are lost, establishing generous lending policies, and making exceptions as appropriate. Likewise, borrowers will increase their fill rates by increasing the amount of money they are willing to pay in borrowing fees, selectively checking the online catalogs of**

[49] Cathy Kellum, "A Little 'SOUL' Increases ILL Fill Rates," *OCLC Newsletter* no. 248 (November/December 2000): 33, <http://digitalarchive.oclc.org/da/ViewObject.jsp?objid=0000001752&reqid=11430>.

**potential lenders, or checking citations more carefully.**

To expect that borrowers will first search OCLC's WorldCat to determine possible ownership and then check each potential lender's online catalog for circulation status increases the labor-intensive nature of the process, and thus increase costs and perhaps result in slower turnaround times. **If the OCLC ILL system would automatically search the lenders' online catalogs for availability, fill rates for borrowers and lenders will increase.**

**Lenders are encouraged to review the reasons they reject requests and become more willing to lend.** *Noncirculating* is the second most common reason for rejecting lending requests and it is reasonable to expect that some of these requests would have been filled had the lender chosen to do so. **For requests that are found to be *not on shelf*, the library should investigate whether the circulation status should be changed to *missing* in the local online catalog or the item declared *lost*. These are just two examples of how lenders should examine each of the categories included in Tables 48 and 49 and change their lending policies and practices accordingly.**

The findings of Sue Medina and Linda Thornton's 1996 investigation of why Network of Alabama Academic Libraries (NAAL) members could not fill lending requests is comparable to the findings of this study.[50] They found that 31.5 percent of requests were not filled because the library *lacked* the volume or issue. *Cost exceeds limit* was the second most common reason, at 14.61 percent, and *not on shelf* was third, at 13.1 percent. As borrowers, NAAL members reported the most common reasons as *in use/lending restrictions* and *not owned*.

Barbara Slater examined DOCLINE lending photocopy requests that the University of California, San Diego, Biomedical Library was not able to fill during July to September 1996.[51] Of the sample of 364, *lacking* (34.9 percent), *not owned* (19 percent), and *not on shelf* (11.3 percent) were the three most common reasons for not filling requests. In the current study, *lacking, not on shelf,* and *not found as cited* were the most common reasons for lenders rejecting photocopy requests. Given that DOCLINE selects potential lenders based on a library's holdings, Slater's findings suggest that the challenges of maintaining current serial holdings is not unique to the union lists included in OCLC's WorldCat.

### 3.3.4 Language of Borrowing Requests

From the borrowing sample requests, 2,417 forms included the language of the requested item. A total of 30 different languages were recorded on filled and unfilled requests. Not surprisingly, English was the most commonly requested language. At the other end of the range, Belgian, Catalan, Church Slavic, Danish, Norwegian, and Vietnamese were each requested one time. The top five languages and their percentage of all language-specific requests are listed in Table 51. A comparable analysis of lending requests was not completed because lenders were not asked to supply the language on the sample requests.

**Table 51: Language of Borrowing Requests**

| Language | Number of Requests | Percentage of Total |
|---|---|---|
| English | 1,816 | 75% |
| Spanish | 145 | 6% |
| French | 131 | 5% |
| German | 108 | 4% |
| Italian | 38 | 2% |
| All Other Languages | 179 | 8% |
| Total | 2,417 | 100% |

[50] Sue O. Medina and Linda Thornton, "Cannot Supply: An Examination of Interlibrary Loan Requests Which Could Not be Filled by Members of the Network of Alabama Academic Libraries," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 6, no. 4 (1996): 11–33.

[51] Barbara M. Slater, "An Analysis of Unfilled DOCLINE Lending Requests," *Bulletin of the Medical Library Association* 85, no. 4 (1997): 426–8.

### 3.3.5 Subject Classification of Borrowing Requests

The sample requests also included the call number. Since the Library of Congress classification scheme represents the majority of call numbers on incoming requests, only the 2,962 sample requests with LC call numbers were analyzed. The distribution ranges across the classification schemes. These sample requests were further examined by type of request (loan or copy). The summary is presented in Table 52.

**Table 52: Breakdown of Borrowing Requests by LC Classification Number**

| Class Number | Description | Number of Nonreturnables | Percentage of Total | Number of Returnables | Percentage of Total |
|---|---|---|---|---|---|
| A | General Works | 19 | 1.7% | 21 | 1.2% |
| B | Philosophy, Psychology, Religion | 77 | 6.7% | 178 | 9.8% |
| C | Auxiliary Sciences of History | 3 | 0.2% | 22 | 1.2% |
| D | History | 63 | 5.5% | 146 | 8.1% |
| E – F | History (American) | 24 | 2.1% | 108 | 6% |
| G | Geography | 33 | 2.9% | 56 | 3% |
| H | Social Sciences | 137 | 11.9% | 257 | 14.2% |
| J | Political Science | 14 | 1.2% | 35 | 1.9% |
| K | Law | 12 | 1% | 34 | 1.9% |
| L | Education | 41 | 3.6% | 69 | 3.8% |
| M | Music | 22 | 1.9% | 41 | 2.3% |
| N | Fine Arts | 29 | 2.5% | 67 | 3.7% |
| P | Language and Literature | 144 | 12.5% | 286 | 15.8% |
| Q | Science | 200 | 17.4% | 200 | 11% |
| R | Medicine | 198 | 17.2% | 146 | 8.1% |
| S | Agriculture | 35 | 3% | 20 | 1.1% |
| T | Technology | 78 | 6.8% | 88 | 4.9% |
| U – V | Military& Naval Science | 5 | 0.5% | 19 | 1% |
| Z | Bibliography and Library Science | 16 | 1.4% | 19 | 1% |
| Total | | 1,150 | 100% | 1,812 | 100% |

### 3.3.6 Subject Classification of Lending Requests

A comparable analysis was undertaken for the 2,758 lending requests with LC call numbers. Table 53 summarizes the results.

**Table 53: Breakdown of Lending Requests by LC Classification Number**

| Class Number | Description | Number of Nonreturnables | Percentage of Total | Number of Returnables | Percentage of Total |
|---|---|---|---|---|---|
| A | General Works | 33 | 2.4% | 17 | 1.2% |
| B | Philosophy, Psychology, Religion | 92 | 6.8% | 138 | 9.8% |
| C | Auxiliary Sciences of History | 12 | 0.9% | 14 | 1% |
| D | History | 34 | 2.5% | 134 | 9.5% |
| E – F | History (American) | 22 | 1.6% | 92 | 6.5% |
| G | Geography | 45 | 3.3% | 48 | 3.4% |
| H | Social Sciences | 160 | 11.9% | 207 | 14.7% |
| J | Political Science | 14 | 1% | 27 | 1.9% |
| K | Law | 151 | 1% | 15 | 1.0% |
| L | Education | 53 | 3.9% | 70 | 5.0% |
| M | Music | 14 | 1% | 31 | 2.2% |
| N | Fine Arts | 22 | 1.6% | 66 | 4.7% |
| P | Language and Literature | 114 | 8.4% | 257 | 18.2% |
| Q | Science | 291 | 21.6% | 125 | 8.9% |
| R | Medicine | 227 | 16.8% | 42 | 3.0% |
| S | Agriculture | 52 | 3.9% | 20 | 1.4% |
| T | Technology | 133 | 9.9% | 79 | 5.6% |
| U – V | Military & Naval Science | 3 | 0.5% | 8 | 0.7% |
| Z | Bibliography and Library Science | 13 | 1% | 19 | 1.3% |
| Total | | 1,349 | 100% | 1,409 | 100% |

### 3.3.7 The Potential Impact of Electronic Books and Journals on ILL

This investigation did not specifically examine the impact of electronic books on mediated ILL/DD services. In a paper given at the seventh Interlending and Document Supply Conference in Ljubljana in 2001, Anne Morris, Loughborough University, noted that electronic books available to members of a consortium would not impact ILL because all users will have access to the titles. Electronic books, as a print-on-demand alternative, may offer the potential to reduce interlibrary loan traffic, as it may be more cost effective to obtain a print copy than to place an ILL request. However, Morris concluded that electronic books "are unlikely to have a significant effect on the ILL service in the next few years."[52]

[52] Anne Morris, "E-books—Issues and Effect on Inter-Library Loans," *Providing Access through*

Two years later at the eighth Interlending and Document Supply Conference in Canberra, Jens Vigen, CERN, and Kari Paulson, eBooks Corp., painted a more optimistic picture. ILL is in a "free fall" because reports can be downloaded from the Internet and journal articles are accessible from publishers' Web sites. They asserted that this trend of electronic access will spread to books, as "books will soon all be just one click away from your library catalog."[53] They envisioned that rather than trying to reduce turnaround time for mediated ILL, managers should anticipate a day when they can point their users to digital copies of needed items.

Mike McGrath's regular review of the literature in *Interlending & Document Supply* includes articles that explore the relationship between e-books and interlibrary loan.[54]

The OCLC Office of Research is examining the characteristics and usage patterns of ILL transactions.[55] Scheduled for publication in August 2004, the OCLC study seeks to identify and characterize book collection holdings by library type to develop strategies for e-book collection development. The patterns of OCLC ILL requests made by ARL libraries, academic non-ARL libraries, and public libraries will give another view of material requested via ILL and the potential impact of electronic books on mediated ILL services.

Has the increase in local access to full-text and electronic journals reduced the number of photocopy requests submitted by local users? The findings from this study suggest that the full impact of access to electronic journals is not greatly reducing the number of ILL requests. Reports in the literature suggest varying patterns.

David Solar examined borrowing requests at the University of North Carolina from a five-month period in each of three years—1997 to 1999. He wanted to identify a trend in the number of photocopies requested via ILL that were also available in a full-text database. In 1997, fewer than 10 percent of the ILL requests were available electronically. In 1998, the availability slipped to under 8 percent, but jumped back to 10 percent in 1999. However, increasing numbers of requests were processed in each of the three periods. When viewed by number of articles available in full-text, the trend appears somewhat more encouraging: 23 in 1997, 28 in 1998, and 50 in 1999. Solar noted that "without a means of tracking the full-text article being accessed by the user, it is difficult to measure the extent to which electronic full-text is already being used in place of traditional interlibrary borrowing."[56]

In 2000 in an attempt to assess the impact of electronic journals on ILL requesting, Lynn Wiley and Tina Chrzastowski examined journal article requests initiated by Illinois libraries. They discovered that ILL increased nine percent since their 1996 study and observed "full-text availability, now found in many Illinois libraries, is not decreasing the need for more resource sharing. Many full-text titles are simply supplementing resources already available by providing print materials in another format."[57]

Another prediction is presented in the *MINITEX Resource Sharing Report, FY03*.[58]

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*Co-operation: Proceedings of the Seventh International Conference held in Lubljana, 1-5 October 2001*, edited by Pauline Connolly (Boston Spa, U.K.: IFLA Offices for UAP and International Lending, 2002): 112.

[53] Jens Vigen and Kari Paulson, "E-books and Interlibrary Loan: An Academic Centric Model for Lending," paper presented at the Eighth Interlending and Document Supply Conference, Canberra, Australia, 2003, <http://www.nla.gov.au/ilds/abstracts/ebooksand.htm>.

[54] Mike McGrath, "Interlending and Document Supply: A Review of the Recent Literature—XLVII," *Interlending & Document Supply* 31, no. 4 (2003): 270–279.

[55] OCLC Office of Research, "Comparative Collection Assessment for Books," <http://www.oclc.org/research/projects/mi/>.

[56] David Solar, "Electronic Full-Text Article as a Substitute for Traditional Interlibrary Borrowing," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 11, no. 1 (2000): 114.

[57] Lynn Wiley and Tina E. Chrzastowski, "The Illinois Interlibrary Loan Assessment Project II: Revising Statewide Article Sharing and Assessing the Impact of Electronic Full-Text Journals," *Library Collections, Acquisitions, and Technical Services* 26 (2002): 30.

[58] *MINITEX Resource Sharing Report, FY03, & Trends and Predictions for the Future (October 2003)* (n.p., February 26, 2004): 3.

MINITEX believes that "requests for photocopies (non-returnables) will continue to decrease slowly, as electronic content is more readily available; however, the decrease will level off due to the imbalance between journals indexed, journals with electronic full-text content, and the number of years for which e-content is available and licensed by libraries."

### 3.3.8 Other Fill Rate Studies

The fill rates reported in the Australian benchmarking study discussed in section 3.2.9 are comparable or slightly higher than the fill rates reported in this study. The overall fill rate for all Australian libraries was 89 percent for borrowing and 83 percent for lending.[59] However, Australian university libraries recorded higher fill rates than the averages for all types of libraries in that study: 89 percent for borrowing and 77 percent for lending.

In the Nordic ILL study, the borrowing fill rate was 88.1 percent and the lending fill rate was 84.6 percent.[60]

The 2003 report of the U.K. Higher Education Consultancy Group cited a fill rate of 90 percent for the U.K. higher education sector, with a range from 75 to 95 percent.[61] Of those filled, 79 percent were filled by the British Library Document Supply Centre.

## 3.4 Mediated ILL/DD: Turnaround Time

Turnaround time was calculated from a sample of borrowing and lending requests tracked in spring 2003. Borrowing turnaround time is defined as the number of calendar days from the date the user submitted the request to the date the library notified the user that the item was ready to be picked up or the date the ILL unit sent the item to the user. New to this study is the calculation of lending turnaround time. Lending turnaround time is defined as the elapsed number of calendar days from the date the lender received the request until the date the lender shipped the item.

Because the calculation used only completed transactions, the mean turnaround time is lower than if it were calculated using all transactions (filled and in-process) transactions, but it is consistent with how turnaround time was calculated in the 1996 study.

Participants were asked to select randomly and track approximately 100 borrowing requests and 100 lending requests for each service. In order to obtain comparable data, participants were asked to gather data during the same six-week timeframe. Between March 24 and May 9, 2003, participants were asked to select four or five mediated borrowing and lending requests per day in a random manner and track those requests. Requests not filled by May 9 were marked as "in process."

Participants were supplied with four turnaround time forms. The first two were worksheets to be photocopied and attached to individual borrowing and lending requests. The Borrowing and Lending Summary Sheets gathered data from the individual worksheets. Appendix J includes the turnaround time worksheets and summary sheets for mediated ILL.

For the borrowing sample, participants were asked to record seven dates:

1. the date on the request form or the date the request was entered into the local ILL management software;
2. the date the request was accepted at the service point;
3. the date ILL staff began processing the request;
4. the date the request was sent to the first potential supplier;
5. the date the material was received in the ILL department;
6. the date ILL staff notified the user or shipped the item to the user; and
7. if unfilled, the date ILL staff stopped working on the request.

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[59] National Resource Sharing Working Group, p. 14.

[60] Vattulainen, slide 23.

[61] The Higher Education Consultancy Group, *A Report to CURL and the British Library Cooperation and Partnership Programme on Monograph Interlending for the Higher Education Research Community* (n.p., May 2003): 17.

For the lending sample, participants were asked to record five dates:

1. the date the request was received;
2. the date ILL staff decided that the request would be filled (because they had pulled the item or copied the article) or not be filled;
3. the date the item was sent to the mailroom for shipping, if appropriate;
4. the date the item was shipped or sent electronically; and
5. the date the online request was updated, if appropriate.

The Individual Institutional Analysis sent to participants reported the mean and median turnaround times for all 72 participants. This section summarizes the turnaround time for the 59 ARL participants and presents slightly different means than those included in the individual reports because the turnaround times for the non-ARL libraries are excluded.

### 3.4.1 Borrowing Turnaround Time

**Turnaround time for mediated borrowing is the one measure that has shown the greatest improvement since 1996. The overall turnaround time is 7.6 calendar days, 49 percent faster than the 1996 mean turnaround time of 15.6 calendar days.** The mean borrowing turnaround time for loans and other returnables is 9.3 calendar days, 45 percent faster than the 16.9 days mean turnaround time in 1996. The mean borrowing turnaround time for nonreturnables is 6.1 calendar days, 59 percent faster than the 14.9 calendar days mean turnaround time in the previous study. The sample size used to calculate borrowing turnaround time was 2,414 returnable requests and 2,669 nonreturnable requests.

Like the other measures, there was a range of turnaround times among ARL participants. Tables 54 and 55 list the range of calendar days for selected steps of the borrowing process for returnables and nonreturnables respectively. Because requests are now generally sent to suppliers within one day, the first three steps of the borrowing process are not displayed in the tables.

For returnables, the average request was accepted, processed, and sent to the first supplier in less than one calendar day (0.9 days), and the median to get a borrowing request to that point was also less than one day. Processing requests in less than one day is a result of the high percentage of libraries now requiring users to submit requests via electronic request forms (such as OCLC's Direct Request, ILLiad request forms, or local Web forms). Nonreturnable requests take slightly longer on average to send to the first supplier—1.0 calendar days, with a median of 1.0 days—perhaps because borrowing staff spend more time checking union lists to verify holdings of potential suppliers.

Returnable items are received in the ILL department on average nine calendar days after the user initiated the request. The median is seven calendar days. Photocopies and other nonreturnables arrive faster, on average 5.9 calendar days after the user initiated the request. The median is five calendar days. Increased use of Ariel, fax, or other electronic delivery options is the probable cause for the faster turnaround time.

ILL staff notify users that returnables are ready to be picked up on average 9.3 calendar days after requests were submitted. The median notification is eight calendar days. For nonreturnable copies, users are notified on average 6.1 calendar days after requests were placed, or a median of 5 calendar days.

Turnaround time is cumulative, that is, the average of 9.3 calendar days for returnables is the overall time from the date the loan request was submitted by the user to the day the ILL unit notified the user or sent the item to the user.

**For borrowing, overall turnaround time is reduced if the first potential lender fills the request.** A total of 4,415 borrowing requests from the turnaround time sample included the number of suppliers tried. A total of 3,182 requests, or 72 percent, were filled by the first supplier; 737 filled by the second supplier (89 percent cumulative); and 240 by the third supplier (94 percent cumulative). At the other extreme, one request was sent to 22 potential suppliers, and filled by the 23rd supplier. The average number of

potential suppliers tried was 1.53, with a median of 1.0. As noted in the 1996 study, **libraries would significantly improve the performance of ILL/DD operations if they were able to fill 80 percent of their requests by the first supplier and 90 percent of their requests by the second supplier.** These "first and second attempt success rates" have improved since 1996, but there is still opportunity for improvement.

Not all 59 participants turned in sample requests for borrowing returnables and nonreturnables and comparable sample requests for lending returnables and nonreturnables. Of the 53 participants that submitted samples with returnable and nonreturnable requests, 50 (94 percent) received copies faster than loans. Only three libraries received monographs and other loaned items faster than photocopies. Mean turnaround time may be skewed by requests that are completed very quickly or very slowly. Therefore, the study examined the cumulative percentages of requests received within defined periods of time. Table 56 presents the ranges for returnables and nonreturnables, including a comparison with the 1996 results. The overall improvement in turnaround time is clearly illustrated by the number of items received within three days of sending the request to the lender, as well as the decreasing percentage of requests that take more than 21 days to receive.

**Table 54: Range of Borrowing Turnaround Time for Returnables**

| Step of the Process | $10^{th}$ percentile | Mean | Median | $90^{th}$ percentile |
|---|---|---|---|---|
| Request Sent to First Supplier | 0.0 days | 0.9 days | 0.0 days | 2.0 days |
| Item Received | 3.0 days | 9.0 days | 7.0 days | 16.0 days |
| Notified User of Availability or Sent Item to User | 3.0 days | 9.3 days | 8.0 days | 16.0 days |

**Table 55: Range of Borrowing Turnaround Time for Nonreturnables**

| Step of the Process | $10^{th}$ percentile | Mean | Median | $90^{th}$ percentile |
|---|---|---|---|---|
| Request Sent to First Supplier | 0.0 days | 1.0 days | 1.0 days | 3.0 days |
| Item Received | 1.0 days | 5.9 days | 5.0 days | 12.0 days |
| Notified User of Availability or Sent Item to User | 1.0 days | 6.1 days | 5.0 days | 13.0 days |

**Table 56: Cumulative Mean Borrowing Time**

| | 1996 Returnables | 2002 Returnables | 1996 Nonreturnables | 2002 Nonreturnables |
|---|---|---|---|---|
| 0–1 Calendar Days | Did not measure | 0.1% | Did not measure | 1% |
| 0–3 Calendar Days | 6% | 27% | 9% | 35% |
| 0–7 Calendar Days | 22% | 50% | 30% | 75% |
| 0–14 Calendar Days | 57% | 86% | 64% | 94% |
| 0–21 Calendar Days | 77% | 96% | 83% | 98% |

Only three of the fifty-three participants that reported borrowing turnaround time for loans and copies have an average turnaround time of over 11 calendar days for the item to arrive in the ILL department. **The slowest 10 percent of libraries in this study, or those with turnaround times of 9.9 calendar days or higher, are performing nearly as well as the fastest 10 percent of borrowers in the 1996 study.** To place the slowest turnaround time recorded in this investigation into perspective, libraries at the 90th percentile in the 1996 study had turnaround time of 22.4 calendar days. The slowest turnaround time of 9.9 calendar days in this study is one-tenth of a day slower than the 10th percentile in the 1996 study. In other words, 90 percent of the participants in the current study are now performing the same as or faster than the fastest 10 percent of participants in the 1996 study.

Mean turnaround time for returnables does not show as dramatic a drop. Seventeen participants recorded mean turnaround times between eleven and eighteen calendar days, with seven of those participants recording a mean between 11 and 11.99 calendar days. The mean days to user notification at the 90th percentile is 13.5 calendar days compared with 25.8 calendar days in the 1996 study. The 13.5 calendar days figure would have been between the 25th and the 50th percentiles in the 1996 study, or slightly faster than average of the 97 research library participants.

### 3.4.2 Lending Turnaround Time

New to this investigation is the collection and calculation of lending turnaround time data. For mediated lending, the sample size consists of 1,843 returnable requests and 2,116 nonreturnable requests.

Tables 57 and 58 present the 10th percentile, mean, median, and 90th percentile for each step of the lending process. As in Table 56 above, turnaround time is cumulative, that is, the average of 1.4 calendar days is the overall time from the date the request was received to the date the item was sent to the mailroom. The lenders' turnaround time for copies is faster, possibly because materials are sent electronically via Ariel, fax, or as e-mail attachments.

**Table 57: Range of Lending Turnaround Time for Returnables**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Days until Filled | 0.0 days | 1.0 days | 1.0 days | 3.0 days |
| Days until System Updated | 0.0 days | 1.1 days | 1.0 days | 3.0 days |
| Days until Dent to Mailroom | 0.0 days | 1.4 days | 1.0 days | 4.0 days |
| Days until Shipped | 0.0 days | 1.8 days | 1.0 days | 4.0 days |

**Table 58: Range of Lending Turnaround Time for Nonreturnables**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Days until Filled | 0 days | 0.8 days | 0 days | 3.0 days |
| Days until System Updated | 0 days | 0.9 days | 0 days | 3.0 days |
| Days until Sent to Mailroom | 0 days | 0.9 days | 1.0 days | 3.0 days |
| Days until Shipped | 0 days | 1.2 days | 1.0 days | 4.0 days |

**Table 59: Mean Lending Turnaround Times for Items Held in Remote Storage**

| | Remote Storage: Returnables | Overall: Returnables | Remote Storage: Nonreturnables | Overall: Nonreturnables |
|---|---|---|---|---|
| Days until Filled | 1.4 days | 1.0 days | 1.3 days | 0.8 days |
| Days until System Updated | 1.4 days | 1.1 days | 1.3 days | 0.9 days |
| Days until Sent to Mailroom | 1.8 days | 1.4 days | 1.4 days | 0.9 days |
| Days until Shipped | 1.8 days | 1.8 days | 1.8 days | 1.2 days |

For lending, 39 participants submitted a sample that included both returnables and nonreturnables. Twenty-eight, or 72 percent, of the participants filled nonreturnable requests faster than returnables. In contrast, 11 filled requests for returnables faster than requests for non-returnbles. Of those 11, only 3 have ILL staff do the copying; the other 8 have copying done by another department in the main library or the library where the item is housed. Having the photocopying or scanning done by another department may be a contributing factor to the slower turnaround time for nonreturnables. Other factors that may contribute to the variations in turnaround time include: the number of branch libraries, lack of Ariel workstations in branch libraries, use of campus mail to send the photocopied article back to the ILL department for transmission to the requesting library, staff vacancies, etc. The study cannot confirm that staff in other departments caused the slower turnaround time, but informal comments from some ILL managers imply that other departments do not place as high a value on fast turnaround time as ILL staff.

This study does not track the specific activities within the lending process. As a result, the study cannot confirm a common assertion that finding the call number accounts for two-thirds of the lending turnaround time. The Morris methodology described in section 3.2.7 may offer details on the time spent on each step of the lending process. The Morris methodology may also provide insight into whether processing loan requests is more or less labor-intensive than processing photocopy requests.

### 3.4.3 Lending: Retrieving from Remote Storage Facilities

Lenders were asked to record whether the sample request was filled from a remote storage facility. Some have speculated that requests for material held in such facilities take several days longer to retrieve and fill than requests for material held in libraries on campus. Of the sample of 3,049 requests, 331 requests, or 10.8 percent, were filled from storage facilities. Of that total, 110 (33 percent) were nonreturnables and 221 (67 percent) were returnables. Turnaround times for these 331 requests are compared with overall turnaround time in Table 59. This table indicates that the overall turnaround time for returnables held in storage facilities is virtually the same as for all mediated lending of returnables. The turnaround time for nonreturnables held in remote storage facilities is just under a half-day longer, suggesting that the materials may be brought to the main ILL unit for copying and shipping or scanning rather than copying and shipping or scanning directly from the remote site.

### 3.4.4 Other Turnaround Time Studies

The Australian ILL/DD Benchmarking Study tracked turnaround time, defined as

the number of calendar days from the date the user submitted the request until the date the ILL staff notified the user that the item was available for pickup or the item was shipped to the user.[62] Only completed requests were used to calculate turnaround time. For all types of libraries in the Australian investigation, the mean turnaround time was 11.5 calendar days, with a median of nine calendar days. For the university libraries, the mean turnaround time was 10.8 calendar days, and a median of 8 calendar days. Turnaround time for university libraries ranged from three days at the 10th percentile to twenty days at the 90th percentile. The variation between returnables (11 days) and nonreturnables (10.7 days) was modest. Just under half (41 percent) of the requests were received in seven days or less. Overall, 85 percent of the borrowing requests were filled by the first supplier.

As suppliers, all Australian libraries in the study took an average of 6.9 days to fill requests, and 4 days to respond that they were not able to fill requests. Australian university libraries averaged six days to complete a request and 2.5 days to report they could not fill a request. Seventy-three percent of all requests were filled within seven days.

David Gregory and Wayne Pedersen compared the average turnaround time of a circulation recall at Iowa State University Library with ILL borrowing turnaround time.[63] They concluded that, under certain conditions, ILL is faster than recalling a locally owned item.

A 1995 study of turnaround time among 25 university and community college libraries in Tennessee provided a snapshot of borrowing and lending among that group of libraries.[64] The average borrowing turnaround time for all libraries was 7.2 calendar days with turnaround time defined as the number of days from the date the user submitted the request to the date the item was available for pickup. The average lending turnaround time (date request received to date item answered on system) was 0.94 days.

Defining borrowing turnaround time as the number of days between ILL staff accepting the borrowing photocopy request to the date the article is received by the ILL department, Mary Sellen examined four delivery methods used to receive items at a private, undergraduate institution in Southern California.[65] The average for courier, fax, and the U.S. Postal Service was 4.79 days.

A 1999 study of the 28 members of Florida's College Center for Library Automation reported turnaround time of six to ten days for returnables and three to five days for nonreturnables, comparable to the turnaround time recorded in a study they conducted in 1995-96.[66] Fifty percent of items arrive within five days or less, a result of using a courier, fax, or Ariel rather than the postal service or UPS.

Beth Elder's unpublished presentation at the 34th Colorado ILL Conference about the Denver Public Library's 2002 study of purchasing materials instead of using ILL confirmed that 79 percent of the items they purchased arrived in 14 days or less, comparable to 73 percent of the ILL materials arriving in that same timeframe. The average turnaround time for purchased items was 14 days, compared with 9 for ILL.

In 2000, Purdue University launched the ILL Amazon Project to purchase English-language monographs published within the past five years rather than ordering the titles

[62] National Resource Sharing Working Group, p. 22.

[63] David J. Gregory and Wayne A. Pedersen, "Book Availability Revisited: Turnaround Time for Recalls versus Interlibrary Loans," *College & Research Libraries* 64, no. 4 (July 2003): 283–299.

[64] Linda L. Phillips, Nancy Dulniak, Tisa Houck, and Biddanda P. Ponnappa, "Interlibrary Loan Turnaround Time: Measuring the Component Parts," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 9, no. 3 (1999): 97–119.

[65] Mary Sellen, "Turnaround Time and Journal Article Delivery: A Study of Four Delivery Systems," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 9, no. 4 (1999): 65–72.

[66] College Center for Library Automation, *CCLA 1999 Resource Sharing Survey: Overview*, March 23, 2000.

on ILL.[67] A total of 242 items were acquired for an average price of $39.67. Average turnaround time for the purchased titles was eight days, virtually identical with their ILL turnaround time of 7.8 days. The Thomas Crane Public Library in Massachusetts reported an average cost of $17.00 including shipping for 107 items they purchased rather than ordered on ILL.[68] The University of Wisconsin–Madison reported an average cost of $36.86 (included shipping) and a mean turnaround time of eight days. They noted that items purchased were more heavily used than similar books purchased through regular selection methods.

In an unpublished study conducted in 1998, a consortium of U.S. research libraries identified several best practices for lending returnables. The group observed that institutions with turnaround times between two and five days had larger collections, fewer branch libraries, and fewer ILL transactions. In contrast, this group asserted that institutions with lending turnaround times of five to seven days had many branch locations, fewer ILL staff, and high numbers of ILL transactions. To test their assertion with the findings of this study, the five lenders with the fastest and slowest turnaround times were examined to see if these characteristics applied to the fastest and slowest lenders; they did not. Table 60 uses the three characteristics and compares the performance of fastest and slowest lenders in this study. Like the consortium, the fastest lenders in this study have more staff and lower numbers of total transactions, but unlike that study, the fast lenders have more locations, rather than fewer.

**Table 60: Characteristics of Participants with the Fastest and Slowest Turnaround Time for Returnables**

| | Mean Number of Branch Libraries | Mean Lending FTE | Mean Number of Total Lending Transactions |
|---|---|---|---|
| Fast Lenders | 11.8 | 6.95 | 45,387 |
| Slow Lenders | 10.6 | 6.26 | NA* |

*Including the mean might identify some of the participants.

Peter Søndergaard reported the results of a 1999 Danish library performance measurement project of six research libraries, wherein he defined two aspects of turnaround time.[69] First the in-house request handling time, or the period of time that elapses between receipt of the request from the user and the date the request is sent to the first potential supplier. Second, the time of delivery, or the period of time from dispatch of the order until the item is received by the borrowing library. In 1999 it took the six research libraries an average of two days to send requests to the first suppliers. Receipt of the item ranged between 10 and 17 calendar days from a Danish supplier and 12 and 24 calendar days from a foreign library.

The Nordic ILL study reported an average overall borrowing turnaround time of 13 days, or 13 calendar days for returnables, and 9.8 days for nonreturnables.[70] As might be expected, the performance of the libraries in each of the five countries varied. Finnish borrowers recorded the fastest turnaround time for nonreturnables—6.3 calendar days—and Norwegian academic libraries were the fastest, at 8.3 calendar days, to receive returnables. The overall borrowing turnaround time ranged from 7.1 to 15.6 days.

[67] Suzanne Ward, "Books on Demand: Just-in-Time Acquisitions," *Acquisitions Librarian* no. 27 (2002): 95-107; Kristine J. Anderson, et. al., "Buy, Don't Borrow: Bibliographers' Analysis of Academic Library Collection Development through Interlibrary Loan Requests," *Collection Management* 27, no. 3/4 (2002): 1–10.

[68] Megan Allen, et. al., "Patron-Focused Services in Three U.S. Libraries: Collaborative Collection Development and Acquisitions," *Interlending & Document Supply* 31, no. 2 (2003): 138–141.

[69] Peter Søndergaard, "ILL Performance Measurement," *DF Revy* 23, no. 10 (December 2000): 320–322.

[70] Vattulainen, slide 9.

## 3.5 General Characteristics of Mediated ILL/DD Operations

The General Characteristics Questionnaire (see Appendix F) used in the 1996 study was updated, tested, and sent to all participants. Responses provide an overview of the current structure, organization, composition, and service policies of the 59 ARL participants. This section highlights some of the more noteworthy findings and variations from the previous study.

### 3.5.1 Number of Borrowing and Lending Transactions

Between July 2001 and June 2002 (Fiscal Year 02), the average number of filled ILL transactions processed by ARL participants was 58,703. The mean number of filled borrowing transactions was 16,698 and the mean number of filled lending transactions was 41,088. Table 61 summarizes total filled transactions, while Tables 62 and 63 break down filled borrowing and lending transactions into returnables and nonreturnables.

Two statistically significant relationships were discovered when comparing ILL staff and the number of transactions. **As the number of ILL staff working on borrowing requests increases, the number of filled borrowing transactions increases.** It is important to note that this is filled, rather than total, transactions. **The same relationship applies to lending staff and the number of filled lending transactions.** A third statistically significant relationship links the borrowing volume to the borrowing unit cost.

**Table 61: Total Filled Transactions**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total | 21,094 | 58,703 | 37,291 | 74,450 |
| Borrowing | 7,741 | 16,698 | 14,571 | 31,933 |
| Lending | 9,830 | 41,088 | 22,370 | 42,674 |

**Table 62: Number of Filled Borrowing Transactions**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total | 7,741 | 16,698 | 14,571 | 31,933 |
| Returnables | 1,842 | 7,519 | 6,143 | 14,289 |
| Nonreturnables | 3,169 | 9,449 | 7,593 | 21,820 |

**Table 63: Number of Filled Lending Transactions**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total | 9,830 | 41,088 | 22,370 | 42,674 |
| Returnables | 3,795 | 12,123 | 9,695 | 21,484 |
| Nonreturnables | 3,897 | 28,965 | 10,684 | 28,527 |

**As the number of filled borrowing transactions increases, the borrowing unit cost decreases.**

The 59 ARL libraries represent 55 different institutions, or 43 percent of the total ARL membership in 2001–02. In FY02 their total transactions accounted for 50 percent of total ARL borrowing and 59 percent of total ARL lending. Applying the findings of this study to all ARL member libraries should be done with caution.

Of the 59 participants, 47 represent the main libraries of U.S. academic institutions. The borrowing and lending totals of those 47 may also be compared with other academic library ILL activity in the U.S. The National

Center for Educational Statistics (NCES) tracks statistical data for academic libraries in the United States. NCES reported total borrowing in 2000 by academic libraries in the 50 states and the District of Columbia of 9,494,030, and total lending of 7,695,703. [71]

The 47 U.S. academic library participants in this study generated 822,394 borrowing requests and filled 1,306,075 lending requests, or 9 percent of all academic library borrowing and 17 percent of all academic library lending in the U.S. as reported by NCES.

Variation in total transactions, and thus fill rates, may be a result of how ILL departments count borrowing requests for materials that are locally owned and available in the collection. New to this study was a question on how borrowers count user requests for items held locally. For the 58 libraries that reported borrowing data, 10 count them as filled requests, 8 count them as unfilled requests, 34 do not include them in either the filled or unfilled total, 4 include them in a separate category, and 2 count them as canceled.

Eight participants charge their users for loans and copies. The mean borrowing number of transactions for those eight is 19,997, slightly over the mean borrowing number of transactions of 16,698 for all ARL participants, suggesting that charging patrons does not reduce demand for ILL.

### 3.5.2 Proportion of Lending to Borrowing

ARL libraries continue to lend more than they borrow. On average, lending transactions account for 61 percent of total ILL transactions, with borrowing accounting for 39 percent. Table 64 illustrates the range of lending to borrowing.

[71] Nancy Carey and Natalie M. Justh, "Table 1A: Total Circulation, Document Delivery, and Interlibrary Loan Transactions in Academic Libraries, by State, 2000," *Academic Libraries: 2000*, NCES 2004-317 (Washington, DC: U.S. Department of Education, National Center for Educational Statistics, 2003): 19.

### 3.5.3 Ratio of Lending to Borrowing

Just over three quarters (46) of the 59 ARL participants supply more items to other libraries than they obtain for their own users. One-fifth (13) of the participants borrow more than they lend. The mean ratio of lending to borrowing for the ARL participants is 2.41, or for every 2.41 lending requests a participant fills, they complete 1 filled borrowing transaction. Table 65 illustrates the ratio of the proportion of lending to borrowing transactions.

The mean ratio of 2.41 lending requests to 1 borrowing request for the 59 participants is slightly higher than the mean of 1.64 for the 114 ARL university member institutions included in the *ARL Statistics 2001–2002*.[72] That is, the 59 participants filled nearly 2.5 lending requests for every request they borrowed, whereas the 114 ARL university libraries filled just over 1.5 requests for every filled borrowing request.

In 1996, the 109 ARL university libraries filled 3.64 million lending transactions and 1.94 million borrowing transactions. In 1996, the mean ratio of lending to borrowing for all ARL university libraries was 2.11 to 1.[73] That is, an ARL member library filled slightly more than two lending requests for every filled borrowing request. In 2002, the mean borrowing for the 114 ARL university libraries was 2.85 million transactions and 4.2 million lending requests, or a ratio of 1.64 lending requests to each borrowing request. The change in the ratio suggests that ARL university libraries are either borrowing more for local users, filling fewer requests for other libraries, or both.

The improvements in workflow and processing over the past decade may contribute to the change in the ratio of lending to borrowing requests processed per FTE. In 1998, Pat Weaver-Meyers, Shelly Clement, and Carolyn Mahin reported an average ratio of 2.5:1, or 2.5 filled lending requests per FTE to 1 filled borrowing request per FTE, for the 76 ARL member

[72] *ARL Statistics 2001–2002*, p. 48

[73] *ARL Statistics 1995–1996*, compiled and edited by Martha Kyrillidou, Ken Rodriguez, and Kendon Stubbs (Washington, DC: Association of Research Libraries, 1997): 46.

institutions that responded to the questionnaire.[74] For the 59 ARL participants in the current study, the ratio is 1.59:1, or 1.59 filled lending requests to 1 filled borrowing request. Given the increases in overall borrowing and lending transactions, one might speculate that borrowing has benefited more from the widespread adoption of electronic user requesting, ILL management software, new payment methods, and other internal workflow changes. The study did not directly test this speculation, but **given the number of user requests submitted electronically, the increased use of management software, and the high use of OCLC's ILL Fee Management, one might argue that these are contributing factors to more efficient ILL workflow, which translates into a higher borrowing ratio per FTE.**

### 3.5.4 Proportion of Returnables to Nonreturnables

Requests for copies of journal articles are increasing. The average percentage of filled borrowing requests for nonreturnables jumped from 49 to 56 percent between 1996 and 2002. That is, local users are requesting proportionately fewer books and more copies of journal articles, newspaper articles, etc., than six years ago. This finding runs counter to the belief that expanded access to electronic resources decreases the need for users to request copies of journal articles via ILL. Tables 66 and 67 summarize the proportion of returnables and nonreturnables for borrowing and lending respectively.

In 2002, the average number of total current serial titles held by the 59 participants was 29,837. There was a slight negative correlation of –0.1622889 between the number of borrowing nonreturnables filled and the number of total current serial titles held. This weak correlation argues against the commonly held belief that libraries with large serial collections have a lower volume of ILL photocopy requests.

ARL participants are also lending more books, microfilm, and other returnables. For lending, the proportion of returnables increased from 36 percent in 1996 to 45 percent in 2002, suggesting that borrowing departments are sending more requests for books and other returnables to ARL lenders than they did in 1996.

As a comparison, the NCES *Academic Libraries: 2000* reported that requests for returnables accounted for 49 percent of borrowing and 46 percent of lending for libraries in all 50 states and the District of Columbia.[75] MINITEX, the Minnesota library information network, provides another snapshot of current consortium ILL traffic.[76] In FY03, they analyzed the types of requests coming from their main constituent groups. Of the requests sent to MINITEX from Minnesota academic libraries, 38 percent were for returnables and 62 percent for nonreturnables. In contrast, 90 percent of the requests from public libraries in Minnesota were for returnables.

### 3.5.5 Comparing Mediated Borrowing to Local Circulation Transactions

The *ARL Statistics, 2001–2002* included initial circulation transactions and total circulations transactions for the ARL members.[77] For all ARL member institutions, ILL borrowing represents, on average, 7.1 percent of initial circulation transactions and 3.9 percent of total circulation transactions. For the 52 participants in the current investigation that reported initial circulation transaction data to ARL, ILL borrowing transactions represented on average 7.5 percent of initial circulation transactions, or a median of 4.4 percent. For 48 libraries that reported total circulation transactions, ILL borrowing is 5.2 percent, or a median of 2.9 percent, of total circulation transactions.

[74] Pat Weaver-Meyers, Shelly Clement, and Carolyn Mahin, *Interlibrary Loan in Academic and Research Libraries: Workload and Staffing*, Occasional Paper 15 (Washington, DC: Association of Research Libraries, 1989): 6.

[75] *Academic Libraries Survey: 2000*, p. 19.
[76] *MINITEX*, p. 7.
[77] *ARL Statistics, 2001–2002*, p. 47.

**Table 64: Proportion of Lending to Borrowing Requests**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Lending | 37% | 61% | 62% | 78% |
| Borrowing | 63% | 39% | 38% | 22% |

**Table 65: Ratio of Lending to Borrowing Transactions**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Lending to Borrowing | .59 | 2.41 | 1.66 | 3.64 |

**Table 66: Proportion of Borrowing Returnables and Nonreturnables**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Returnables | 20% | 44% | 44% | 86% |
| Nonreturnables | 80% | 56% | 56% | 14% |

**Table 67: Proportion of Lending Returnables and Nonreturnables**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Returnables | 26% | 45% | 46% | 71% |
| Nonreturnables | 74% | 55% | 44% | 29% |

These percentages have nearly doubled since the 1996 study, when ILL borrowing averaged 4.9 percent of initial circulation transactions and 2.4 percent of total circulation. In 1996 the median initial circulation transactions for all ARL libraries was 336,481. In 2002, the median number of initial circulation transactions was 251,146, a drop of 25 percent. ILL borrowing increased 40 percent from a median of 15,260 in 1996 to 21,323 in 2002.

Another way to look at the relationship between ILL borrowing and circulation is to look at the ratio of ILL borrowing to local circulation. John Blagden and Jane Barton examined a number of performance indicators that might be used to compare the performance of libraries in the U.K. They suggested that the ratio of ILL to "loans from stock" would be one way of relating access to holdings, and would provide an "insight into the nature of the library and its position with regard to access vs. holdings."[78] They also suggested using the ratio of ILL borrowing expenditure to materials expenditure. Table 68 presents the ratio of ILL borrowing to initial circulation transactions for the 46 academic library participants for which initial circulation transaction data are available.

## 3.5.6 Requests per Full-Time Equivalent (FTE) Staff

Because of differences in local staffing levels, borrowing and lending policies, access to equipment, and physical workspace, the quantity of borrowing and lending requests handled by ILL staff varies widely across libraries. Although many of the tasks are common to all libraries, such as verifying and sending requests as borrowers and retrieving materials as lenders, individual operations may assign tasks to ILL staff or to staff in another part of the library. However, as Figure 4 demonstrates, ILL staff are handling most of the ILL tasks. Therefore, variation in the quantity of requests per staff member are more likely

[78] John Blagden and Jane Barton, "Can You Compare One University's Library Performance with Another?" *Proceedings of the Second Northumbria International Conference on Performance Measurement in Libraries and Information Services* (Newcastle upon Tyne, U.K.: Information North, 1998): 107.

due to causes other than differences in location of staff.

This study calculated the number of total requests and the number of filled requests processed by one full-time equivalent (FTE) employee working in the ILL department. Although staff in the ILL department do not account for 100 percent of borrowing and lending staff in all participating libraries—95 to 100 percent of the borrowing staff and 89 to 100 percent of the lending staff—the calculation was made using ILL staff, not total staff.

The mean requests per FTE for the ARL participants in the current study is lower than the mean requests per FTE reported in the 1996 study. Tables 69 and 70 illustrate the range of the number of requests one FTE employee processed. The lower number of requests is the consequence of a different group of participants from those that participated in the 1996 study. Section 4.9 reports on the requests per FTE for the 44 libraries that also participated in the 1996 study; those 44 process more requests per FTE than all ARL participants.

### 3.5.7 Organization and Administration

For this study, an ILL processing unit is defined as a unit that has responsibility for borrowing, lending, or both activities. On average, ARL institutions have 2.4 separate ILL processing departments in the library system; the median number is 1. The central processing unit serves on average 9.6 branch or departmental libraries; the median is 5.

**Table 68: Ratio of ILL Transactions to Initial Circulation Transactions**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| ILL Borrowing to Initial Circulation Transactions | 1:8.83 | 1:27.12 | 1:22.73 | 1:44.79 |

**Table 69: Borrowing Requests by ILL Department FTE Staff**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total Requests per FTE | 2,180 | 4,237 | 3,835 | 6,969 |
| Filled Requests per FTE | 1,937 | 3,589 | 3,205 | 4,994 |
| Mean Number of FTEs | 1.86 | 4.63 | 4.12 | 8.24 |
| Five Borrowing Operations with the Lowest Unit Costs—Filled Requests per FTE | NA | 5,507 | 4,820 | NA |

**Table 70: Lending Requests by ILL Department FTE Staff**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Total Requests per FTE | 5,385 | 9,728 | 8,998 | 14,889 |
| Filled Requests per FTE | 2,745 | 5,689 | 4,915 | 9,243 |
| Mean Number of FTE | 1.94 | 6.49 | 4.21 | 10.85 |
| Five Lending Operations with the Lowest Unit Costs—Filled Requests per FTE | NA | 9,626 | 9,554 | NA |

**Table 71: Administrative Home for the ILL/DD Department**

| Department | Number of Libraries |
|---|---|
| Access Services | 30 |
| Public Services | 11 |
| Technical Services | 6 |
| Department with Multiple Responsibilities | 5 |
| Reports to Director/Dean | 4 |
| Reference | 3 |
| Assistant/Associate University Librarian | 2 |
| Circulation | 1 |
| Acquisitions | 0 |

Of the 58 libraries that reported borrowing data, 57 libraries (98 percent) have centralized borrowing. Only one library characterized its borrowing operation as decentralized. Centralized borrowing is a single unit that accepts requests, initiates and maintains online transactions, notifies users, and distributes materials. Centralized borrowing departments may also have responsibility for packaging and returning materials.

Of the 59 lenders, 51 (86 percent) have centralized lending, and 8 reported decentralized lending. Centralized lending operations receive requests for items held in the main library and the majority of branch or departmental libraries, search for call numbers and locations, retrieve materials, photocopy or scan, charge and discharge materials in the circulation system, maintain online transactions, and wrap and unwrap materials.

Although most ILL departments are part of access services, ILL departments are administratively housed in a variety of library departments across libraries. Table 71 summarizes the range of organizational homes for ILL. Three libraries reported different administrative homes for their borrowing and lending operations.

In 38 libraries (64 percent), the professional supervisor is responsible for day-to-day activities. As defined by the study, the professional supervisor is the individual assigned policymaking and planning responsibility. In 21 libraries (36 percent), a support-staff supervisor has overall responsibility. This individual is a library staff member in a clerical, paraprofessional, or nonprofessional position.

Nearly 60 percent of the respondents (35) have a separate budget for borrowing and lending operations. Eighteen reported having no separate budget for borrowing or lending expenses, five have a separate budget for borrowing but not lending, and one has a separate budget for lending but not borrowing.

Librarians in universities with many branch or departmental libraries have asserted that lending from institutions with multiple branch libraries must necessarily be slower than lending from libraries with only a single main library or a main library and a few branch libraries. Table 72 reports the performance of the 11 libraries with the largest number of branch or departmental libraries and compares that performance with the average of all 59 ARL participants.

On average, participants with multiple branch or departmental libraries have a slightly higher fill rate, slightly higher unit cost, almost identical turnaround times for returnables, but nearly one day longer for nonreturnables. Of the 11 participants in this sample, the range of lending unit costs was less than $4.00 to nearly $17.00. Fill rates ranged from less than 40 percent to over 80 percent. The turnaround time for nonreturnables ranged from the same day to 3.5 calendar days, and the turnaround time for returnables ranged from the same day to 3.6 calendar days.

**Table 72: Performance of Libraries with Multiple Branch/Departmental Libraries**

| | Participants with the Largest Number of Branch Libraries | 59 ARL Lenders |
|---|---|---|
| Mean Lending Unit Cost | $9.78 | $9.27 |
| Lending Fill Rate | 60% | 58% |
| Turnaround Time: Returnables | 1.8 calendar days | 1.8 calendar days |
| Turnaround Time: Nonreturnables | 2.1 calendar days | 1.2 calendar days |

The study did not ask how libraries filled photocopy requests from branch or departmental libraries. Given the slower turnaround time, it is likely that ILL staff in these libraries bring the volumes back to the main library for copying or scanning rather than copying, scanning, and sending directly from the branch library. **The study recommends that branch or departmental libraries with sufficient volume of lending be equipped with scanning workstations and that the copying and transmittal be completed at the branch or departmental library.**

## 3.5.8 Staffing

Just under half of the participants (27) indicated that individuals in the professional staff category have faculty status. The level of unionization of library staff varies depending on the position. Over three-quarters (47) do not have unionized professional staff, whereas just over half (34) of the libraries have unionized support staff. Three-quarters of the participants (45) reported that they have someone in the ILL department with information technology (IT) responsibility.

All five staff categories are used in the ILL departments of many, but not all, of the 59 ARL participants. Tables 73 and 74 summarize the mean and median number of FTE staff in each position category, and the number of libraries reporting one or more individuals in that position. These tables illustrate the varying configuration of staffing used in ILL departments.

The distribution of responsibilities between staff positions in the ILL department and staff positions in other library departments is shown in Table 75. For each category, the table illustrates the percentage of the position working in ILL and the percentage of the position elsewhere in the library. For example, for 56 libraries that reported borrowing support staff positions, 88 percent of individuals assigned to that position work in the ILL department, and 12 percent work in another department in the library.

**Table 73: Borrowing FTE Staff by Position Category**

| Position Category | Mean | Median | Number of Libraries |
|---|---|---|---|
| Professional Supervisor | .52 | .49 | 50 |
| Professional Nonsupervisor | .76 | .80 | 7 |
| Support-Staff Supervisor | .74 | .76 | 35 |
| Support Staff | 2.49 | 2.00 | 56 |
| Students | 1.37 | 1.00 | 52 |

**Table 74: Lending FTE Staff by Position Category**

| Position Category | Mean | Median | Number of Libraries |
|---|---|---|---|
| Professional Supervisor | .37 | .25 | 51 |
| Professional Nonsupervisor | 1.96 | 1.18 | 6 |
| Support-Staff Supervisor | .81 | .73 | 42 |
| Support Staff | 3.51 | 2.00 | 57 |
| Students | 2.12 | 1.45 | 56 |

**Table 75: Comparison of Staffing by Staff Category**

| | Borrowing | | Lending | |
|---|---|---|---|---|
| Position Category | ILL Staff | Other Staff | ILL Staff | Other Staff |
| Professional Supervisor | 94% | 6% | 92% | 8% |
| Professional Nonsupervisor | 68% | 32% | 93% | 7% |
| Support-Staff Supervisor | 96% | 4% | 80% | 20% |
| Support Staff | 88% | 12% | 73% | 27% |
| Students | 94% | 6% | 66% | 34% |

## 3.5.9 Borrowing Policies

Fifty-eight of the fifty-nine ARL participants submitted borrowing data. Only one of the fifty-eight does not permit undergraduates to place ILL requests. All academic library participants offer borrowing privileges to graduate students, faculty, and staff members. Nine of the fifty-eight (16 percent) extend borrowing privileges to courtesy or community users, and twenty participants offer the service to other types of users including visiting scholars, retired faculty, alumni, and library donors.

Only seven of the fifty-eight borrowers (12 percent) limit the number of requests users may submit at any one time. All others (88 percent) do not have limits for any type of user category.

The use of electronic means to submit requests has increased over the past six years. All participants encourage or require users to submit requests via Web ILL forms, OCLC's First Search, OCLC ILLiad, etc. The average percentage of requests received electronically is 89 percent, and the median is 99 percent, which suggests that only a few libraries do not receive most of their requests electronically. One-quarter of the participants (15) receive 100 percent of the user requests electronically. For the libraries that do not require users to submit requests electronically, users are able to submit requests from a variety of service points: at the ILL department (27), at a branch or departmental library (27), at the main reference desk (21), and at the circulation desk (16). Although 75 percent of the participants indicated that they accepted requests electronically in 1996, a full one-quarter did not offer any electronic method of request submission at that time. The 1996 questionnaire did not ask for the percentage of requests received electronically, but anecdotal evidence suggests that the average may have been about 50 percent.

Only four participants (7 percent) limit the number of active requests any individual may have at one time. All others place no limits on the number of active requests.

Just over half (30) of the libraries fill user requests for materials held in the local collection. Of those who don't fill such requests, a few indicated that they alert users of the material availability but expect users to retrieve the material directly.
The majority of libraries do not charge their users for ILL services. Thirty-six (62 percent) do not charge for returnable loans, and thirty-three (57 percent) do not charge for nonreturnable photocopies. Just under one-third (18) may charge their users for returnables depending on circumstances, and 17 may charge for nonreturnables. Only four libraries (7 percent) always charge their users for returnables, and eight participants (14 percent) always charge for nonreturnables.

When charged, users are offered a variety of payment options. Departmental charges (15) and cash (15) are the most frequently used methods. Seven libraries accept payments via credit cards, and seven send invoices to the users. Users are most often charged a partial cost-recovery for returnables (13) and for nonreturnables (18).

Table 76 summarized the multiple sites where users pick up materials.

**Table 76: Pickup Location for Mediated ILL/DD Materials**

| | Returnables | Nonreturnables |
|---|---|---|
| Circulation Desk | 45 | 30 |
| Branch Library | 32 | 20 |
| ILL Office | 26 | 24 |
| Mailed to User | 13 | 48 |
| Post to Web | NA | 39 |
| Reference Desk | 1 | 2 |

Participants cited a variety of other places where materials are picked up. Depending on the type of user or type or status of material, some participants deliver materials via the campus mail system, via e-mail attachments, via fax, or have materials held in special collections reading room, at the main reserve desk, or at the current periodicals desk.

## 3.5.10 Use of Document Delivery Suppliers and Borrower Fees

Fifty-five of the fifty-eight (95 percent) participants that submitted borrowing data use document suppliers to fill photocopy requests, a slightly higher percentage than in the 1996 study. For these 55 participants, document suppliers fill on average 7.6 percent, or a median of 4 percent, of the participants' photocopy requests, a decrease from a mean of 12 percent in the 1996 study.

Fewer libraries are using commercial document delivery suppliers extensively than in the 1996 study. Only four libraries (7 percent) use document suppliers to fill twenty percent or more of the photocopy requests, down from nineteen libraries (20 percent) in the 1996 study. For these four, the average borrowing unit cost is $15.59, 11 percent lower than the $17.50 average of the fifty-eight ARL libraries with borrowing operations. The average fill rate for the four libraries is identical to the overall fill rate of 86 percent. The turnaround time to the point the user is notified is 5.7 calendar days, or 6 percent faster than the 6.1 calendar days for all mediated nonreturnables. It was not possible to quantify the turnaround time for just those requests filled by document suppliers, so the 5.7 calendar days includes photocopy requests sent to commercial suppliers as well as to libraries.

The study did not ask why participants changed their usage of document suppliers, but several other studies suggest that some document suppliers are slower than the preferred lenders. A second factor for the decreased usage may be the document suppliers' fees, given that two-thirds of borrowing requests are filled using reciprocal agreements (many of which are likely to be no-charge agreements). A third factor may be that fewer document suppliers are in the market than in 1996, and those that remain may have more restrictions on what they are able to supply and how they are permitted to send documents to their customers.

One component of the borrowing unit cost is borrower fees. Participants were asked to record fees paid to obtain materials from other libraries, commercial document delivery suppliers, and other sources. Participants recorded the amount spent during the fiscal year on deposit accounts, prepaid coupons, international postal coupons, International Federation of Library Associations and Organizations (IFLA) vouchers, OCLC ILL Fee Management fees, lending fees paid to libraries and document delivery suppliers, postage reimbursement, invoices paid, Copyright Clearance Center (CCC) charges, royalty fees paid directly to copyright holders, and any other fees paid to obtain photocopies for users.

On average, payments to document suppliers and the Copyright Clearance Center and other royalty payments represent 19 percent of total borrowing fees, or a median of 12 percent. Some document suppliers accept requests via the OCLC ILL system, and use the OCLC ILL Fee Management service to invoice libraries. Payment to those document suppliers are included in the OCLC IFM debit and therefore not reported separately. Thus, the percentage of the borrowing fees paid to document suppliers is likely to be higher.

Reporting usage to the Copyright Clearance Center varies. Some participants continue to request articles from libraries after they

have exceeded the CONTU Guidelines, and thus report those transactions to CCC and pay royalty fees, if applicable. Others prefer to order articles from commercial document suppliers once they have reached the CONTU Guidelines because the royalty fees are included in the suppliers' charges.

The study did not ask whether participants sent requests to commercial suppliers as a first resort, that is, before trying other libraries, or as a last resort, that is, after exhausting potential library suppliers. The position of the document supplier(s) in the lender string may also influence the number of requests sent to them.

The turnaround time sample requests asked participants to record the supplier of each item. Seven different document delivery suppliers were listed as suppliers on the 260 sample requests that included the name of a document delivery company. Of the 260 requests, 240 included a date the request was submitted by the user and the date the item was received. The average turnaround time from the date on the form or the date received by the system to the date the item was received in the ILL department was 4.6 calendar days, compared with 6.1 calendar days for all mediated nonreturnables, or 25 percent faster. The median was 3.0 calendar days, compared with 4.9 calendar days for all mediated nonreturnables, or 39 percent faster. Eight of the sample nonreturnable requests were filled the same day, and all by the same document delivery supplier. At the other extreme, seven requests took between 21 and 28 days to be sent by three different document delivery suppliers.

### 3.5.11 Lending and Charging Policies

Most libraries charge to supply loans (50, or 85 percent) or photocopies (55, or 93 percent). Only five libraries do not charge for their lending. The OCLC ILL Fee Management service is the most commonly used billing and payment method; it used by 52 of the participants. Checks are accepted by 51 of the 59 participants and 25 accept credit cards, compared with 15 in the 1996 study. Nearly two-thirds (38) use IFLA vouchers.

Reciprocal or cooperative agreements are common in ARL libraries. As borrowers, 62.5 percent of requests are filled by libraries using reciprocal agreements. As lenders, the percentage is somewhat lower—57.5 percent. A reciprocal agreement is defined, for this study, as a formal or informal agreement between a borrower and a lender to provide a defined level of service, perhaps at no charge. Other libraries may define a reciprocal agreement as simply a no-charge agreement. **There is conflicting evidence that reciprocal agreements provide better service, and this study did not test that assertion, which could be tested in a future study.**

David Fuller studied the use of reciprocal, no-charge agreements at the University of Florida's Smathers Library.[79] Over a five-year period in the mid-1990s, the library received 66.5 percent of its loans and 62.2 percent of its photocopies from reciprocal partners, but Fuller did not indicate whether fill rates increased or turnaround times were reduced.

Of the 57 libraries that use Ariel in their lending, nearly three-quarters of the participants (42) scan directly from the physical volume rather than photocopying first. Those participants scan 83.5 percent of filled photocopy requests, or a median of 90 percent.

For the participants that charge to fill returnable or nonreturnable requests, the study did not ask them to indicate their base charge. As a result, the study is not able to determine the range of lender charges and the impact of varying lender charges on the borrower fees category for the borrowers.

### 3.5.12 International ILL/DD

All participants borrow and/or lend internationally. This study did not ask for the percentage or the distribution of international borrowing or lending.

[79] David H. Fuller, Jr., "Interlibrary Loan Reciprocal/Consortium Agreements: How Important Are They?" *Journal of Interlibrary Loan, Document Delivery & Information Supply* 9, no. 1 (1998): 13–19.

### 3.5.13 Electronic Request Transmission Methods

Borrowing operations continue to prefer electronic methods to send requests to other libraries or suppliers. Participants were asked to supply the percentages of borrowing requests sent via different methods. Not all of the participants use all requesting methods listed in the General Characteristics Questionnaire. Table 77 summarizes the number of libraries using each method and, for the libraries using that method, the average percentage of requests sent via that method and the percentage of lending requests received via that method.

For example, five libraries use a peer-to-peer service to send their borrowing requests. On average, these five libraries send 40 percent of their requests via peer-to-peer and the other 60 percent are sent via other methods, including OCLC. For the 57 libraries that use OCLC to borrow, some use it for 100 percent of requests, but the average of 76.56 percent takes into consideration the libraries using it for all of their borrowing and the libraries that use it for only some of their borrowing such as the five libraries in this example that also use peer-to-peer systems.

The use of peer-to-peer software, using the ISO ILL communication protocol, is new since the 1996 study when no ILL transactions were sent via systems using ISO ILL. Also, the Research Libraries Group (RLG) shut down its Research Libraries Information Network (RLIN) ILL system in August 2003, but this study captured RLIN ILL traffic before the shutdown.

**Table 77: Request Transmission Methods**

| | Number of Libraries Using this Method | Mean Percentage of Borrowing Requests Sent via this Method | Mean Percentage of Lending Requests Sent via this Method |
|---|---|---|---|
| OCLC ILL | 57 | 76.56% | 76.96% |
| Peer-to-peer (ILL Manager, VDX, etc.) | 5 | 40.70% | 54.24% |
| RLIN ILL | 14 | 27.95% | 14.68% |
| DOCLINE | 15 | 22.81% | 23.49% |
| Document Supplier Dedicated System | 14 | 13.31% | 10.5% |
| Ariel/Electronic Transmission | 8 | 5.63% | 1.91% |
| Other | 8 | 3.93% | 8.32% |
| Fax | 46 | 2.33% | 3.13% |
| E-mail | 31 | 1.66% | 3.66% |
| Mail/Postal Service | 43 | 1.44% | 1.56% |

### 3.5.14 Equipment and Management Software

Virtually all of the participants have incorporated ILL management software and electronic delivery technologies into their suite of productivity tools. **One of the notable changes from the 1996 study is the much higher percentage of libraries that provide one workstation per FTE:** 57 of the 59 (97 percent) provide a computer with access to the local online catalog, national bibliographic utilities, Internet resources, and/or local management software. In the previous study, only 55 percent of the research library participants provided one workstation per FTE.

Twenty-eight of the participants have an online public access catalog (OPAC) terminal in their offices or a terminal elsewhere used primarily by borrowing staff, and twenty-seven have an OPAC terminal for lending staff. Photocopy machines are located in two-thirds of the borrowing operations and 80 percent of the lending operations. Fax machines are in 56

of the 58 borrowing operations and 57 of the 59 lending operations.

Virtually all of the ILL operations (95 percent) use an ILL software package to manage borrowing and/or lending transactions; only three do not use software for either borrowing or lending. At the time of the study, 23 borrowing operations and 24 lending operations used Clio, 14 departments used OCLC ILLiad, and 5 borrowing operations and 7 lending operations cited RLG's ILL Manager. Other software products mentioned include AVISO, QuickDOC, SAVEIT, VDX, and Wings. Unlike the 1996 study, no participant reported using software the library developed locally.

### 3.5.15 OCLC-Related Features

OCLC ILL continues to be the primary system used to send and receive mediated ILL requests; approximately three-quarters of the borrowing and lending requests are transmitted via the OCLC ILL system. This high level of usage is reflected in the proportion of the network costs directly related to OCLC. OCLC charges and fees account for an average of 80 percent (or $42,605 out of $50,314), and a median of 91 percent of the borrower's network costs.

A key characteristic of high-performing borrowing libraries in the 1996 study was their extensive use of OCLC-related features. Technology continues to improve access. Table 78 summarizes key OCLC features and the number of participants using each feature. The features are described below.

*Checking Union Lists* enables borrowers to verify detailed serial holdings of potential lenders in order to increase fill rates for both borrowers and lenders.

*Consolidated ILL Pricing* bundles searching, IFM, and the fee to produce a record into a single charge. As long as staff maintain a system average of four searches or less per "produce," this allows staff to search without concern for OCLC charges.

*Custom Holdings Paths* are lists ("strings") of preferred lenders set up by the borrowing library to reduce the need to view multiple screens of symbols of potential lenders in order to select locally preferred lenders.

*Enter My Symbol Twice* is a feature that lending libraries activate. It requires borrowers to enter a lender's symbol two times instead of one, thus giving that lender eight days, rather than the standard four days, to respond. OCLC stopped supporting this feature, although it is still available and used by some lenders.

*First Search Direct Request* compares the attributes of each request, such as format, age of material, language of material, department of user, status of user, etc., to profiles created by the borrower. A request is matched on the most likely profile, and the OCLC system applies constant data defined by the borrower and selects a lender string based on the custom holdings the borrower has specified in that profile.

*ILL Fee Management* is a service in which lending charges and borrowing payments are posted to the library's monthly OCLC statement, eliminating staff handling of per-transaction invoices and payments.

*ILL ISO* enables libraries using ISO ILL-compliant systems to send requests to and receive requests from the OCLC ILL system using the ISO ILL protocol.

*ILL Management Statistics* provides monthly data about a library's OCLC ILL activity. The report includes raw statistics, which the subscriber may customize using a local spreadsheet or database program. The report also provides collection analysis information.

*MicroEnhancer* is OCLC workstation software that permits batch (off-line) updating of ILL transactions, saving staff time, and permitting use of equipment when staff are not working.

*Prism Interface* is the command-line interface to the OCLC ILL system.

*Web Interface* is the Web-based interface to the OCLC ILL system.

**Table 78: Type of OCLC Features Used by Participants**

| OCLC Features | Number of Libraries | Percentage of Total |
|---|---|---|
| ILL Fee Management (IFM) | 56 | 97% |
| MicroEnhancer | 51 | 88% |
| Custom Holdings Paths | 50 | 86% |
| Check Union Lists | 46 | 79% |
| Prism Interface | 46 | 79% |
| ILL Management Statistics | 39 | 67% |
| Enter My Symbol Twice | 31 | 53% |
| Web Interface | 28 | 48% |
| First Search Direct Request | 23 | 40% |
| Consolidated ILL Pricing | 18 | 31% |
| ISO ILL Transfer | 14 | 24% |

The process to initiate ILL requests on the OCLC ILL system is changing in reflection of more user-empowerment. In FY 03, OCLC reported that 57 percent of ILL requests originated outside the OCLC staff interface.[80] That is, just over half of all OCLC ILL requests were generated via the FirstSearch/ILL link, OCLC ILLiad, Direct Request, etc., thus eliminating the need for borrowing staff to key in bibliographic information or verify citations.

## 3.5.16 Delivery Preferences

For the 58 participants that submitted borrowing data, Ariel and the United States or Canadian postal services are the two most commonly used delivery methods for nonreturnables and returnables. One library does not have Ariel. One uses it only for borrowing and one use it only for lending. All others use Ariel for borrowing and lending. Fifty-two libraries use fax or a state, regional, or consortial courier service. For lending, only two libraries do not use Ariel and only one library does not fax materials to other libraries. Use of couriers (53) and the postal service (56) are the most common lending delivery options.

Posting documents to the Web is an emerging delivery option. A total of 34 libraries (59 percent) post documents to the Web for their local users, and 25 post documents as suppliers. A total of 31 borrowers and 25 lenders also use e-mail as a delivery method.

## 3.5.17 User Satisfaction and LibQUAL+™ Results

This undertaking did not include a comprehensive user satisfaction survey as one of the performance measures. ARL's LibQUAL+™ instrument measures user perceptions of, and satisfaction with, library services. One question about ILL borrowing was included in the "Access to Information" dimension in the 2002 LibQUAL+™survey. The question asked local users about their expectations for and satisfaction with timely document delivery and interlibrary loan.

Twenty-four participants in this study also participated in the 2002 LibQUAL+™ survey. The findings of the two studies were compared and slight negative correlations were found between the perceived timeliness of ILL/DD services and turnaround time for returnables and nonreturnables. That is, how users view ILL/DD in terms of turnaround time is slightly different from the actual turnaround time averages for their local ILL department. For this group of 24 libraries, the user perceived level of service (6.89 on a scale of 1 to 9) was higher than the minimum acceptable level (6.50) but lower than the maximum desired level (7.92). This suggests that the mean ILL turnaround time for this sub-group of 6.3 calendar days for nonreturnables and 9.3 calendar days for returnables is acceptable, but there is room for improvement. Neither of the correlations was statistically significant.

[80] Unpublished data provided by Collette Mak, OCLC, March 24, 2004.

## CHAPTER 4

# COMPARING THE PERFORMANCE OF MEDIATED ILL/DD OPERATIONS: 2002 AND 1996

## 4.1 Introduction

How have ILL and DD services changed from 1996 to 2002? To answer this question, data on mediated ILL/DD borrowing and lending operations from the 44 libraries that participated in both studies were compared. Appendix A lists the libraries that participated in both studies. This chapter analyzes the mediated ILL/DD operations of the 44 libraries, but excludes all of the user-initiated services described in chapter two.

The tables in this section compare the 1996 and 2002 performance in different categories. Most of the tables include the 10th percentile, mean, median, the 90th percentile, and, when applicable, the percentage change.

**As borrowers, these 44 participants have increased the number of borrowing transactions, increased total borrowing costs, decreased borrowing unit costs, reduced turnaround time, and maintained stable fill rates.**

**The reduction in borrowing unit costs reflects some of the economies of scale in mediated borrowing.** As the number of transactions increases, total costs increase but at a decreasing rate, resulting in lower unit costs. At the same time, staff costs as a percentage of unit costs have decreased from 66 to 58 percent.

**As lenders, there has been an increase in the number of lending transactions as well as an increase in total lending costs. Total lending unit costs have changed little, although when adjusted for the 15 percent inflation from 1996 to 2002 there has been a real decrease in unit costs.** Staff costs as a percentage of total lending unit costs have changed little, and there has been a slight increase in the lending fill rate.

**Seventeen of the forty-four libraries have realized cost reductions in their borrowing operations and twenty-two libraries have realized the same for their lending;** that is, they are handling more transactions at a lower unit cost, even before adjusting for inflation. Three borrowers and two lenders have contained costs, that is, they filled more transactions in 2002 at virtually the same unit costs as in 1996. These libraries have realized productivity gains in part because they have increased their use of automation in their departments.

## 4.2 Number of Transactions

In 1996, this group of 44 libraries filled on average 14,056 borrowing requests and 29,077 lending requests. In 2002, comparable totals are 18,167 and 48,441. For borrowing and lending there has been an increase in the number of filled transactions at every percentile. On average, there has been a 75 percent increase in filled borrowing transactions, and an average of 59 percent increase in filled lending transactions. However, 16 libraries reported a lower number of filled borrowing transactions in 2002 than in 1996, and 11 libraries filled fewer lending requests in 2002 than in 1996.

Nonreturnable photocopies represented 53 percent of total borrowing transactions in 1996, and 54 percent in 2002. In other words, these libraries requested almost the same proportion of photocopies in 2002 as in 1996, contrary to the assumption that the increased access to electronic journals has greatly minimized the need for libraries to request photocopies of journal articles via ILL. Nonreturnable photocopies, as a percentage of all lending (53 percent), did not change between 1996 and 2002. Tables 79 and 80 summarize the change in the number of filled borrowing and lending transactions at the various percentiles.

**Table 79: Number of Filled Borrowing Transactions: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 7,917 | 17,967 | 14,634 | 33,540 |
| 1996 | 5,225 | 14,396 | 12,519 | 23,267 |
| Percentage Change | 52% | 25% | 17% | 44% |

**Table 80: Number of Filled Lending Transactions: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 6,389 | 29,671 | 19,364 | 43,677 |
| 1996 | 10,988 | 48,441 | 24,395 | 47,539 |
| Percentage Change | 72% | 63% | 26% | 9% |

## 4.3 Comparing Unit Costs

The mean borrowing unit cost was essentially unchanged from 1996 to 2002, reflecting the increase in mediated borrowing transactions. The average unit cost for these 44 libraries decreased $1.33, while the libraries at each percentile of unit costs had a lower borrowing unit cost with the exception of the 10th percentile.

However, the increase at the 10th percentile is well below the rate of inflation and represents a decrease in real costs. Table 81 summarizes the change in the borrowing unit costs. Mediated lending unit costs, on average, increased less than one percent from 1996 to 2002. When adjusted for the 15 percent inflation, this change represents a real decrease in the lending unit costs. Unlike borrowing, the changes vary among the categories. Table 82 summarizes the change in lending unit costs.

**Table 81: Change in Borrowing Unit Costs: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | $11.79 | $17.25 | $16.54 | $25.69 |
| 1996 | $11.13 | $18.58 | $16.88 | $27.11 |
| Percentage Change | 6% | -7% | -2% | -5% |

**Table 82: Change in Lending Unit Costs: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | $4.06 | $9.14 | $7.85 | $14.11 |
| 1996 | $5.13 | $9.08 | $8.22 | $12.09 |
| Percentage Change | -21% | 1% | -5% | 17% |

Some may find the modest reduction in borrowing unit costs disappointing. As will be shown for fill rates in section 4.6 below, the increase in borrowing unit costs for the 11 libraries that increased their unit costs may moderate the reduction in the overall borrowing unit cost. If those 11 libraries had maintained their 1996 unit costs in 2002, the overall borrowing unit cost for 2002 would be $15.40, rather than $17.25, or a reduction of 11 percent. When adjusted for inflation, the reduction would be $5.97, or a 28 percent drop in borrowing unit cost. Thus, it is likely that the relatively modest reduction in the overall borrowing unit cost is influenced by the increased borrowing unit costs of this small group of libraries.

## 4.4 Comparing Unit Costs Using Constant Dollars

Another way to evaluate the change in borrowing and lending unit costs is to account for the impact of inflation on the unit cost. The 1996 unit costs were adjusted upward to reflect the 15 percent inflation between 1996 and 2002. Costs were then compared using constant dollars and confirmed that overall borrowing decreased by 19 percent and lending by 13 percent.

Using constant dollars, 32 libraries reduced their borrowing unit costs, with an average reduction of $6.90, and a median reduction of $4.16. The five participants with the greatest reductions all recorded drops of at least $12.75. Eleven increased their

borrowing unit costs in constant dollars an average of $3.98, or a median of $3.84. The five highest increases in borrowing unit costs ranged from just under $5.00 to $10.00.

For lending, 27 libraries reduced their lending unit costs in constant dollars. The average decrease for the 27 was $3.60, with a median of $2.90. Drops between $5.00 and $12.00 were recorded for the five libraries with the steepest drops. The average of the 17 libraries that increased their lending unit costs was $2.34, or a median of $1.60, with increases ranging from $0.10 to $3.40.

## 4.5 Comparing Staff Costs

Although some libraries have seen a slight increase in borrowing staff costs as a percentage of the borrowing unit cost, most libraries have seen a decline. **On average, there has been a reduction of 10 percentage points in staff costs as a percentage of total borrowing unit costs, from 64 percent in 1996 to 54 percent in 2002.** In contrast, the borrowing fees category increased from 14 to 20 percent of the mean borrowing unit cost. Although the borrowing unit cost has remained relative constant, a larger share of the overall borrowing unit cost is now earmarked for borrowing fees, equipment, technology, photocopying and other nonstaff resources.

**On average, there has been a decrease of two percentage points in lending staff costs as a percentage of total lending unit costs, from 75 percent in 1996 to 73 percent in 2002.** Some libraries have seen an increase, others a decrease, in staff costs as a percentage of mean lending unit cost. Tables 83 and 84 compare changes in staff costs as a percentage of borrowing and lending unit costs respectively.

**Table 83: Staff Costs as Percentage of Borrowing Unit Cost: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 42% | 54% | 53% | 70% |
| 1996 | 48% | 64% | 65% | 80% |
| Percentage Points Difference | -6% | -10% | -12% | -10% |

**Table 84: Staff Costs as Percentage of Lending Unit Cost: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 61% | 73% | 73% | 86% |
| 1996 | 61% | 75% | 76% | 86% |
| Percentage Points Difference | 0% | -2% | -3% | 0% |

Figure 5 illustrates the shift in types of borrowing staff used in ILL departments. Although the percentage of staff costs attributed to the professional supervisor position has increased slightly, these 44 libraries are using fewer professional nonsupervisors and support-staff supervisors than in 1996. They are using more support staff, perhaps assigning them tasks that were formerly assigned to higher-level staff. **It is likely that this shift in staffing levels contributed to the seven percent reduction in borrowing unit cost.**

**Figure 5: Change in Borrowing Staff Categories: 1996 and 2002**

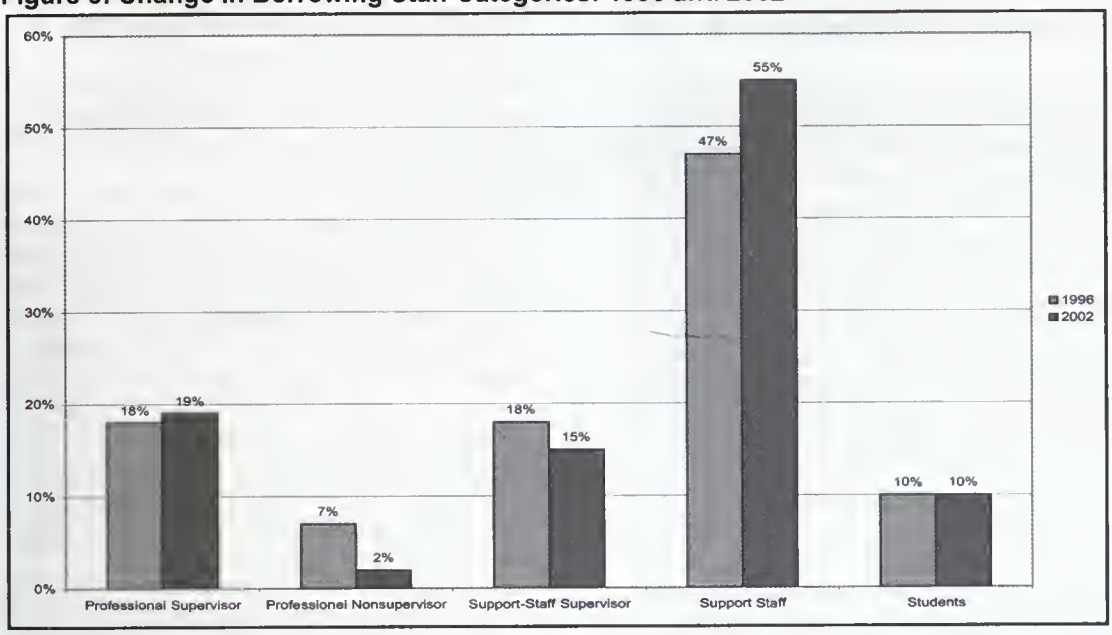
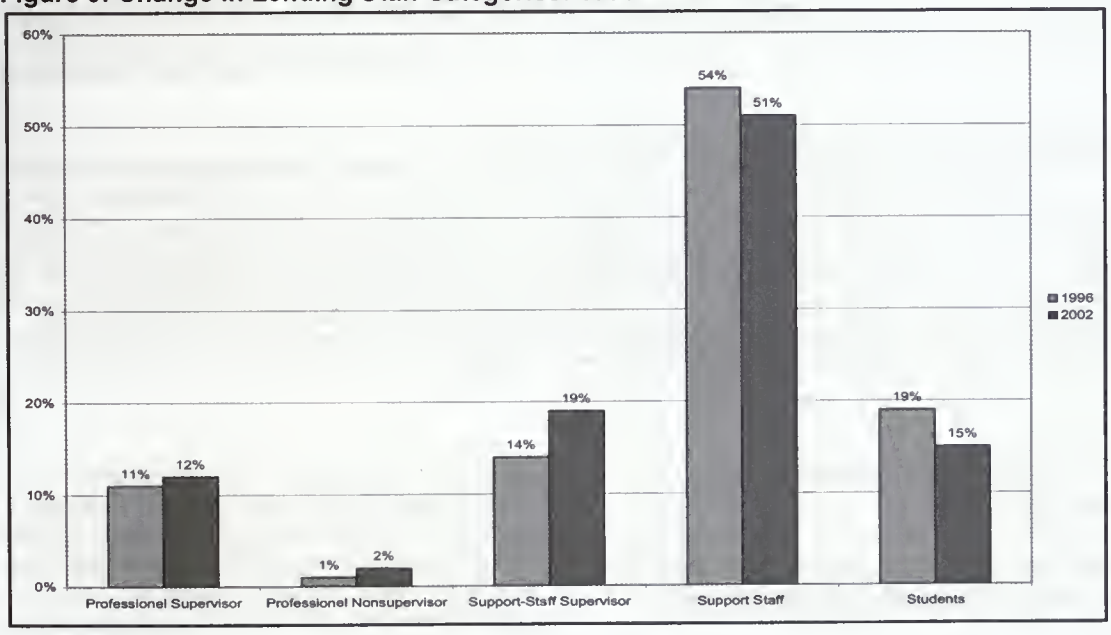



Figure 6 compares staff categories for lending, and presents quite a surprising finding. **The 44 libraries in the 1996 and 2002 studies have increased their use of professional and supervisory staff and decreased their use of support staff and students for lending.** Because the study did not ask participants to describe changes made since 1996, it is not possible to determine why the professional supervisor, professional nonsupervisor, and support-staff supervisor positions now represent one-third of the lending staff unit cost, compared with one-quarter of the lending staff unit cost in 1996. It is reasonable to speculate that these three categories are higher paid than support staff or students. **This increased use of the higher-level staff may be a reason why staff costs continue to represent three-quarters of the total lending unit cost.**

**Figure 6: Change in Lending Staff Categories: 1996 and 2002**



## 4.6 Comparing Fill Rates

On average, the borrowing fill rate increased by one percentage point, from 84 percent in 1996 to 85 percent in 2002. As borrowers, 23 participants recorded higher fill rates in 2002 than in 1996, with increases ranging from 1 percentage point to 25 percentage points. The participant that recorded the largest jump had a 63 percent fill rate in 1996 and an 88 percent fill rate in 2002, or 25 percentage points higher. One participant recorded the same borrowing fill rate as in 1996. Nineteen participants filled fewer borrowing requests in 2002 than they did in 1996, with decreases ranging from 1 percentage point to 17 percentage points.

The overall borrowing fill rate remained constant over the past six years. Although some fill rates increased, surprisingly, fill rates for 19 participants decreased. For example, one library's borrowing fill rate dropped from 84 percent in 1996 to 67 percent in 2002. Had that single library maintained its 84 percent fill rate in 2002, the overall fill rate would be four-tenths of one percentage point higher. If that library and the other 18 libraries maintained their 1996 fill rates, the overall fill rate in 2002 would be 89 percent, an increase of 4 percentage points, illustrating again the caution needed when drawing conclusions or making generalizations from relative small samples of libraries.

At every percentile, there is little change in mediated borrowing fill rates, with the 10th percentile increasing by one percentage point and the 90th percentile falling by one percentage point. Table 85 summarizes the change in borrowing fill rates.

The overall lending fill rate for the 44 libraries also increased by one percentage point from 1996 to 2002. Twenty-three participants increased their lending fill rates from 2 to 30 percentage points. One participant's fill rate remained the same. Twenty libraries filled fewer lending requests in 2002 than 1996, ranging from a decrease of 1 percentage point to 20 percentage points (or from 97 percent to 77 percent). Table 86 summarizes the change in lending fill rates.

**Table 85: Change in Borrowing Fill Rates: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 44% | 56% | 58% | 77% |
| 1996 | 43% | 55% | 55% | 78% |
| Percentage Points Difference | 1% | 1% | 3% | -1% |

**Table 86: Change in Lending Fill Rate: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 73% | 86% | 87% | 95% |
| 1996 | 75% | 55% | 87% | 93% |
| Percentage Points Difference | -2% | 1% | 0% | 2% |

## 4.7 Comparing Borrowing Turnaround Time

A total of 37 of the 38 participants for which borrowing turnaround data were available for both studies improved turnaround time for returnables; only one library took longer to receive loaned items in 2002 than in 1996. On average, turnaround time decreased by 46 percent for these 37 participants. For nonreturnables, only 2 of 40 borrowers for

which data from both years were available took longer to obtain photocopies in 2002 than in 1996. On average, the 38 libraries that reduced their turnaround times are receiving photocopies 54 percent faster in 2002 than in 1996.

One possible reason for the reduction in turnaround time is that libraries may be reviewing workflow and internal procedures more closely and more regularly. Cynthia Watkins used the flowchart technique to review local document delivery service, which delivered locally held materials to faculty and graduate students, at the New Mexico State University Library.[81] She discovered duplicate duties of staff in local document delivery and staff in mediated ILL lending. Although her article does not focus on mediated ILL procedures, flowcharting is a tool that may have been used by ILL managers to evaluate their workflow and improve their turnaround time.

The 1996 study did not track lending turnaround time, so a comparison of lending turnaround times is not possible.

## 4.8 Comparing Staff Categories

In 2002, professional staff (professional supervisor and professional nonsupervisor) accounted for 21 percent of borrowing staff and 16 percent of lending staff in the ILL department. The proportions were very similar in 1996—23 percent of borrowing staff and 15 percent of lending staff were in professional positions.

In 2002, supervisory staff (professional supervisor and support-staff supervisor) made up 34 percent of the borrowing staff and 33 percent of the lending staff in the ILL department. In 1996, supervisory staff made up 38 percent of the borrowing staff and 30 percent of the ILL lending staff in the ILL department.

[81] Cynthia A. Watkins, "Using Flowcharts to Streamline Document Delivery Services in an Academic Library," *Journal of Interlibrary Loan, Document Delivery & Information Supply* 10, no. 2 (1999): 84.

## 4.9 Comparing Requests per Full-Time Equivalent (FTE) Staff

The 1996 study compared requests per full-time equivalent (FTE) employees, using total requests (filled and unfilled) in the calculation. For 44 libraries that participated in both studies, total requests per FTE have increased for borrowing and lending. On average, in 2002 one borrowing FTE processed 4,394 filled and unfilled requests, or four percent more requests than in 1996. Nearly three-quarters (32 of the 44) of the libraries increased their borrowing requests per FTE by an average of 1,611 requests; 12 libraries showed a decrease.

In 2002, one lending FTE processed an average of 10,297 requests, or six percent more requests than in 1996. Thirty-one participants recorded an increase in lending requests per FTE, on average they are processing 3,564 more requests per FTE; 13 reported a decrease. Table 87 summarizes the 2002 mean total requests per FTE and Tables 88 and 89 compare the change in borrowing and lending ranges respectively.

**Table 87: 2002 Mean Total (Filled and Unfilled) Requests per FTE**

| | Borrowing | Lending |
|---|---|---|
| 44 participants | 4,394 | 10,297 |
| 59 participants | 4,237 | 9,728 |
| Difference | 22% more | 49% more |

In 23 libraries, both borrowing and lending requests per FTE increased, suggesting increased productivity in those operations. Nine participants improved borrowing requests per FTE, but decreased their lending FTE, and eight showed an increase in lending but a drop in borrowing.

In four libraries, staff are filling fewer borrowing and lending requests in 2002 than they did in 1996. Because requests per FTE used total requests, fill rates were examined for these four. Three recorded increased fill rates for borrowing and lending and only one decreased its borrowing and lending fill rates. Of the four libraries with the greatest increases in lending requests per FTE, the fill rates of

three decreased and the fourth remained the same since 1996, suggesting that these lending operations are processing more lending requests but filling fewer requests.

**Table 88: Total Borrowing Requests per FTE Staff: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 2,180 | 4,394 | 3,992 | 8,027 |
| 1996 | 2,304 | 3,225 | 3,259 | 5,342 |

**Table 89: Total Lending Requests per FTE Staff: 1996 and 2002**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| 2002 | 5,772 | 10,297 | 9,316 | 15,690 |
| 1996 | 4,695 | 8,482 | 7,443 | 13,136 |

**Table 90: Range of Improvements in Borrowing and Lending: 2002 Compared to 1996**

| Performance Measure | Borrowing | Lending |
|---|---|---|
| Fill Rate Increase (in Percentage Points) | 12–25 percentage points higher | 13–30 percentage points higher |
| Unit Cost Reduction (in Constant Dollars) | $12.78–$44.79 lower | $5.25–$11.12 lower |
| Unit Cost Reduction as a Percentage (in Constant Dollars) | 47%–61% lower | 48%–58% lower |
| Turnaround Time Reduction (Returnables) | 13.8–18.6 days faster | Not tracked in 1996 study |
| Turnaround Time Reduction (Nonreturnables) | 12.5–17.3 days faster | Not tracked in 1996 study |
| Turnaround Time Reduction as Percentage (Returnables) | 60%–85.2 % faster | Not tracked in 1996 study |
| Turnaround Time Reduction as Percentage (Nonreturnables) | 68.6%–78.1% faster | Not tracked in 1996 study |

## 4.10 Libraries Achieving Significant Improvements

Just over one-quarter (12 of 44) of the participants increased the number of borrowing and lending transactions from 1996 to 2002 while decreasing their borrowing and lending unit costs. Several libraries recorded even more impressive improvements in their borrowing and/or lending operations. Table 90 summarizes the range of improvements in borrowing and lending operations for the five libraries that recorded the biggest improvements in each category. The top five libraries in one measure are not necessarily the same five libraries in another measure.

Three libraries recorded dramatic improvements in their **borrowing** operations:

- **Louisiana State University** reduced its borrowing unit cost in constant dollars and as a percentage change, and increased its borrowing fill rate.
- **North Carolina State University** reduced its turnaround time for returnables and reduced its unit cost in constant dollars and as a percentage change.
- **Duke University** increased its fill rate and reduced its turnaround time for nonreturnables.

Two libraries recorded significant improvements in their **lending** operations:

- **Duke University** increased its fill rate and reduced its unit cost in unadjusted dollars and in constant dollars.
- The **University of Minnesota** increased its fill rate and reduced its lending unit cost in constant dollars.

How have libraries modified or changed their operations to achieve these improvements? The study did not ask participants to describe the changes they made to their procedures since the 1996 study. However, informal conversations with several of the participants that recorded noteworthy improvements confirmed that they implemented many of the characteristics of high-performing borrowing and lending operations as identified in the 1996 study and shared through the ARL-sponsored workshops.

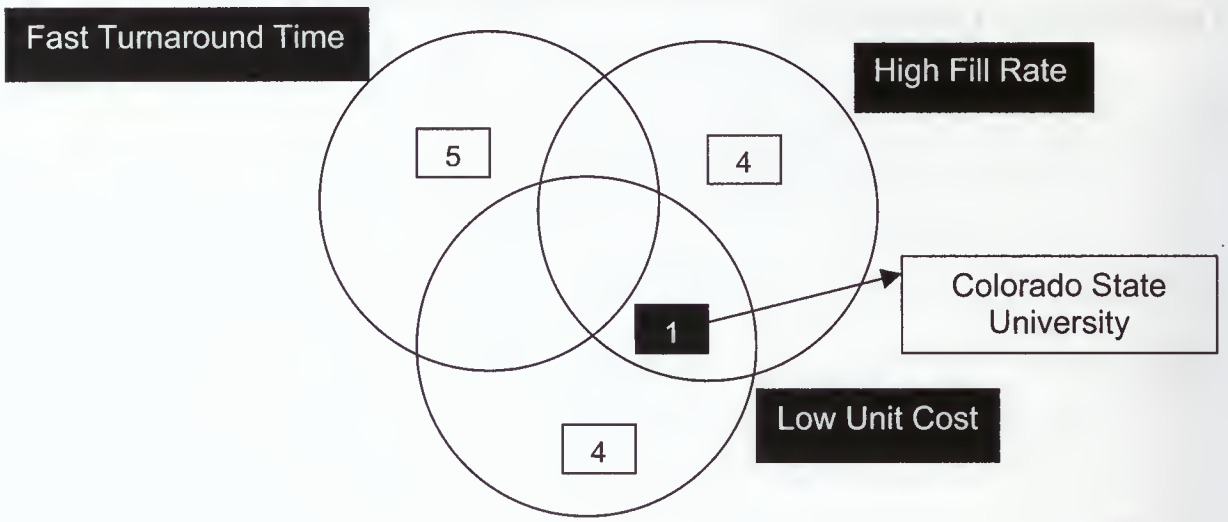
With data from the 1996 study, some libraries focused on the measures in which they were the weakest. One participant reported that "getting lending out of the crypt" was her primary goal over the past several years. Another noted the overall result of a series of seemingly minor changes; in the aggregate those changes dramatically improved their borrowing performance. Knowing that other libraries are able to fill a certain percentage of requests or provide fast turnaround time energizes some to match the performance of the high-performers. Finally, several participants in the 1996 study stated that they wanted to strive to be identified publicly as a high-performer in the current study. These examples illustrate the ways in which libraries have used best practices of other libraries to improve the performance of their borrowing and lending operations since 1996.

## CHAPTER 5

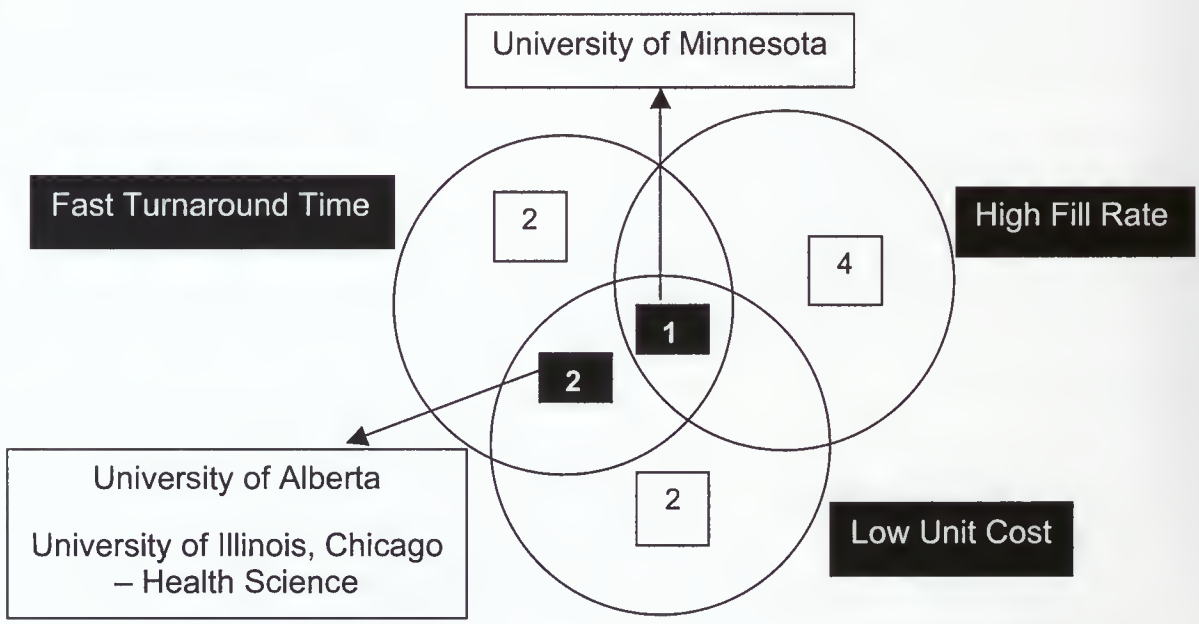
# HIGH-PERFORMING MEDIATED ILL/DD OPERATIONS IN RESEARCH LIBRARIES

**Figure 7: High-Performing Mediated Borrowing and Lending Operations**

**High-Performing Borrowing Operations**




**High-Performing Lending Operations**



## 5.1 Introduction

One objective of this study is to describe characteristics of low-cost, high-performing borrowing and lending operations. The study defines a high-performing operation as the five libraries with the lowest unit costs, the five libraries with the highest fill rates, and the five libraries with the fastest turnaround times. A library is considered a high-performing operation if it falls in just one of the borrowing categories, or in just one of the lending categories. The terms *high-performing borrower* and *best borrower* (and their equivalents for lending) are used to describe these libraries.

Although two-thirds of ARL participants reported cost data for at least one user-initiated service, **80 percent of total borrowing transactions and 89 percent of total lending transactions are still handled via mediated ILL systems.** Libraries will continue to implement user-initiated systems, but ILL managers have a need to, and in some cases a mandate to, improve their mediated ILL/DD operations.

This section summarizes the performance and characteristics of the low-cost, high-performing mediated borrowing and lending operations. The variation between the high performers and all 59 ARL participants is not as pronounced as in the 1996 study. This section will highlight important variations, but will also include some characteristics that are similar to the larger group.

**The average borrowing unit cost for the 14 high-performing borrowers is $15.56, 11 percent less than the $17.50 average borrowing unit cost for all of the 58 ARL libraries. This group of 14 recorded an average fill rate of 90 percent, slightly higher than the 86 percent fill rate for the larger group. Turnaround time for the high borrowers was 5.4 calendar days for nonreturnables, 42 percent faster than the larger group. Surprisingly, the 7.6 calendar day turnaround time for returnables was 23 percent slower.**

No libraries ranked in the top five for all three borrowing measures. **Of the 58 ARL participants that submitted borrowing data, one library, Colorado State University, ranked in the top five for two measures: high fill rate and low unit cost.** Thirteen additional libraries ranked in the top five for either high fill rate, low unit cost, or fast turnaround time for a total of fourteen high-performing borrowers.

**One library ranked in the top 10 percent for all three lending measures: the University of Minnesota. Two libraries ranked in the top five for low unit cost and high fill rate: the University of Alberta and the University of Illinois at Chicago Health Sciences Library.** Seven additional libraries ranked in the top five libraries for one measure, for a total of ten high-performing lenders.

## 5.2 High-Performing Borrowing Operations

Of the 58 ARL participants that submitted borrowing data, Colorado State University was the only library that ranked in the top five libraries in two of the three borrowing measures: high fill rate and low unit cost. Thirteen other libraries ranked in the top five libraries for either high fill rate, low unit cost, or fast turnaround time. Thus, the fourteen libraries that ranked in the top five libraries of one or more borrowing measures were defined as high-performing borrowing operations. Data from these libraries were aggregated and examined. The summary results are described below.

It is important to note that excellent performance in one measure does not guarantee excellent performance in the other two categories. It is possible that a library with a low unit cost and a high fill rate may have average or even very slow turnaround time. However, that slow turnaround time was used to calculate the aggregate data summarized below.

High-performing borrowers processed and filled an average of 21,280 requests, or 27 percent more that all ARL participants. Using the mean FTE, high-performing borrowers fill 4,183 requests per FTE. In comparison, all ARL participants filled 4,237 requests per FTE, or 54 more requests per FTE than the high-performing borrowers.

Table 91 compares the borrowing performance of the 14 best borrowers with

the 58 ARL libraries that submitted borrowing data. Table 92 breaks down the unit cost components for the 14 best borrowers, the 5 borrowers with the lowest unit costs, and the 58 ARL participants.

**Table 91: Mean Performance of High-Performing Borrowing Operations Compared to all ARL Borrowers**

| | 14 High-Performing Borrowers | 58 ARL Borrowers | Difference |
|---|---|---|---|
| Unit Cost | $15.33 | $17.50 | 12% lower unit |
| Fill Rate | 89% | 86% | 3 percentage points higher |
| Turnaround Time–Nonreturnables | 5.4 days | 9.3 days | 42% faster |
| Turnaround Time–Returnables | 7.6 days | 6.2 days | 22% slower |
| Number of Requests | 21,280 | 16,698 | 27% more requests |
| Percent Returnables | 39% | 44% | 5 percentage points fewer returnables |
| Percentage of Borrowing to Total ILL Activity | 37% | 39% | 2 percentage points less borrowing |

**Table 92: Comparison of Mean Borrowing Unit Cost by Cost Category**

| Cost Category | 5 Borrowers with Lowest Unit Costs | 14 High-Performing Borrowers | 58 ARL Borrowers |
|---|---|---|---|
| Staff | 55% | 60% | 58% |
| Network | 14% | 14% | 14% |
| Delivery | 5% | 5% | 5% |
| Photocopy | 0% | 0% | 0% |
| Supplies | 0% | 1% | 1% |
| Equipment | 2% | 2% | 2% |
| Borrowing Fees | 23% | 18% | 20% |
| Total | 100% | 100% | 100% |

### 5.2.1 General Characteristics of High-Performing Borrowing Operations

The 14 participants with high-performing borrowing operations share a number of traits with the 58 ARL participants that submitted borrowing data. However, these 14 have some characteristics that differentiate them from the larger group.

The variation in turnaround time for the 14 is notable. This group received copies and other returnables 42 percent faster than all ARL participants, but are 22 percent slower in obtaining book loans and other returnables for their users.

These high-performing borrowers serve 3.7 branch or departmental libraries, over 60 percent fewer than the 9.6 branch libraries for all 58 borrowers. The organizational home for ILL is slightly different from the larger group. Five ILL departments are part of access services, four are in public services, three in technical services, and two were noted as "other." Like the larger group, a professional supervisor manages the ILL department in 64 percent of the libraries. Only two of the fifty-eight borrowers do not have at least one workstation per FTE, and,

interestingly, one of those two is a high-performing borrower.

Twelve of the fourteen (86 percent) have a separate budget for borrowing and lending, and two have no separate budgets. In contrast, only 60 percent of the larger group has a separate budget for both. Only one of the fourteen always charges users for loans and copies, compared with three of the larger group that always charge for returnables and eight that always charge for nonreturnables. Three may charge for loans depending on the circumstances, two may charge for copies, and the rest do not charge their users.

Thirteen of the fourteen (93 percent) have users pick up materials at the circulation desk, compared with 78 percent of the larger group. A total of 71 percent permit users to pick up materials at a branch or departmental library, higher than the 53 percent for the larger group. Thirteen of the fourteen (93 percent) mail articles to users, slightly higher than the 83 percent of all fifty-eight borrowers. A total of 64 percent post articles to the Web, comparable to 67 percent of the larger group.

The use of OCLC-related features is comparable to the 58 borrowers, with several notable variations. The percentage of borrowing conducted via the OCLC ILL service is nine percent less: 69.55 percent compared with 76.56 percent. More high-performing borrowers have activated the OCLC FirstSearch Direct Request link than all participants—50 percent compared to 39 percent. This group uses the Web interface more than all participants—57 percent compared to 47 percent. All but one (93 percent) of the fourteen libraries use the OCLC MicroEnhancer, compared with 86 percent overall. Interestingly, the only two borrowers that don't use the OCLC ILL Fee Management (IFM) service are in this group of high-performing borrowers. Fewer of the 14 libraries check union lists less—71 percent compared to 85 percent of all participants.

High-performing borrowers use commercial document suppliers to fill 6.7 percent of their photocopy requests, compared with 6.35 percent for all participants, which may be a factor in their higher fill rates and/or faster turnaround times. This group of libraries also uses reciprocal agreements to fill 66.7 percent of their borrowing requests, slightly higher than the 62 percent for all participants, and perhaps another influence on their higher fill rates and/or faster turnaround times.

### 5.2.2 Staff in High-Performing Borrowing Operations

The staffing configuration for the 14 high-performing borrowers varies slightly from that of all 58 participants. Table 93 compares the mean number of FTE staff by staff category. On average, high-performing borrowers have three percent more borrowing FTEs. For this group, the support staff category accounts for 45 percent of borrowing staff, slightly higher than the mean 42 percent for all 58 participants.

Eight of the fourteen (57 percent) have one or more individuals in the ILL department with information technology responsibility, compared with 24 percent for all fifty-eight participants. Fifty-seven percent of the support staff in the 14 libraries are unionized, virtually identical to the fifty-eight percent for the larger group. Professional staff have faculty status in 43 percent of the high-performing institutions, again comparable to all 58 participants.

**Table 93: Mean Borrowing FTE Staff by Staff Category**

| Type of Staff | 14 High-Performing Borrowers | Percentage of High-Performers Reporting Staff in the Category | 58 ARL Borrowers | Percentage of Libraries Reporting Staff in the Category |
|---|---|---|---|---|
| Professional Supervisor | 0.53 | 93% | 0.52 | 90% |
| Professional Nonsupervisor | 1.0 | 21% | 0.76 | 12% |
| Support-Staff Supervisor | 0.67 | 57% | 0.74 | 62% |
| Support Staff | 2.74 | 100% | 2.49 | 95% |
| Students | 1.10 | 86% | 1.37 | 91% |
| Total FTE | 6.05 | | 5.88 | |

### 5.2.3 Borrowing Operations with the Lowest Unit Costs

The mean unit cost of the five borrowing operations with the lowest unit costs was $10.07, 42 percent lower than the mean of $17.50 for all fifty-eight participants. For these five libraries, staff costs account for 54 percent of the unit cost, slightly less than the 58 percent for all fifty-eight participants. Borrowing operations with the lowest unit costs spend slightly more on borrowing fees (23 percent) than do all 58 participants (20 percent). On average, professional staff account for 22 percent of total borrowing staff in these five libraries, again slightly higher than the mean of 17 percent for all 58 participants. On average 72 percent of the requests are filled by libraries with which they have reciprocal agreements, nearly 10 percentage points higher than the 62.5 percent for the 58 participants.

The mean fill rate for the five participants with the lowest unit costs is 87 percent, only 1 percentage point higher than the mean fill rate for the 58 participants. The mean turnaround time for returnables is 8.9 calendar days, slightly faster than the 9.3 calendar days for all 58 participants. For nonreturnables, the mean turnaround time is 7.4 calendar days, slightly slower than the 6.1 calendar days for all 58 borrowers.

Mediated borrowing departments with very low unit costs employ 7 percent fewer FTEs and process 53 percent more requests per FTE. These five borrowing departments send 91 percent of their borrowing requests on OCLC, use commercial document suppliers 50 percent less than average, and use reciprocal agreements 16 percent more than average. They also have a different mix of staffing: 50 percent more FTE support staff, and nearly 2.5 times the number of student FTEs than average.

### 5.2.4 Borrowing Operations with the Highest Fill Rates

The borrowing fill rates of the five libraries with the highest fill rates range between 95 and 98 percent, with a mean of 96.2 percent. For returnables, the mean fill rate for these five is 96 percent, and for nonreturnables, the mean fill rate is 96.2 percent. In comparison, the mean fill rate for the five libraries with the lowest borrowing fill rates was 70.4 percent, or 71.2 percent for nonreturnables and 70.2 percent for returnables. In 1996, the libraries in the top 10 percent had borrowing fill rates between 93 and 98 percent.

The five libraries with the highest borrowing fill rates had 73.7 percent of their requests filled by the first lender, and tried on average 1.43 potential suppliers, slightly lower than the average of 1.53 for all 58 participants. On average, 47 percent of the requests are filled by libraries with which they have reciprocal agreements, lower than the mean of 62.5 percent for all 58 participants.

On average, these five libraries use OCLC for 77.7 percent of their borrowing requests, just slightly higher than the 76.6 percent usage by all 58 participants. Only half of the five libraries check union lists on OCLC.

The mean unit cost for the five libraries with the highest fill rates is $15.35, 12 percent lower than the mean unit cost of $17.50 for all ARL participants. For all 58 participants and like the 1996 study, there is a slightly negative correlation between fill rate and unit cost. The correlation was –0.01125, suggesting that libraries are not spending more to achieve a higher fill rate. Incurring more total borrowing costs does not guarantee a higher fill rate.

Mediated borrowing departments with very high fill rates do not count requests for locally owned materials as either filled or unfilled requests. They receive over 80 percent of requests electronically and use the OCLC ILL system to send virtually all of their borrowing requests. They take advantage of the several productivity features of OCLC such as First Search-Direct Request, custom holdings, and ILL Fee Management. Their average borrowing unit cost is approximately one-quarter lower than the mean, even with employing approximately three more FTEs than average. They use a different mix of staffing (FTE): nearly double the number of professional supervisors, approximately 40 percent fewer professional nonsupervisors, nearly triple the average number of support-staff supervisors, nearly double the number of support staff, and one-third fewer students than average.

### 5.2.5 Borrowing Operations with the Fastest Turnaround Times

The mean turnaround time for returnables and nonreturnables for the five libraries with the fastest turnaround times is 3.6 calendar days from the date the user submits the request to the date ILL staff notify the user of availability or send the item to the user. This is 61 percent faster than the mean turnaround time of 9.3 calendar days for all 58 borrowers.

These five libraries receive nonreturnable requests on average 2.7 calendar days after receipt of the request from the user, and loans take on average 5.7 calendar days. In contrast, the five libraries with the slowest turnaround times, take on average 11.8 calendar days to have a borrowing request filled, with a fairly tight range between 11.3 and 12.7 calendar days.

Looking at the component parts of turnaround time, the five libraries with the fastest turnaround times take 0.3 calendar days to send a returnable request or a nonreturnable request to the first potential supplier. Copies are received on average 2.6 days from the date the user submitted the request, with four of the five notifying the user or sending the item to the user that same day. Loans are received on average 5.7 days later, and again, four of the five notify the user or send the item to the user that same day. Table 94 summarizes the performance for the various steps of the borrowing process.

**Table 94: Comparison of Borrowing Turnaround Time by Time Segments**

| | 5 Fastest Borrowers: Nonreturnables | 58 ARL Borrowers: Nonreturnables | 5 Fastest Borrowers: Returnables | 58 ARL Borrowers: Returnables |
|---|---|---|---|---|
| Sent to First Supplier | 0.3 days | 1.0 days | 0.3 days | 0.9 days |
| Received Material | 2.6 days | 5.9 days | 5.7 days | 9.0 days |
| Notified User | 2.7 days | 6.1 days | 5.7 days | 9.3 days |

Participants were not asked to record how the material in the request sample was received. All five libraries use Ariel to receive, and three of the five post documents to the Web. All five use UPS, and four of the five also use FedEx to receive returnable materials.

The study did not ask the borrowers to indicate how they select potential lenders, but it is likely that these five libraries monitor the performance of lenders and select lenders based on turnaround time and type of delivery. A total of 91 percent of the requests generated by these five libraries were filled by the first supplier, compared with 72 percent for all fifty-eight participants. For these five borrowers, the average number of potential suppliers tried was 1.2, compared to 1.5 suppliers for all 58 borrowers.

The average borrowing unit cost for the five libraries with the fastest turnaround time was $19.57, 12 percent higher than the average of $17.50 for all fifty-eight participants. On average, borrowing staff accounted for 61.3 percent of the unit cost, only slightly higher than the 58 percent average for all 58 participants. The delivery unit cost was 4.4 percent of the borrowing unit cost, slightly lower than the mean for all borrowers of 5 percent. Thus, it does not appear that this group of borrowers is paying lenders an additional fee for expedited delivery.

Mediated borrowing departments with very fast turnaround time send ILL requests to potential lenders in less than one-half day after requests are submitted by users and have 91 percent of their requests filled by the first lender. They use Ariel to receive articles and nonreturnables and commercial delivery services to receive books and returnables. They also post articles on secure Web sites as the preferred "delivery" method to local users.

## 5.3 High-Performing Lending Operations

Of the 59 ARL participants that submitted lending data, the University of Minnesota was the only library that ranked in the top five libraries in all three lending measures: high fill rate, low unit cost, and fast turnaround time. Two other libraries, the University of Alberta and the University of Illinois at Chicago Health Sciences Library, reported high fill rates and low unit costs. Seven other libraries ranked in the top five libraries for either high fill rate, low unit cost, or fast turnaround time. Thus, the ten libraries that ranked in the top five libraries of one or more lending measures were defined as high-performing lending operations. Data from these libraries were aggregated and examined. The summary results are described below.

As noted in section 5.2 above, excellent performance in one category does not necessarily result in excellent performance in either of the other two categories. It is possible that a library with a very high fill rate may have a higher than average unit cost or slower than average turnaround time. However, the performance measures of the ten libraries were averaged and are reported in Table 95.

The average unit cost for the high-performing lenders is $4.20, 55 percent less than that for all ARL participants. The mean fill rate for the 10 libraries is 24 percentage points higher than average: 82 percent compared with 58 percent. Their mean turnaround time for returnables is 1.5 calendar days, slightly slower than the 1.4 calendar days for all ARL participants. These libraries fill nonreturnable requests 54 percent faster, at 0.8 calendar days, than the 1.8 calendar days for all ARL participants.

High-performing lenders processed and filled an average of 123,773 requests, or 201 percent more than the average of all ARL participants. High-performing lenders fill a mean of 66,189 requests per FTE, 508 percent more than the mean of 9,728 requests per FTE for all participants.

Table 95 compares the lending performance of the 10 best lenders with that of the 59 ARL libraries. Table 96 compares the unit cost components for the 10 high-performing lenders, the 5 lenders with the lowest unit costs, and the 59 ARL participants.

**Table 95: Mean Performance of High-Performing Lending Operations Compared to all ARL Lenders**

| | 10 High-Performing Lenders | 59 ARL Lenders | Difference |
|---|---|---|---|
| Unit Cost | $4.20 | $9.27 | 55% lower |
| Fill Rate | 82% | 58% | 24 percentage points higher |
| Number of Transactions | 123,773 | 41,088 | 201% higher |
| Turnaround Time–Nonreturnables | 0.8 days | 1.8 days | 54% faster |
| Turnaround time–Returnables | 1.5 days | 1.4 days | 7% slower |
| Number of Requests | 123,773 | 41,088 | 201% more requests |
| Percent Returnables | 37% | 45% | 8 percentage points fewer returnables |
| Percent of Lending to Total ILL Activity | 69% | 61% | 8 percentage points more lending |

**Table 96: Comparison of Mean Lending Unit Cost by Cost Categories**

| | 5 Lenders with Lowest Unit Cost | 15 High-Performing Lenders | 58 ARL Lenders |
|---|---|---|---|
| Staff | 75% | 75% | 75% |
| Network | 3% | 3% | 5% |
| Delivery | 11% | 11% | 13% |
| Photocopy | 4% | 4% | 2% |
| Supplies | 3% | 3% | 1% |
| Equipment | 5% | 5% | 4% |
| Total | 100% | 100% | 100% |

### 5.3.1 General Characteristics of High-Performing Lending Operations

Like high-performing borrowing operations, high-performing lenders share some traits with all 59 lenders, but have some distinctive variations.

As with the high-performing borrowers, turnaround time is the most noticeable difference between the high-performing lenders and the larger group. High-performing lenders are twice as fast in processing and filling photocopy requests as the larger group, but they are slightly slower in filling returnable loans.

On average the high-performing lenders have one ILL unit, and eight branch or departmental libraries to serve, slightly lower than the average of 9.6 branch libraries. Nine of the ten (90 percent) have centralized lending operations, slightly higher than the 86 percent for all fifty-nine participants.

The organizational home for lending varies more among the best lenders than the larger group: five lending operations are part of access services, one is in the reference department, one in the technical services department, one reports to the library director, and two have other organizational arrangements. Eight of the ten departments are managed by a professional supervisor, one by a support-staff supervisor, and one indicated "other." Seven of the ten have unionized support staff, and four of the ten have professional staff with faculty status. Only two of the high-performing lenders do not provide at least one workstation per FTE.

Six of the ten libraries have separate budgets for lending and borrowing, and four reported having no separate budget for ILL.

All 10 libraries charge for supplying copies; 9 of the 10 libraries (90 percent) charge for lending returnables, slightly higher than the 85 percent of all. For this group, only 20 percent of the lending requests were filled using reciprocal agreements, compared with 57 percent of requests for the larger group.

This group of 10 lenders receives 29 percent fewer requests via OCLC ILL than the larger group: 55 percent compared to 77 percent. Nine of the ten use OCLC's ILL Fee Management service and 40 percent accept credit cards, only slight lower than the 42 percent of all participants that accept credit cards. Half of these libraries require their OCLC symbol to be entered two times, again slightly fewer than the 53 percent for all participants. All 10 use the OCLC MicroEnhancer and 60 percent use the OCLC ILL Web interface.

All 10 libraries use Ariel and fax and have photocopiers in the ILL operations. When sending documents via Ariel, eight of the ten scan directly from the volume. Approximately 71 percent of all photocopy requests are filled by scanning the item directly from the volume, fewer than the 83 percent for all participants.

### 5.3.2 Staff in High-Performing Lending Operations

The lending staff configuration of the 10 best lenders varies modestly from that of all 59 participants. Table 97 compares the mean number of staff by staff category. High-performing lenders employ approximate 10 more FTE staff than the larger group, but that higher staff figure needs to be considered along with the larger number of transactions these lenders process.

**Table 97: Mean Lending FTE Staff by Staff Category**

| | 10 High-Performing Lenders | Percentage of High-Performing Lenders | 59 ARL Lenders | Percentage of ARL Libraries |
|---|---|---|---|---|
| Professional Supervisor | 0.81 | 80% | 0.37 | 86% |
| Professional Nonsupervisor | 4.76 | 10% | 1.96 | 10% |
| Support-Staff Supervisor | 1.21 | 70% | 0.81 | 71% |
| Support Staff | 9.22 | 100% | 3.51 | 97% |
| Students | 2.7 | 100% | 2.12 | 95% |

Only 30 percent of the high-performers have staff in the ILL department with information technology responsibility, slightly more than the 24 percent of all participants. Support staff in 70 percent of the high-performing lending operations are unionized, and 40 percent of the professional staff have faculty status. Support staff account for 49 percent of the staff for the 10 high-performing lenders, higher than the 40 percent for all ARL participants.

### 5.3.3 Lending Operations with the Lowest Unit Costs

The five libraries with the lowest lending unit costs had a mean unit cost of $3.27, and a median of $3.46. The mean unit cost is 65 percent lower than that of $9.27 for all 59 participants. This group of five libraries processes, on average, 12,606 requests per FTE. The fill rate for these libraries is 74 percent, one-quarter higher than the 58 percent fill rate for all 59 participants. This group of libraries fills two photocopy requests for every loan request, slightly higher than the 55 percent for nonreturnables for all 59 participants.

Staff costs account, on average, for 74 percent of the lending unit cost, only slightly lower than the 75 percent for all 59 participants. The mean unit costs in the other categories are either the same as those for all 59 participants, or within two percentage points of the mean. Professional staff account for 12 percent of lending staff, and supervisory staff (professional and nonprofessional) account for 26 percent of the lending staff, on average.

Lending departments with very low unit costs process and fill over three times more requests than average. They charge to fill loan and copy requests, and fill 20 percent fewer requests using reciprocal agreements than the average. They handle 70 percent more requests per FTE than average, employ one-half the support-staff supervisory staff, nearly one-half fewer professional supervisors, and use double the number of student FTEs than the average.

### 5.3.4 Lending Operations with the Highest Fill Rates

The mean lending fill rate for the five libraries with the highest fill rates was 82.5 percent, with a range from 77 percent to 87 percent. For returnables, the mean fill rate for these five libraries was 85 percent, and for nonreturnables, the mean fill rate was 84 percent. In comparison, the overall fill rate for the five libraries with the lowest fill rates was 39 percent, or 35 percent for nonreturnables and 41 percent for returnables. In 1996, the libraries in the top 10 percent had lending fill rates between 79 and 97 percent, with an average of 87 percent.

The mean unit cost for the five libraries with the highest lending fill rates is $4.34, 53 percent lower than that of $9.27 for all 59 participants.

Lending departments with very high fill rates fill over four times more requests than the 59 ARL participants. Their staff process two times the number of requests per FTE than the average, and those requests are three-quarters copy requests and only one-quarter loan requests. They receive only one-third of their lending requests via OCLC, and receive the other requests via peer-to-peer systems, supplier-dedicated systems, and other locally developed systems. Like the majority of ARL participants, these libraries use Ariel and scan the majority of their articles from the volume rather than photocopying the article and then scanning it. These five libraries use nearly 50 percent fewer supervisory staff (professional and nonprofessional), and nearly double the number of student FTEs.

### 5.3.5 Lending Operations with the Fastest Turnaround Times

Calculation of the lending turnaround time is new to this study. It is defined as the number of calendar days from the date the request was received by the lender to the date the lender shipped the item or sent it electronically. A number of the 59 ARL lenders fill many of their lending requests the same day they are received. However, the five participants with the fastest turnaround times process and fill more lending requests the same day than the larger group.

The mean turnaround time for returnables and nonreturnables for the five best lenders, as calculated from the sample lending requests, was 0.4 calendar days, with a range from the same day to 0.6 calendar days. This is in contrast to the mean lending turnaround time of 1.8 calendar days for all 59 ARL participants. These five lenders fill requests 78 percent faster than all ARL participants. At the other end, the five lenders with the slowest turnaround times took on average 3.9 calendar days to complete a lending transaction, with a range from 2.8 to 5.4 calendar days.

For the five lenders with the fastest turnaround times, the mean lending turnaround time for nonreturnables was 0.3 days, and 0.4 days for returnables. These faster turnaround times are not achieved because a given institution has a single, main library. The average number of branch or departmental libraries served by the central ILL unit of the five lenders was 9.6, identical to that of the larger group.

Looking at the components of lending turnaround time, these five libraries with the fastest turnaround time process, fill, and ship twice as many lending requests (76

percent) the same day they receive them as all 59 ARL participants. In comparison, only 36 percent of all requests from the larger group are filled the same day the lenders receive them.

The lending operations with the fastest turnaround times do not use a professional nonsupervisor in their operations. They employ twice as many supervisors (professional and nonprofessional) than the average of all ARL participants. They use 15 percent fewer support staff than average, and employ approximately 2.5 times the number of students than average. These libraries receive and fill nearly 20 percent more photocopy requests than average.

## CHAPTER 6

# PERFORMANCE OF TOTAL ILL/DD ACTIVITY

## 6.1 Weighted Total Averages

Because approximately two-thirds of the participants submitted data for one or more user-initiated services, the study calculated the weighted averages of all transactions—user-initiated and mediated. It did so by calculating the weighted unit cost, weighted fill rate, and weighted turnaround time for all participants. The study team took total costs, total transactions, and total turnaround time and divided by the total number of filled transactions.

Evaluating a participant's service using the weighted averages, rather than the performance of mediated ILL operations alone, is a more accurate measure of how well a library is obtaining all types materials for local users or supplying its materials to other libraries, regardless of the method or system used.

As noted in previous chapters, user-initiated services have generally lower unit costs, higher fill rates, and faster turnaround times than mediated ILL. The averages and medians are calculated from all 59 ARL participants and the 6 non-ARL participants that reported data for one or more user-initiated services. Note that Tables 98 and 99 present data from lowest to highest rather than worst to best performance. Table 98 shows that a high-performing borrowing operation has an overall fill rate of at least 98 percent, and an overall turnaround time of one day or less, all at a weighted unit cost of $5.42 or less. That is, the "best" performance is at the 90$^{th}$ percentile for fill rate, and at the 10$^{th}$ percentile for unit cost and turnaround time.

**The five participants with the lowest weighted borrowing unit costs generate more borrowing transactions on user-initiated services than on mediated ILL systems. For every one request filled on a mediated ILL service, borrowers with the lowest weighted unit costs fill two requests on a user-initiated service.** The average percentage of requests handled via a user-initiated service for these five libraries is 68 percent, with a range from 45 percent to 85 percent. In contrast, the five libraries with the highest weighted borrowing unit costs rely on mediated ILL systems for 94 percent of the borrowing transactions.

**It would be reasonable to expect that the five participants with the lowest weighted lending unit costs also receive more requests via user-initiated systems than via mediated ILL systems. That is not the case, and the economies of scale of mediated ILL systems may come into play here.** These five libraries receive 49 percent of total lending transactions via user-initiated systems. The relatively high use of mediated ILL systems for lending may reflect the strong correlation of the number of filled transactions and unit cost for mediated lending. One of the five libraries receives all of its lending requests via mediated ILL systems. In contrast, the five libraries with the highest weighted lending unit costs receive an average of 89 percent of their lending requests via mediated ILL systems.

The weighted borrowing turnaround time was calculated for the 50 ARL and non-ARL participants that reported turnaround time data for mediated borrowing. The mean weighted borrowing turnaround time was 6.9 calendar days from the date the user submitted the request to the date the user was notified. Turnaround time ranged from 3.9 to 10.8 calendar days for the middle 80 percent. For the 33 participants that reported lending turnaround time, the mean weighted turnaround time was 1.8 calendar days from the date the request was received to the date the item was shipped. Turnaround time for the middle 80 percent ranged from 0.5 to 3.8 calendar days.

The study examined the five libraries with the highest weighted fill rates, lowest weighted unit costs, and fastest weighted turnaround times. For borrowing, only one library, **Ohio State University**, had a low unit cost and a high fill rate. For lending, the **University of Alberta** had a high fill rate and a low unit cost, and the **University of Minnesota** had a fast turnaround time and a high fill rate.

**Table 98: Weighted Borrowing Performance (58 participants)**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Number of Transactions | 7,741 | 26,568 | 20,880 | 49,179 |
| Unit Cost | $5.42 | $14.76 | $15.15 | $22.20 |
| Fill Rate | 54% | 81% | 87% | 98% |
| Turnaround Time (Days Until User Notified) | 1.0 days | 6.4 days | 5.0 days | 13.0 days |

**Table 99: Weighted Lending Performance (59 participants)**

| | 10th percentile | Mean | Median | 90th percentile |
|---|---|---|---|---|
| Number of Transactions | 9,830 | 47,060 | 25,507 | 83,270 |
| Unit Cost | $3.46 | $8.76 | $7.72 | $14.03 |
| Fill Rate | 47% | 61% | 59% | 78% |
| Turnaround Time (Days to Item Shipped) | 0.0 days | 1.3 days | 0.0 days | 4.0 days |

## 6.2 Comparing Weighted Borrowing to Local Circulation

Section 3.5.5 compared mediated borrowing totals with local circulation transactions. This section compares weighted borrowing transactions with local circulation. The weighted borrowing totals include ILLINET Online, INN-Reach, Loansome Doc, RAPID, URSA, commercial document delivery, and local document delivery.

As noted in section 3.5.5, mediated borrowing represents 7.1 percent of initial circulation transactions and 3.9 percent of total circulation transactions. For the 52 participants in the current investigation that reported initial circulation transaction data to ARL, weighted borrowing transactions represent on average 15.6 percent of initial circulation, compared to 7.5 percent for mediated borrowing.[82]

For the 48 libraries that reported total circulation transaction to ARL, weighted borrowing transactions represent 10.9 percent of total circulation, higher than the 5.2 for mediated borrowing. Both averages are double that of the mediated borrowing totals, reflecting the high volume of transactions handled by several of the user-initiated services.

[82] *ARL Statistics, 2001-2002*, p. 47.

## CHAPTER 7

# IMPROVING LOCAL OPERATIONS

## 7.1 General Findings

This study confirms that user-initiated ILL/DD is an attractive option for providing access to materials owned by other libraries and suppliers. User-initiated ILL/DD services for loans or copies are generally faster, more cost-effective, and provide higher fill rates than mediated ILL/DD services.

The performance of user-initiated services is in most cases better than mediated ILL/DD services, but actual performance varies from service to service. Borrowing unit costs range from $2.39 to $14.70, and from $3.47 to $12.06 for lending. Fill rates range from 84 to 90 percent for borrowing and 76 to 88 percent for lending. Borrowing turnaround times for returnables range from 2.5 to 6.6 calendar days, and 2.4 to 3.4 calendar days for nonreturnables. Lenders of user-initiated services fill returnable requests between 0.1 and 1.5 calendar days, and 1.1 calendar days for nonreturnables.

On average, local document delivery costs $11.75, fills 84 percent of requests submitted by local users, and offers a turnaround time of 1.6 calendar days.

For mediated borrowing, ARL participants spend on average $17.50 to obtain an item for a local user. Borrowing requests take on average 6.1 calendar days for nonreturnables and 9.3 calendar days for returnables, significantly faster than the 1996 study but slower than user-initiated services. The borrowing fill rate for nonreturnables is 87 percent, and 85 percent for returnables, for an overall borrowing fill rate of 86 percent.

For mediated lending, ARL participants incur an average of $9.27 to fill a request. The mean fill rate is 57 percent for nonreturnables and 59 percent for returnables. New to this study is the calculation of lending turnaround time. On average it takes a research library 1.2 calendar days to fill a nonreturnable request, and 1.8 calendar days to ship a returnable item.

Eight correlations are statistically significant. Two relate to mediated borrowing activity and six relate to mediated lending activity:

1. As the number of ILL borrowing staff increases, the number of filled transactions increases.
2. As the number of borrowing requests increases, the borrowing unit cost decreases.
3. As the lending fill rate increases, the lending unit cost decreases.
4. As the number of lending staff increases, the lending fill rate increases.
5. As the number of ILL lending staff increases, the number of filled lending transactions increases.
6. For two libraries filling the same number of lending requests, the one with the greater percentage of photocopy requests will have the lower unit cost.
7. For two libraries filling the same number of lending requests, the one with the greater percentage of photocopy requests will have the higher fill rate.
8. As the number of lending transactions increases, the lending fill rate increases.

Staff salaries continue to account for the majority of the mediated unit cost for borrowing and lending. However, staff costs now represent 58 percent of the borrowing unit cost, down from 66 percent in the 1996 study. Lending staff costs have remained more constant: 75 percent in 2002, compared with 76 percent in 1996. Borrowing fees now represent 20 percent of the borrowing unit cost, up from 14 percent in 1996. Other cost categories are comparable to the 1996 study.

ARL libraries continue to contain or reduce costs for mediated ILL/DD services. Cost reduction, or processing more requests at a lower unit cost (even before adjusting for inflation), was achieved by 17 borrowing operations and 22 lending operations. Three borrowers and two lenders realized cost containment, or processed more requests at the same unit cost.

The methodology used in this study continues to be an effective means to capture and analyze the performance of mediated ILL/DD services. The study also confirms that the methodology is adaptable to capturing the performance of user-

initiated services as well as measuring the performance of local document delivery services. This study also provides new details on the character and nature of mediated and user-initiated operations in ARL libraries as well as characteristics of the types of materials borrowed and loaned via mediated and user-initiated services.

Like the 1996 study, this study characterizes attributes of low-cost, high-performing mediated ILL/DD operations in ARL libraries. When compared with the 59 ARL participants, the high-performing borrowers process 25 percent more requests, spend 11 percent less, fill 4 percent more of their requests, and obtain nonreturnable items 42 percent faster. High-performing lenders process 201 percent more requests, spend 55 percent less per request, fill 41 percent more requests, and fill nonreturnable requests 54 percent faster. Interestingly, turnaround time for returnables was slower for the high-performing borrowers and lenders than for all 59 participants.

## 7.2 Using the Findings

Libraries offering only mediated ILL services may use the results of this study to decide whether to:

- continue to offer only mediated ILL;
- move some of the mediated ILL traffic to one or more user-initiated services;
- buy, catalog, and hold rather than borrow; and
- for a photocopy, go to a commercial document delivery supplier or a library, or offer users access to a commercial document delivery service.

Libraries offering mediated and user-initiated services may use the results of this study to decide whether:

- the current mediated and user-initiated services are performing well;
- the mix of mediated and user-initiated services is in balance;
- to move more traffic to a different user-initiated service; and
- to implement a new user-initiated service.

## 7.3 Strategies to Improve Local Performance

Upon receiving the Individual Institutional Report for the current study and realizing that the library's mediated ILL/DD operation had improved dramatically, one of the participants in the current study made the following comment: "Not only did I have to completely change the workflows here, but most important was instilling a new philosophy to the work." In addition to adopting many of the characteristics of the high-performing operations to the local environment, this library changed a mindset that has been common in staff working in ILL departments. It is reasonable to speculate that this library no longer views lending as a burden and borrowing as an embarrassment. The details of the changes this library made to its workflow are just that—details. Yes, they are important, but readers are cautioned not to focus on the strategies included in this report, but to **place the specific recommendations and strategies into a larger context of a willingness and eagerness to be a stellar borrower or lender.**

Measuring the performance of interlibrary loan and document delivery operations needs to be closely linked to decision making and resource allocation. Having data on actual performance of mediated ILL/DD operations should assist library administrators and ILL managers to decide whether change is needed, and determine the specific procedures to improve performance. Those decisions may result in new expenditures for staff, equipment, or lender fees. Or, those decisions may result in revamping workflow and procedures. This ongoing process should result in improved service quality to users of interlibrary loan and document delivery services.

There are a number of specific strategies for improving local performance. Specific strategies identified in the report of the 1996 study focused on technology, staffing, and organization and administration. Those three areas continue to be important for mediated ILL/DD operations. **Examples of successful strategies employed by many or all of the participants in the current study include:**

- **implementing OCLC's ILL Fee Management service;**
- **using ILL management software;**
- **embracing electronic delivery technologies;**
- **posting articles on secure Web sites for local users to access; and**
- **monitoring the performance of lenders.**

However, there are three new areas that emerge as strategic directions:

- **increasing the use of user-initiated services;**
- **reducing turnaround time; and**
- **using appropriate staffing levels.**

**Implementing or increasing the use of user-initiated systems** offers libraries the potential to minimize greatly, or eliminate completely, staff processing, thereby freeing staff to handle requests for items not available through those systems. The number of ARL member institutions offering at least one user-initiated service has increased since 1996, but for many of those libraries the majority of their ILL traffic is still being handled by mediated methods. Encouraging users to start their discovery process in a union catalog with a user-initiated requesting capability is one way to decrease mediated borrowing transactions. Other libraries take requests submitted to the ILL department and search them against the union catalog in order to complete the process as a user-initiated request. While this may increase costs in the short-term, libraries using this strategy reported that users discover the advantages of the user-initiated service and quickly learn to submit their requests via that system.

The current generation of user-initiated systems requires all libraries in a consortium to use the same software. It is possible that the implementation of user-initiated systems has been slow because libraries are unwilling or unable to use the same vendor's product, as it has usually meant implementing the vendor's entire integrated library system. The NISO Circulation Interchange Protocol (NCIP) is being implemented by a number of private-sector companies that offer ILL and/or circulation-based applications. Implementation of NCIP by the private-sector and having libraries upgrade to NCIP-compliant ILL and circulation modules will quicken the pace at which user-initiated systems are adopted, and thus quicken the pace that libraries will be able to adopt user-initiated ILL systems. When this happens, it is likely that the phrase, *user-initiated ILL*, will disappear from the library vocabulary and be replaced with *user-initiated circulation, direct consortial borrowing*, or another phrase that suggests a circulation-centric view of the process.

The demand for accessing materials not owned locally shows few signs of moderating or decreasing, at least among ARL member institutions. As a result, mediated ILL/DD services will continue to play a key role in providing such access over the next four to five years. The need to provide timely and cost-effective mediated borrowing and lending will only increase.

Providing timely service by **reducing the turnaround time** of materials obtained for local users, and for materials sent to remote libraries has long been a goal of many ILL managers. Instant access to electronic full-text journals or information available on the free Web, next- or second-day delivery from Amazon.com and Barnes & Noble, and user self-sufficiency in tracking the progress of shipping as exemplified by FedEx and UPS have all set optimal standards in users' minds for timely service. To provide faster access to library materials, ILL managers have offered electronic requesting capabilities, implemented tools such as Ariel and Prospero, reviewed and streamlined internal workflow, and tracked the performance of lending partners.

Overall turnaround time has been cut in half since the 1996 study, but some will assert that nine days to receive a book or six days to receive a copy is still too long. Libraries with the fastest borrowing turnaround times have devised workflow patterns to send borrowing requests to the first potential lender the same day as they are received from users. This group of libraries receives 91 percent of their requests from the first supplier, suggesting that they select potential lenders carefully. These libraries use Ariel, UPS, and FedEx for delivery. Most of these high-performers also post documents to the Web for access by local users. Tracking the performance of lenders and eliminating those that under perform,

even if they are a "preferred lender," is another key to reducing turnaround time.

**Using appropriate staffing levels** is the third strategic area for improving local performance. As the study shows, there is no universal staffing pattern for either mediated or user-initiated services. Local service imperatives, policies, and even tradition influence current staffing levels in ILL and circulation departments.

Staff costs have decreased as a percentage of the mean borrowing unit cost over the past decade for a number of reasons, some of which are tracked in the study. ILL departments have implemented a wide range of sophisticated technology and software that enables ILL staff to work smarter, faster, and more efficiently. Some libraries have assigned tasks to lower level staff, whether those are tasks formerly done by professionals and now done by support staff, or support-staff tasks now managed by students.

All staff categories used in the study—professional supervisor, professional nonsupervisor, support-staff supervisor, support staff, and students—continue to play a role in borrowing and lending. Libraries with high borrowing fill rates employ nearly double the number professional supervisor FTEs than do all ARL participants, but have fewer professionals in the department than the average. The higher percentage of professional supervisors might result in individuals with advanced skills to verify and locate difficult requests, knowledge of libraries with strong collections in a range of subjects and disciplines, or with language expertise. Higher fill rates may be a result of that expertise, but the study does not confirm that speculation.

As lenders, the opposite appears to be true: libraries with very high fill rates employ about half the supervisory staff than the average. The study confirms a statistically significant relationship between the overall number of FTEs used in lending and the lending fill rate. As the number of lending staff increases, so does the fill rate. Readers are cautioned not to draw what may be a tempting conclusion from this statement: libraries wishing to increase their lending fill rate should increase the number of their staff. Many factors influence the fill rate, only one of which is the number of staff used in the department.

On average the 44 libraries that participated in the 1996 and 2002 studies are using fewer professional and supervisory staff in their borrowing operations and more professional and supervisory staff in their lending operations. **Given these variable—and perhaps contradictory—findings, libraries are encouraged to examine their staffing levels to see if they are using the right level of staff for each task.**

## 7.4 Other Recommendations for Improving Institution-Specific Performance

Borrowing operations with turnaround times for nonreturnables of more than 2.7 calendar days and turnaround times for returnables of more than 5.7 calendar days, an overall fill rate of less than 96 percent, or had fewer than 80 percent of their requests filled by the first suppliers should examine each of these elements and determine how performance can be improved.

Lending operations with fill rates of less than 83 percent, or overall turnaround times of more than 0.39 calendar days should examine their operations for similar reasons.

# CHAPTER 8

# CONCLUSION

## 8.1 Conclusions

What are the characteristics of high-performing ILL operations? Or, in other words, what are best practices? Julie Wessling and Tom Delaney note that there is no single answer to latter question:

> Best practices comprise a composite of tools, services, and methods that allow an ILL and document-delivery service to provide information access and delivery to its users faster, cheaper, and better. The means of doing this will vary based on the resources, demands, technological savvy, and staff training available in various library environments. Best practices are not a list of elements comprising a tactical approach to getting things quickly. Rather they result from an administrative imperative that recognizes that ILL tools, services, and mechanisms are constantly changing. Technology, including appropriate hardware and software, should be used to minimize staff time and reduce turnaround times. Processing routines are equally important; exceptions must not dictate workflow and handling. Effective libraries adapt quickly and readily to take advantage of a changing environment.[83]

This study examines a range of resource-sharing options to provide access to materials not held locally. The study does not compare the cost of acquiring an item for the user; the Morris methodology may offer that opportunity. The institution-specific studies at Purdue University, the University of Wisconsin–Madison, and Denver Public Library of purchasing materials rather than requesting titles via ILL offer insights into alternatives to traditional interlibrary loan. Finally, other studies and estimates such as the one included in the introduction to the *ARL Statistics, 2001–2002*, suggest that the cost of processing a serial or monograph may be $55 or more in addition to the cost of purchasing the serial or monograph.[84]

The study was not designed to isolate and identify specific factors that resulted in improvements in borrowing and lending operations from 1996 to 2002. However, four possible factors can be identified. First, the findings from the 1996 study gave managers of ILL departments empirical data that was used to make local changes. Second, library directors and deans encouraged and in some cases required their ILL managers to make their ILL operations more efficient and service-oriented. Third, improvements in, and greater use of, technology (software and hardware) are minimizing the staff-intensive nature of ILL procedures. Finally, ILL managers and other interested librarians demonstrated the enthusiasm and drive to bring about change, and in some cases, significant change.

Evaluating local performance of ILL services can be achieved by comparing an individual library's performance with one or more comparable ILL/DD operations or by tracking its own over time. The results of this study provide a diagnostic tool to determine local performance compared with other libraries and to determine whether or not improvements are needed.

Readers are cautioned to keep all of the performance measures in view rather than focus on one to the exclusion of the others. For example, striving for a very low borrowing unit cost may result in staff being encouraged to spend as little time as possible on a single request. This may result in an unacceptably low fill rate or extremely slow turnaround time, measures that are more apparent to users.

The future mix of mediated and user-initiated services is still in flux. Van Dam, Block, and Pettitt offer one view that "ILL is becoming a specialty operation: we specialize in photocopy requests that are unobtainable over [UMI's] Power Pages and other full-text services, and in loanable material that cannot be requested through

[83] Julie Wessling and Tom Delaney, "After the Flood, Colorado State Reaps a Harvest of Invention," *American Libraries* 31 no. 10 (November 2000): 36–37.

[84] *ARL Statistics, 2001–2002*, p. 13.

OhioLINK."[85] Another perspective on the future need for and viability of ILL/DD comes from the United Kingdom. A study of the U.K. research information environment confirms "researchers in all disciplines regard both hard copy and electronic material as essential information resources now and for the foreseeable future."[86] This finding underscores the continuing need for interlibrary loan and document delivery services, whether mediated or user-initiated. The U.K. study notes that ILL/DD services are a "very significant part of the research information landscape."[87] As Thomas Nisonger asserts:

> A major problem with the evaluation of interlibrary loan and commercial document supply (as well as other library services) is that the evaluating institution does not necessarily know what standard of performance to expect. What numbers indicate good performance? Bad performance? Mediocre performance?[88]

This study identifies and quantifies exemplary performance of interlibrary loan and document delivery operations in a range of diverse research, academic, and governmental libraries. This undertaking provided a range of institution-specific and aggregate measures with which to evaluate and manage mediated and user-initiated interlibrary loan services. The results of this study can be used as a standard of performance for other ILL departments that wish to provide timely and cost-effective service.

The study attempts to identify patterns of effective service that will help ILL managers and library administrators to determine the changes to be made and the direction in which they should shape their services.

It is possible to estimate expenditures by ARL member libraries for mediated ILL/DD services five years from now. Based on historical data,[89] it is reasonable to expect annual increases in borrowing and lending of seven percent and four percent respectively. Using those increases, in 2007 the current 123 ARL members would be completing 4.1 million borrowing transactions and filling 6.6 million requests. Assuming constant costs of $17.50 and $9.27 respectively, these ARL member libraries would be spending $72 million on borrowing, and $61 million on lending, or $133 million in 2007. Another projection assumes unit costs will decrease by 20 percent (5 percent reduction in unit cost and an inflation adjustment of 15 percent) between 2002 and 2007. Using this projection, libraries will be spending $57 million on borrowing and $49 million on lending, or an estimated total of $106 million on mediated ILL/DD services.

Libraries will continue to move more of their mediated traffic into the user-initiated services. Another way of estimating future costs is to use the weighted borrowing and lending unit costs of $14.76 and $8.76 respectively. Not adjusting for cost reductions or the impact of inflation, the study estimates a 2007 expenditure total of $118 million ($60 million for borrowing and $58 million for lending). When adjusted by 20 percent, the 123 ARL member institutions may incur a total of $94 million in weighted ILL expenditures in 2007.

This study reports new and extensive data on the performance of user-initiated services in North American research libraries and relates those findings with current and extensive data on mediated ILL/DD operations in North American libraries. These findings provide new incentives for ILL managers and library administrators to improve their mediated and user-initiated interlibrary loan and document delivery services.

Although this report presents many detailed findings, the report is not simply about the numbers. The success of this report is how librarians will apply and adapt the findings from this study. If the follow-up from 1996 study is any indication, ILL managers will make great progress in maximizing access while minimizing the costs associated with that access.

[85] Van Dam, p. 18.
[86] Research Support Libraries Group, p. 11.
[87] Ibid., p. 39
[88] Nisonger, p. 17.
[89] *ARL Statistics, 2001–2002*, p. 13.

# APPENDICES

# APPENDIX A

## THE PARTICIPANTS

Libraries in **Bold** participated in the 1996 ARL ILL/DD Performance Measures Study.
x TAT = Submitted turnaround time data, but no cost data for the service.

| ARL Participants | Mediated ILL/DD | Commercial Document Delivery | ILLINET Online | INN-Reach | Loansome Doc | Local Document Delivery | RAPID | URSA |
|---|---|---|---|---|---|---|---|---|
| Albany | x | | | | | | | |
| **Alberta** | x | x | | | | | | |
| **Arizona** | x | x | | | | | x | |
| **Arizona State** | x | | | | | | x | |
| Boston College | x | | | | | x | | |
| **Brigham Young** | x | | | | | | | |
| Brown | x | | | | | | | x |
| **California - Berkeley** | x | | | | | x | | |
| California - Los Angeles | x | | | | | x | | |
| California – Los Angeles, Biomedical | x | | | | x | x | | |
| California – Los Angeles, Science & Engineering | x | | | | | x | | |
| California - Los Angeles Southern Regional Library Facility | x | | | | | x | | |
| **California - San Diego** | x | | | x | | x TAT | | |
| California - Santa Barbara | x | | | | | | | |
| Case Western | x | x | | x | | x | | |
| **Chicago** | x | | | | | | | |
| **CISTI** | x | | | | | x | | |
| **Colorado State** | x | | | x | | x | x | |
| **Columbia** | x | | | | | | | x |
| **Connecticut** | x | | | | | x | | |
| Cornell | x | | | | | x | | |
| **Duke** | x | | | | | | | |
| **Emory** | x | | | | | | | |
| **Florida** | x | | | | | x TAT | | |
| **Georgia** | x | | | | | | | |
| **Houston** | x | | | | | x | | |
| **Illinois** | x | | x | | | | | |

| ARL Participants | Mediated ILL/DD | Commercial Document Delivery | ILLINET Online | INN-Reach | Loansome Doc | Local Document Delivery | RAPID | URSA |
|---|---|---|---|---|---|---|---|---|
| **Illinois - Chicago Health Sciences** | x | | | | x | | | |
| **Iowa State** | x | | | | | x | | |
| **Johns Hopkins** | x | | | | | | | |
| **Kansas** | x | | | | | x | x | |
| **Kent State** | x | | | x | | | | |
| **Laval** | x | | | | | | | |
| **Library of Congress** | x | | | | | | | |
| **Louisiana State** | x | | | | | | | |
| **Massachusetts** | x | x TAT | | x | | x TAT | x | x |
| **McGill** | x | x | | | | | | |
| **Miami** | x | | | | | | | |
| **Michigan** | x | | | | | x | | |
| Michigan - Medical | x | | | | x | x | | |
| Michigan State | x | | | x | | x | | |
| **Minnesota** | x | | | | | | | |
| **Missouri** | x | | | | | | | |
| **Nebraska** | x | | | | | x | x | |
| **New York University** | x | | | | | | | |
| **North Carolina** | x | | | | | | | |
| **North Carolina State** | x | | | | | | | |
| **Ohio State** | x | | | x | | | | |
| **Oregon** | x | | | x | | | x | |
| Princeton | x | x TAT | | | | x | | x |
| **Purdue** | x | | | | | | | |
| **Southern Illinois** | x | | x | | | x | | |
| **Vanderbilt** | x | | | | | | | |
| Washington | x | | | x | | x | | |
| **Washington State** | x | | | | | | | |
| **Wayne State** | x | | | | | | | x TAT |
| Western Ontario | x | | | | | | | |
| **Wisconsin** | x | | | | | | | |
| **Yale** | x | | | | | | | x |

| Non-ARL Participants | Mediated ILL/DD | Commercial Document Delivery | ILLINET Online | INN-Reach | Loansome Doc | Local Document Delivery | RAPID | URSA |
|---|---|---|---|---|---|---|---|---|
| Arkansas | x | | | | | | | |
| Baylor | x | x | | | | x | | |
| California State - Santa Cruz | x | | | | | x | | |
| California State - Fullerton | x | | | | | | | |
| **Middlebury** | x | | | | | | | |
| National Academy of Sciences | x | | | | | | | |
| North Carolina - Charlotte | x | | | | | | | |
| Northern Arizona | x | | | | | x | x | |
| Oregon State | x | | | x | | | | |
| Purdue - Claumet | x | | | | | | | |
| San Jose State | x | | | x | | x TAT | | |
| Utah State | x | | | | | | | |
| Washburn | x | | | | | | | |

## APPENDIX B

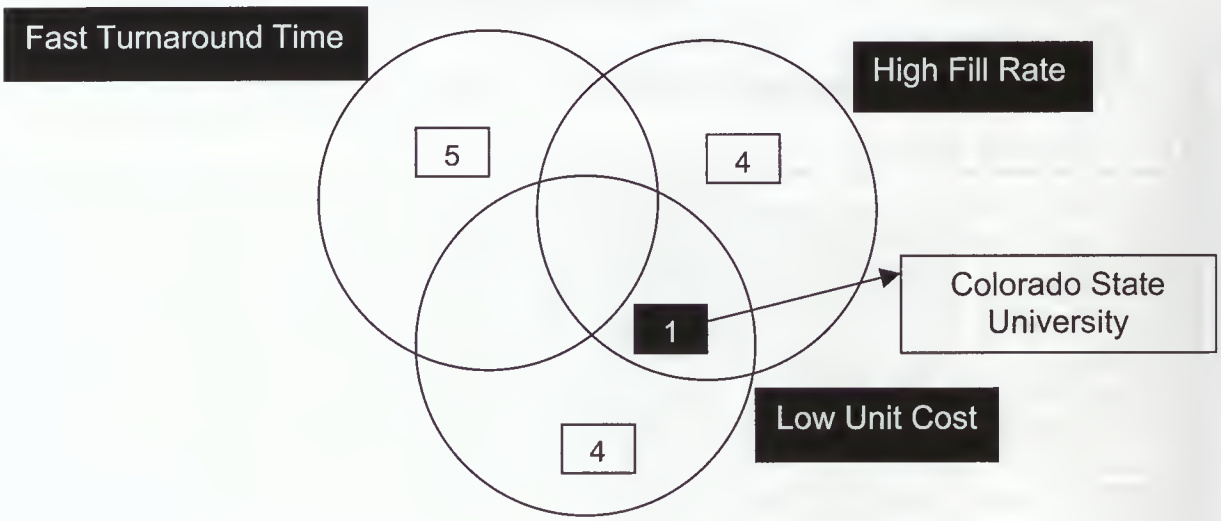
## SUMMARY OF MEDIATED ILL/DD SERVICES IN RESEARCH LIBRARIES

| Transactions and Performance Measures | 59 ARL Member Libraries | | | |
|---|---|---|---|---|
| | 10th percentile | Mean | Median | 90th percentile |
| **Transactions** | | | | |
| Total | 21,094 | 58,703 | 37,291 | 74,450 |
| *Borrowing* | 7,741 | 16,698 | 14,571 | 31,933 |
| Returnables | 1,842 | 7,519 | 6,143 | 14,289 |
| Nonreturnables | 3,169 | 9,449 | 7,593 | 21,820 |
| *Lending* | 9,830 | 41,088 | 22,370 | 42,674 |
| Returnables | 3,795 | 12,123 | 9,695 | 21,484 |
| Nonreturnables | 3,897 | 28,965 | 10,684 | 28,527 |
| **Unit Cost** | | | | |
| *Borrowing* | $11.79 | $17.50 | $16.69 | $28.05 |
| *Lending* | $4.58 | $9.27 | $8.07 | $14.11 |
| **Fill Rate** | | | | |
| *Borrowing* | | | | |
| Returnables | 73% | 85% | 87% | 95% |
| Nonreturnables | 73% | 87% | 90% | 96% |
| Total | 74% | 86% | 88% | 95% |
| *Lending* | | | | |
| Returnables | 42% | 59% | 59% | 77% |
| Nonreturnables | 39% | 57% | 56% | 81% |
| Total | 44% | 58% | 58% | 76% |
| **Turnaround Time** | | | | |
| *Borrowing* | | | | |
| Returnables | 0 days | 9.3 days | 8 days | 16 days |
| Nonreturnables | 9 days | 6.1 days | 5 days | 12 days |
| Total | 2 days | 7.6 days | 6 days | 15 days |
| *Lending* | | | | |
| Returnables | 0 days | 1.8 days | 1 day | 4 days |
| Nonreturnables | 0 days | 1.2 days | 1 day | 4 days |
| Total | 0 days | 1.5 days | 1 day | 4 days |

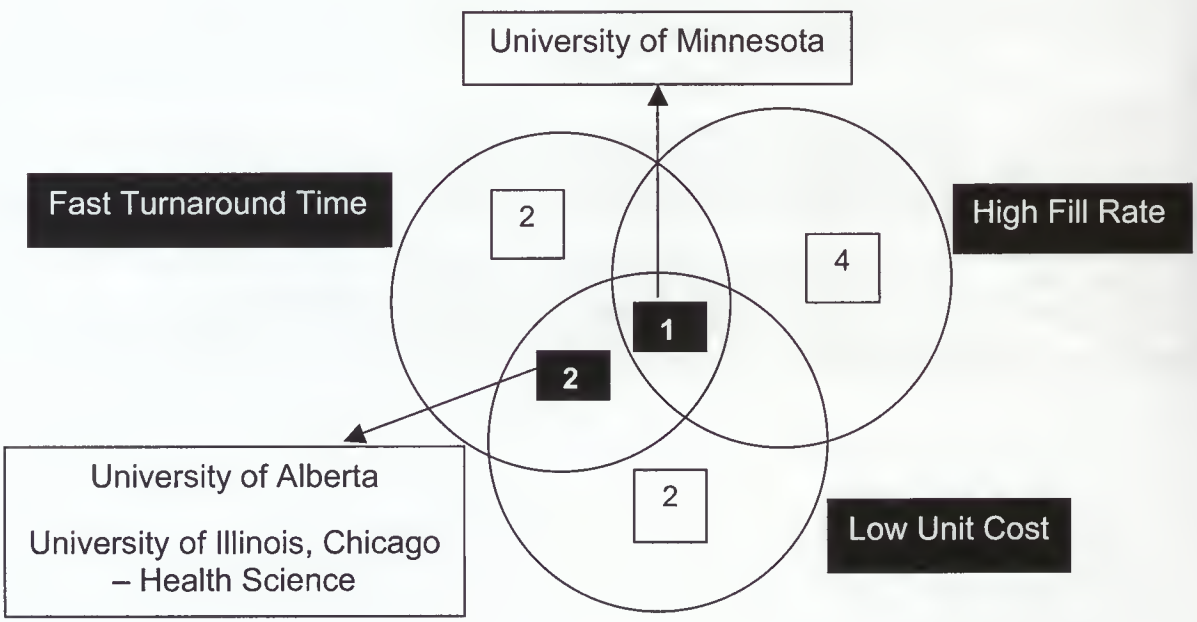
## APPENDIX C

## HIGH-PERFORMING MEDIATED BORROWING AND LENDING OPERATIONS

### High-Performing Borrowing Operations




### High-Performing Lending Operations

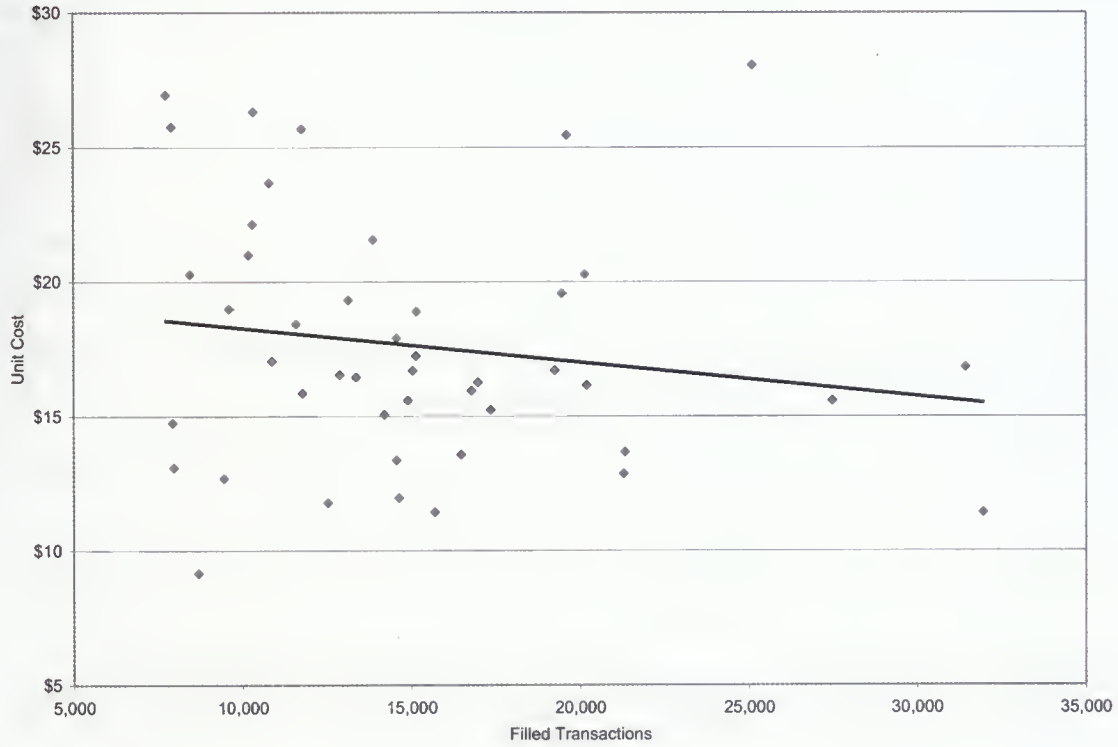


## APPENDIX D

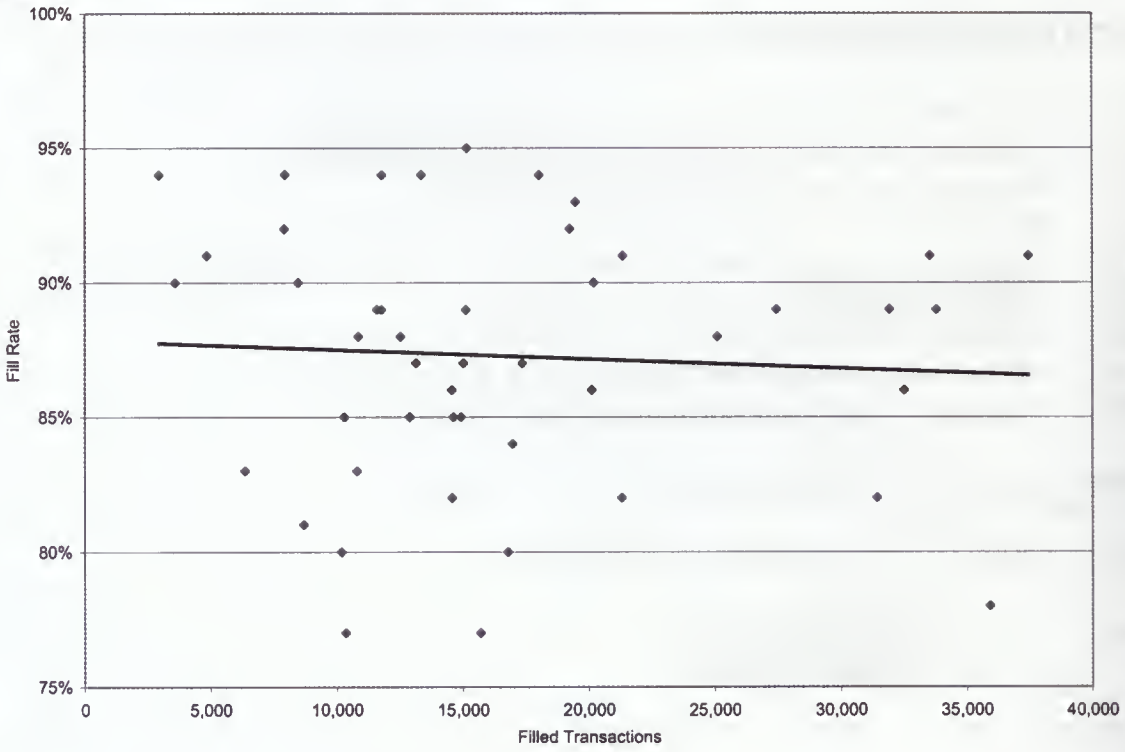
## SCATTER DIAGRAMS



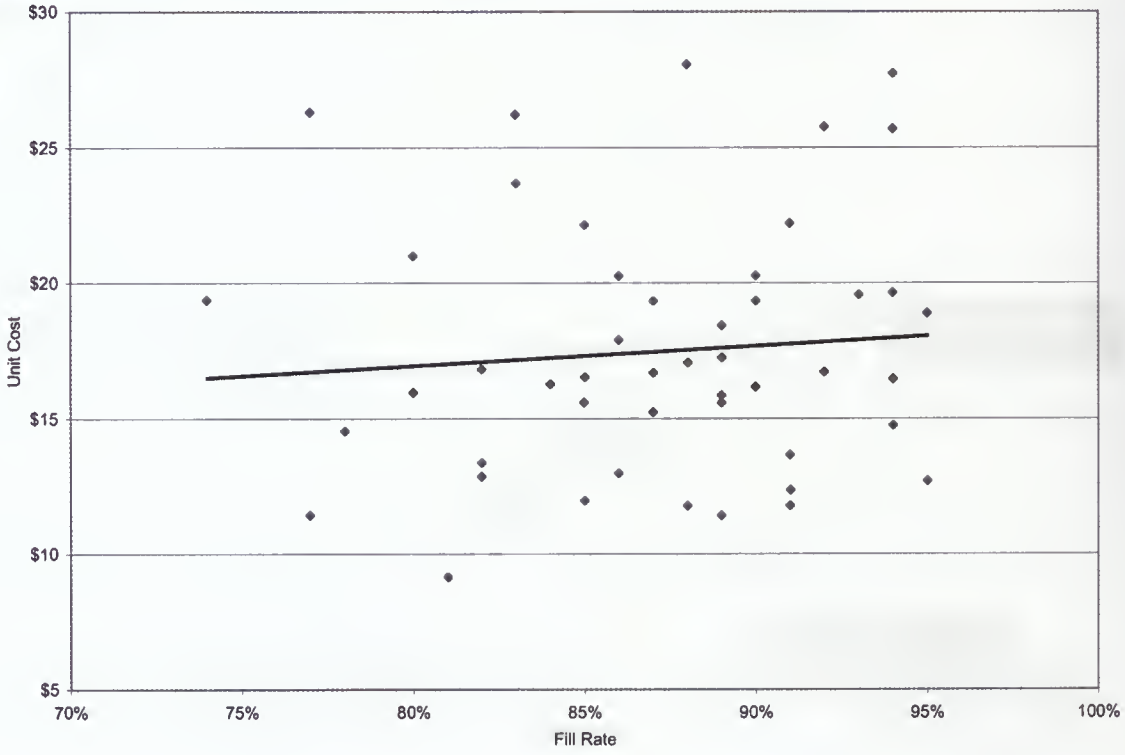
**D1** Mediated Borrowing Filled Transactions vs. Unit Cost



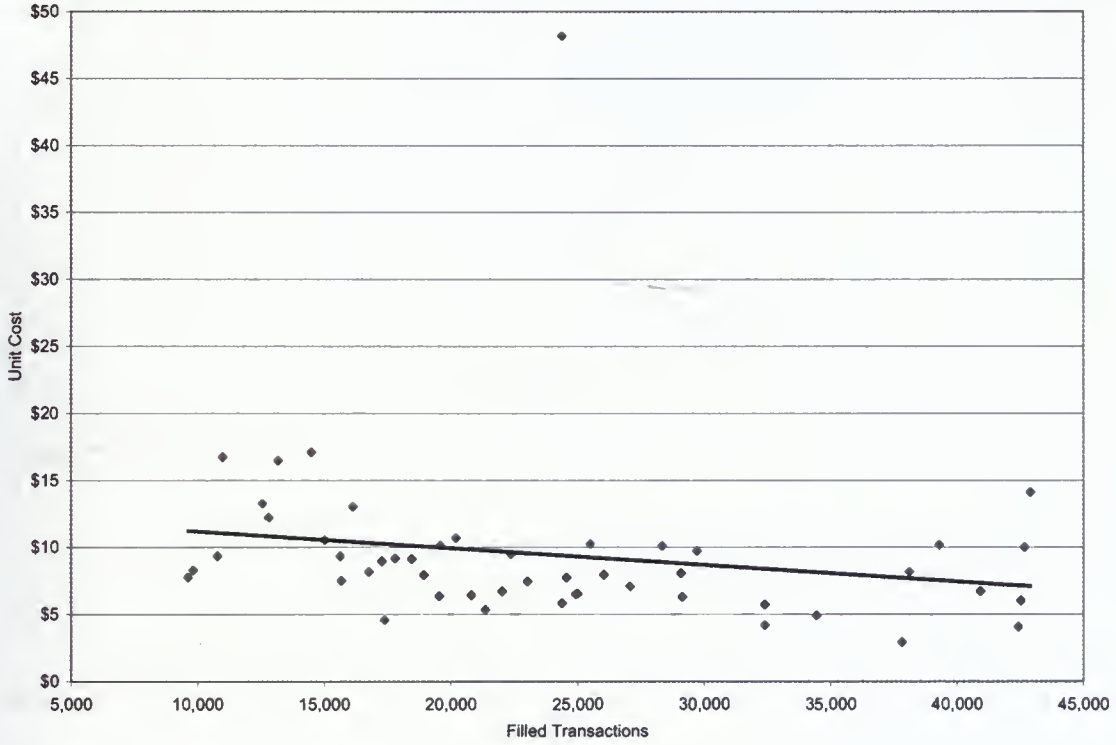
## D2 Mediated Borrowing Filled Transactions vs. Fill Rate



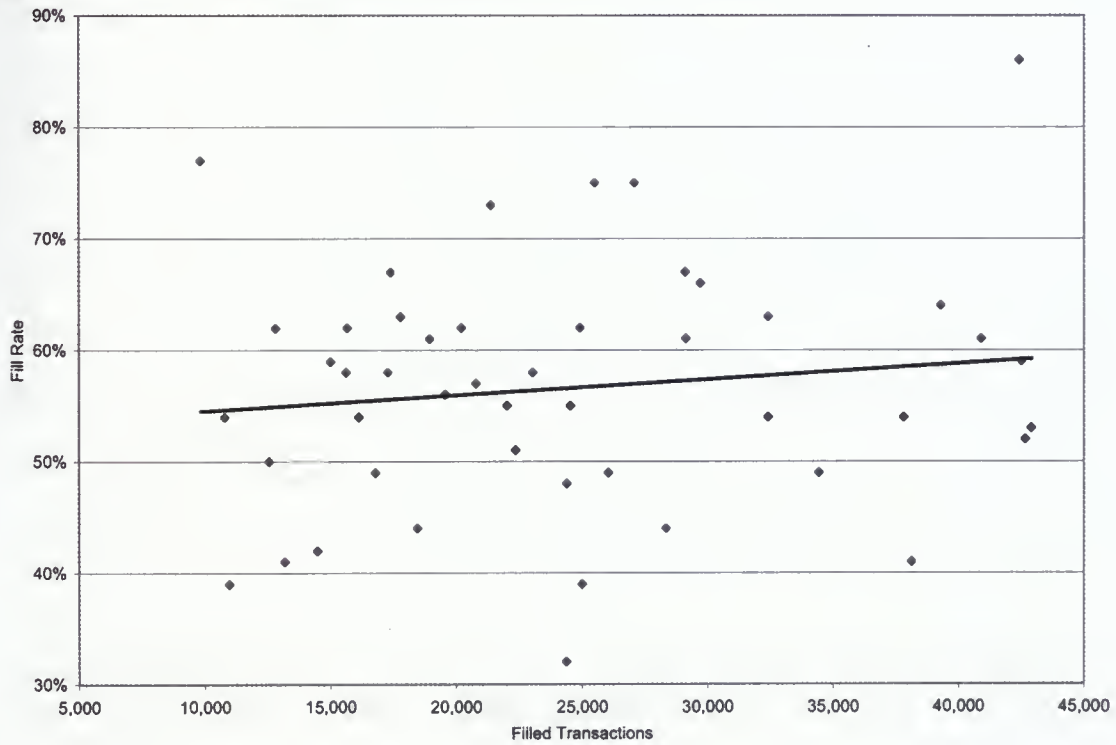

## D3 Mediated Borrowing Fill Rate vs. Unit Cost



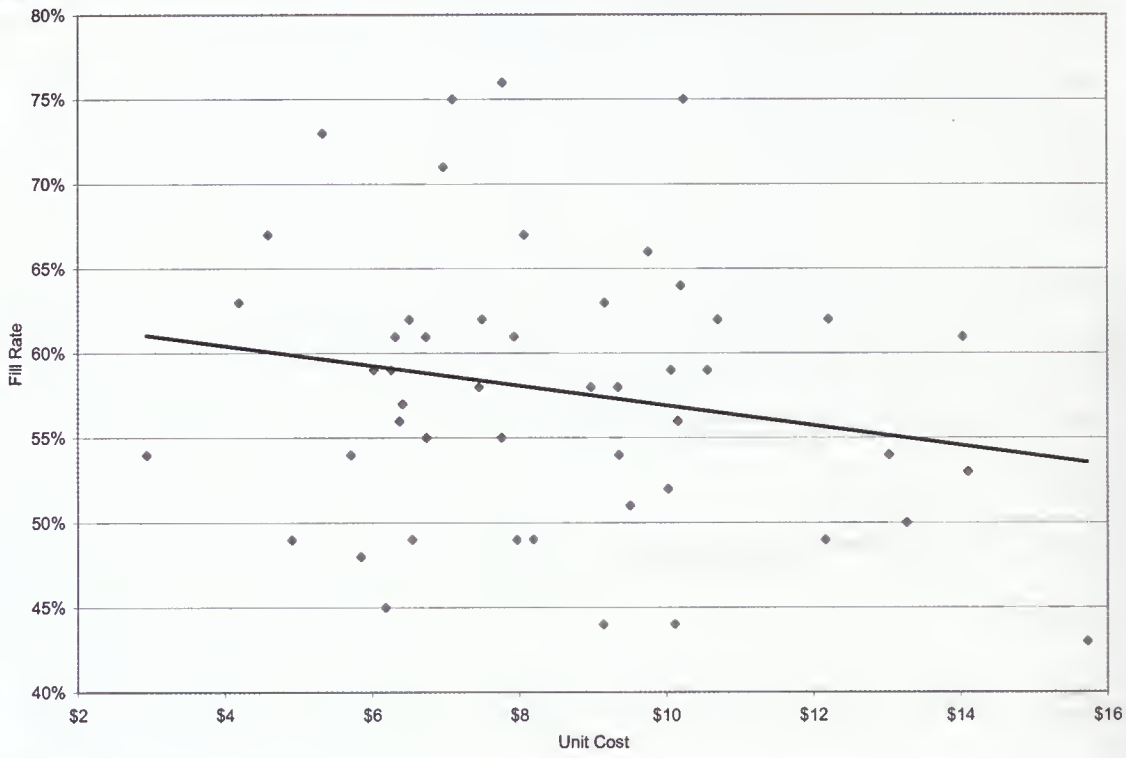
## D4 Mediated Lending Filled Transactions vs. Unit Cost



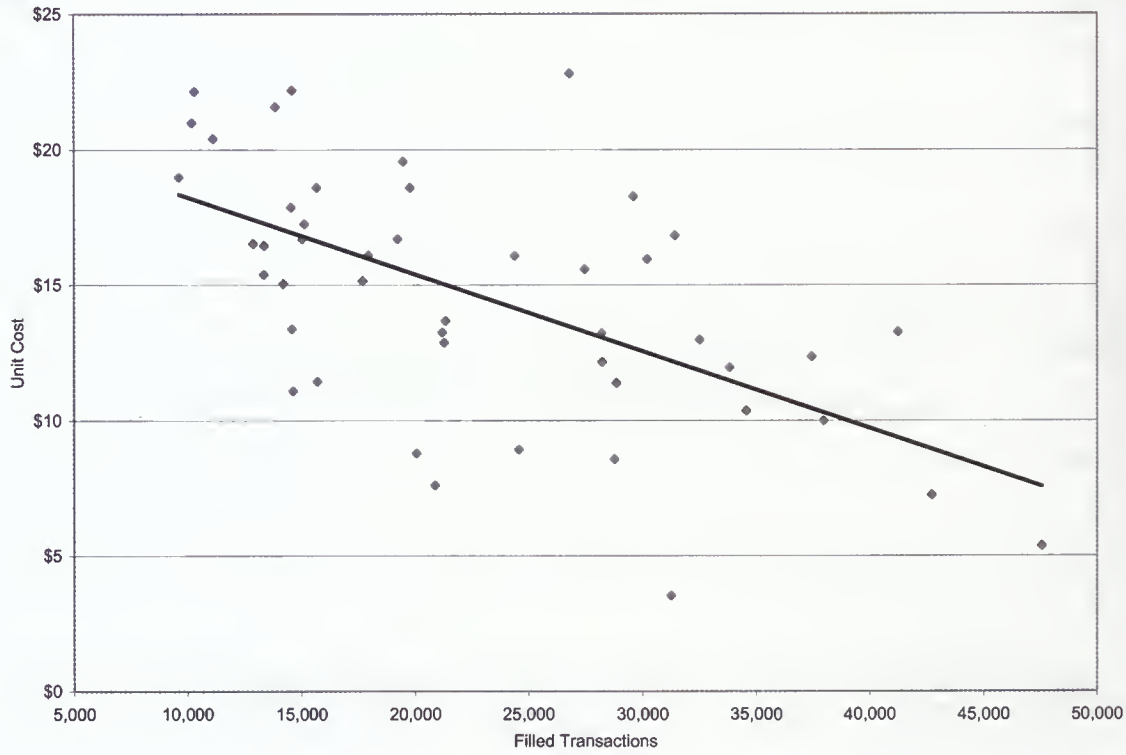

## D5 Mediated Lending Filled Transactions vs. Fill Rate



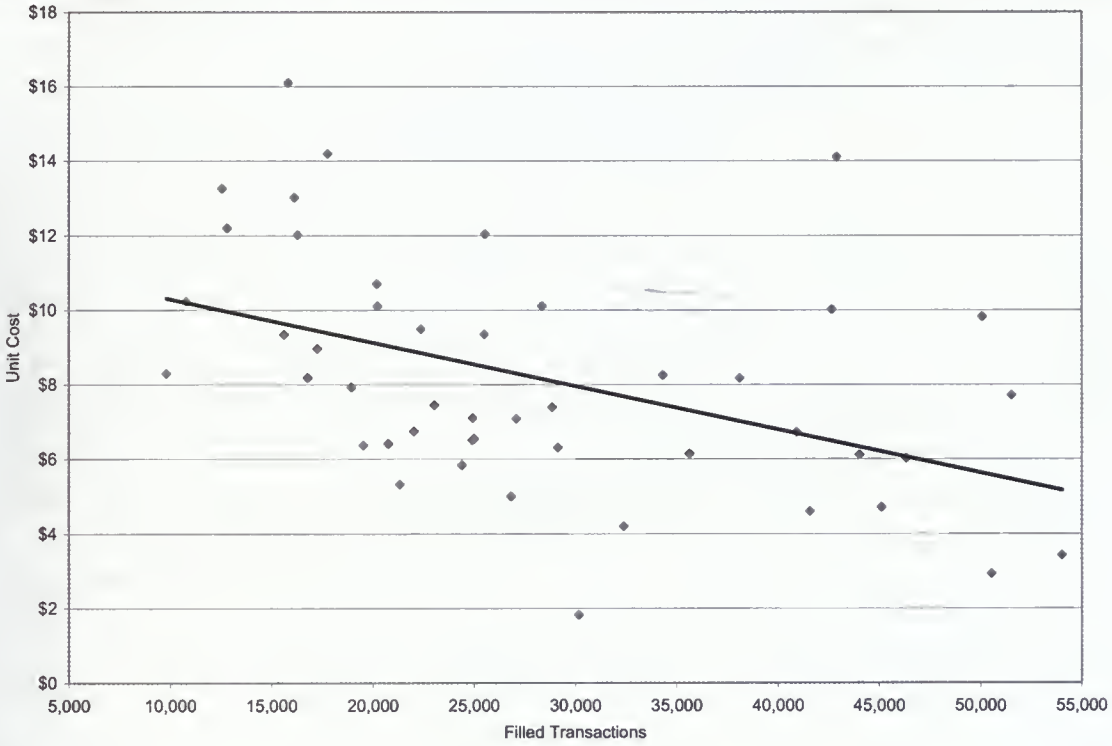
## D6 Mediated Lending Fill Rate vs. Unit Cost



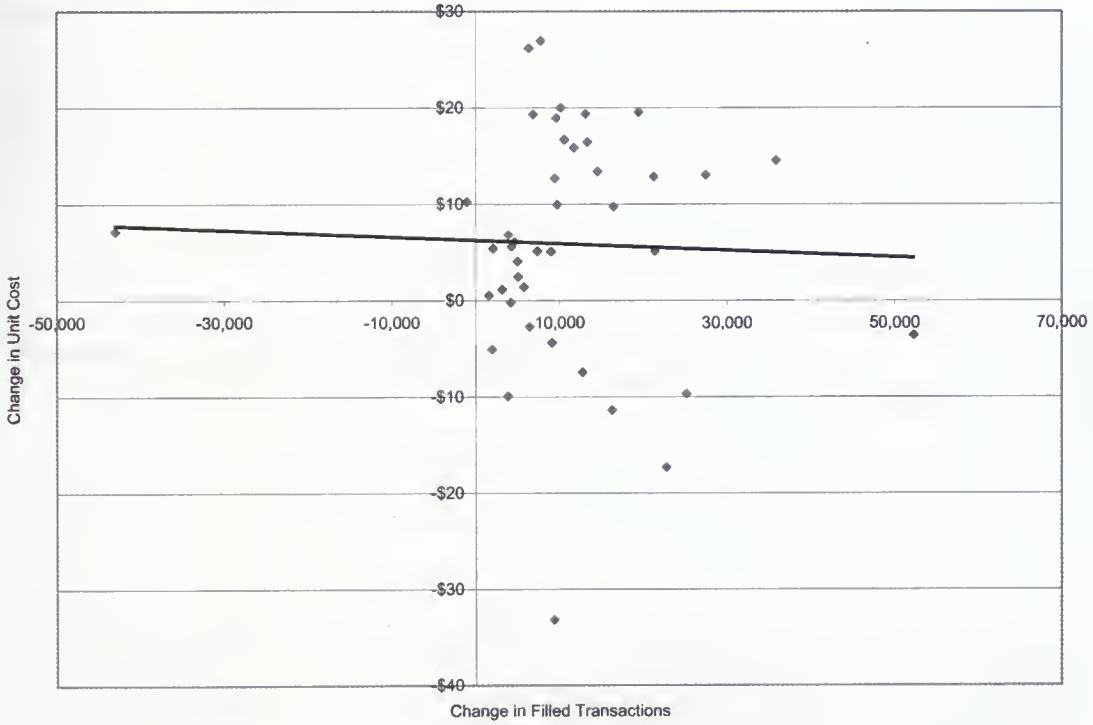

## D7 Weighted Borrowing Filled Transactions vs. Unit Cost



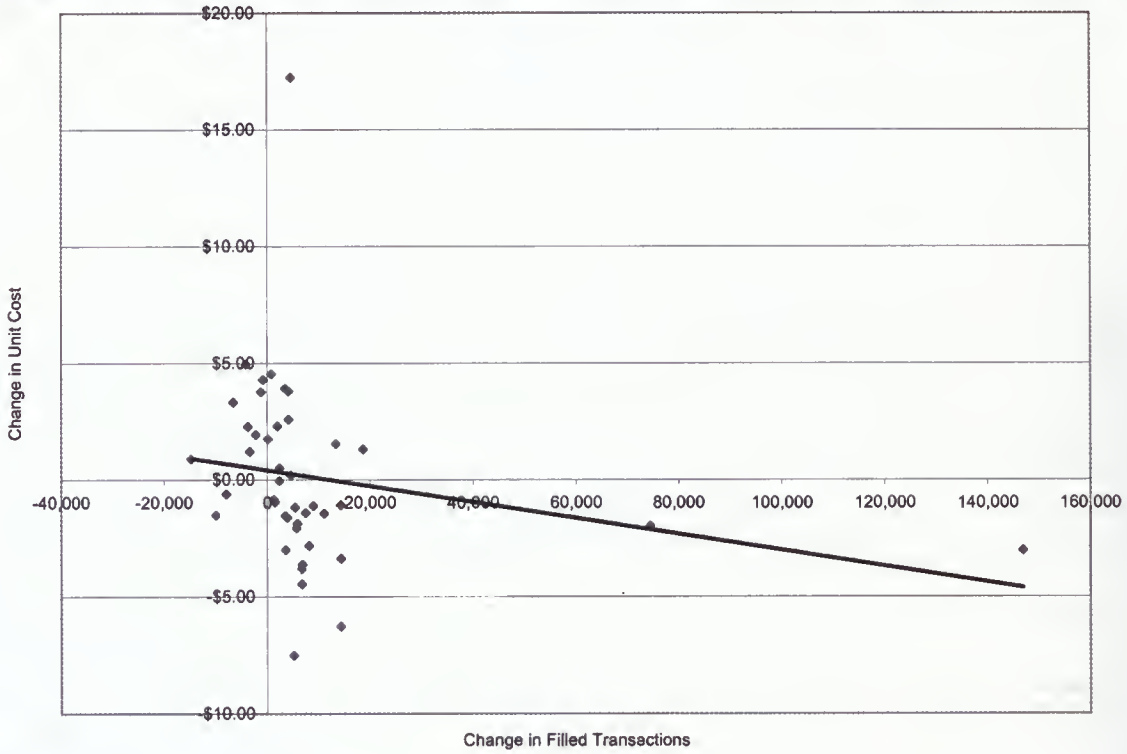
## D8 Weighted Lending Filled Transactions vs. Unit Cost



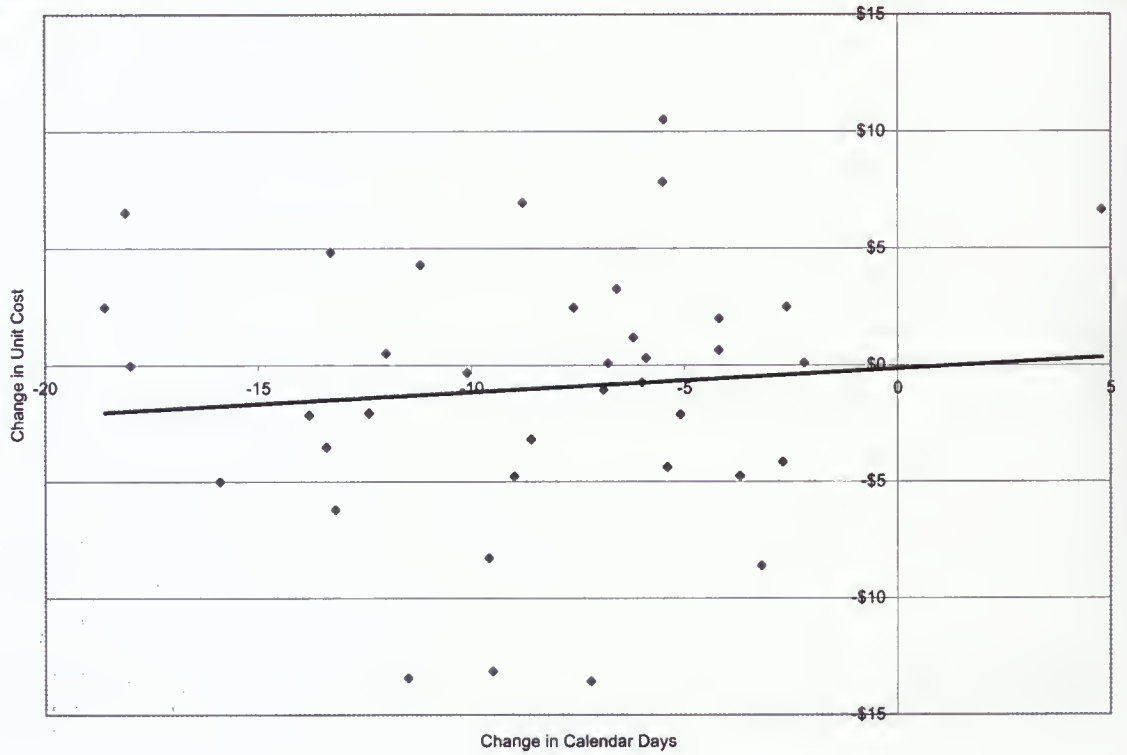

## D9 Change in Mediated Borrowing Filled Transactions vs. Unit Cost: 1996 & 2002



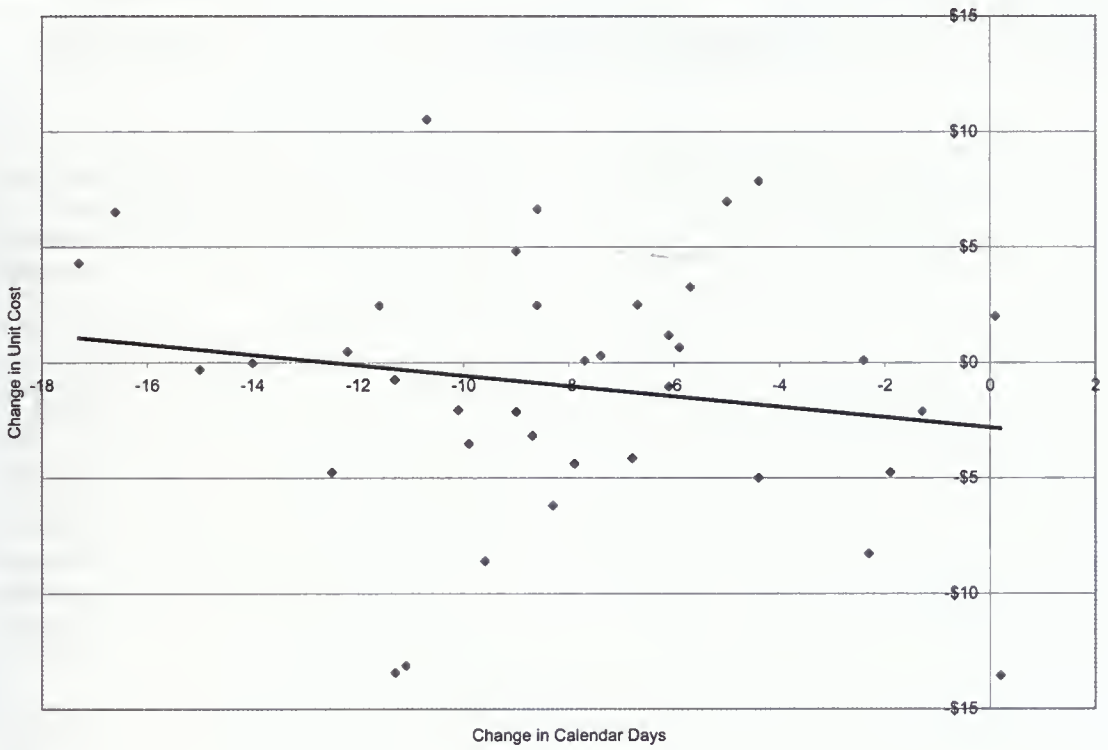
## D10 Change in Mediated Lending Filled Transactions vs. Unit Cost: 1996 & 2002




## D11 Change in Mediated Borrowing Turnaround Time for Returnables: 1996 & 2002



**D12** Change in Mediated Borrowing Turnaround Time for Nonreturnables: 1996 & 2002



# APPENDIX E

# GENERAL INSTRUCTIONS FOR MEDIATED ILL/DD SERVICES

## Assessing ILL/DD Services Study

**Part One: Mediated ILL/DD Services**
**General Characteristics Questionnaire & Cost Data Worksheets**
February 2003

### I. INTRODUCTION & BACKGROUND

In 1992, the Association of Research Libraries (ARL) and the Research Libraries Group (RLG) collaborated in a joint project to collect detailed information on 1991 costs incurred by research libraries for interlibrary loan (ILL) transactions. The results of that project were reported in the *ARL/RLG Interlibrary Loan Cost Study: A Joint Effort by the Association of Research Libraries and the Research Libraries Group* (Washington, DC: Association of Research Libraries, 1993). Findings from that study indicated that a research library spent an average of $18.62 to borrow a document or receive a photocopy, and $10.93 to lend a document or supply a photocopy to another library.

In 1995, ARL received a grant from The Andrew W. Mellon Foundation to study the performance of ILL/DD operations in research and college libraries. The ILL/DD Performance Measures Study built on the 1992 study. The results of this study were reported in the *Measuring the Performance of Interlibrary Loan Operations in North American Research & College Libraries* (Washington, DC, Association of Research Libraries, 1998). Findings from the study indicated that research libraries spent an average of $18.35 on a borrowing transaction, $9.48 on a lending transaction, and took an average 15.6 calendar days to receive a borrowing request. College library performance was overall better: $12.08 borrowing unit cost, $7.25 unit lending cost, and 10.8 days turnaround time.

In 2002, ARL submitted an invitation to libraries to participate in the self-funded Assessing ILL/DD Services Study and 75 libraries responded. This study will refine the methodology used in the previous studies, again collecting data on unit cost, fill rate, and turnaround time. This study will not include data on patron satisfaction; the 1995 study data revealed no major distinctions in this category. Patrons were almost uniformly pleased with the service they received.

New to this study is a focus on patron-initiated, or unmediated, ILL services. Data on mediated ILL and patron-initiated ILL services will be collected and reported separately. Patron-initiated ILL is defined, for the purpose of this study, as requests that do not require ILL staff to handle or process to initiate, but are received directly by a potential supplier. The 2002-2003 study will also collect data from research, college, and a small number of special libraries. For the nearly 30 research libraries that participated in both of the earlier studies, this study will provide new data on which cost and service effectiveness of changes in local services can be evaluated.

The General Characteristics Questionnaire collects data on mediated services from which unit cost will be calculated. The 1996 instruments were revised to clarify questions that may have been difficult to interpret and have been updated to reflect current terminology and technologies.

Although the organizational characteristics of specific libraries may in some cases incorporate functions into units outside of ILL control, the scope of the mediated ILL portion of this study will focus on materials borrowed from or loaned to other libraries. While the organizational characteristics may reflect distinctions in how libraries categorize functions, the current study focuses on the costs directly associated with interlibrary borrowing and lending. Unrelated costs of major library functions such as circulation, collection development, acquisitions, and cataloging are not included. General overhead costs are specifically excluded. All three studies recognize that libraries acquire and maintain collections; but libraries will incur the costs

of acquiring and maintaining collections, regardless of whether or not they engage in interlibrary lending. Therefore, these costs are considered indirect and are excluded from this study.

Data will again be collected on staff, network/communications, delivery, photocopying, supplies, equipment/software/maintenance, and borrowing fees. These results will be combined with data on fill rate and turnaround time in order to identify the characteristics of an effective borrowing and lending interlibrary loan operation.

As with the previous studies, ARL ensures confidentiality of responses. Data collected will be reported in the aggregate only and will not be made available for comparison on a library-to-library basis. However, each participant will be provided with an institution-specific report of its unit costs and other performance measures.

## II. DEFINITIONS

The following definitions are used in this study.

**Administrative Head**: The administrative head of the ILL operation participating in the study, and the one assigned policy-making and planning responsibilities. Most ILL operations will have one administrative head and others who may have supervisory responsibility for lending or borrowing. Do not include support staff who supervise students or have day-to-day operational responsibility for either borrowing or lending. Also known as Department Head, Department Coordinator, or Professional Supervisor.

**Borrowing**: The process of obtaining materials (books, photocopies, etc.) for individuals affiliated with the institution.

**Document Delivery (DD)**: For this study, document delivery is defined as the purchase of nonreturnables from a company or service that supplies documents for a fee. Examples include BLDSC, CISTI, Ingenta, Infotrieve, etc. Documents purchased from libraries with document delivery services, including fee-based services such as MITS and RICE, are not included in this definition.

**Full Time Equivalent (FTE)**: All staff time is converted to a portion of full-time equivalent. A full-time staff member working only in ILL is 1 FTE. A staff with a half-time assignment in ILL and half in the Reference Department is to be considered 50% FTE for this study.

**Interlibrary Loan (ILL)**: The library operation that obtains materials for its patrons and provides locally owned materials to other libraries and individuals.

**Lending**: The process of sending materials (books, photocopies, etc.) owned by the institution to another library.

**Loans**: See Returnables.

**Local Document Delivery**: The process of filling loan or photocopy requests from local patrons for materials owned locally.

**Mediated**: The process by which library staff receive borrowing requests, process them, select potential lenders, initiate ILL requests, fill requests, track requests, etc.

**Nonreturnables**: Photocopies, copies of microform, and other materials the owning library does not expect to have returned.

**Patron-Initiated**: The process by which patrons search a catalog, identify items, and initiate requests for those materials without the assistance or mediation of library staff. Depending on the software, the patron may also identify and/or select potential suppliers.

**Photocopies**: See Nonreturnables.

**Professional**: Since the criteria for determining professional status vary among libraries, report the number of staff members you consider professional, including, when appropriate, staff without library degrees.

**Reciprocal Agreement**: A formal or informal agreement between a borrower and a lender to provide a defined level of service, perhaps at no charge.

**Returnables**: Items the owning library expects to have returned (books, AV, microforms, etc.).

**Students:** Students and others employed on an hourly basis whose hourly staff wages are paid from funds from the library budget or from another budget (e.g., federal work-study program).

**Support staff:** Full- or part-time library staff in clerical, para- or non-professional positions. May or may not have supervisory responsibilities.

**Unmediated**: See patron-initiated.

**III. CONTACT INFORMATION**

Mary E. Jackson is the Principal Investigator for the Assessing ILL/DD Services Study. She is joined in the study by Tom Delaney, Colorado State University, and Bruce Kingma, Syracuse University. Please direct all questions to Tom Delaney. He will respond as quickly as possible. Please email complete instruments to the address noted below.

| | |
|---|---|
| Name: | Tom Delaney |
| Email: | tgd@lamar.colostate.edu |
| Phone: | 970-491-1866 |
| Fax: | 970-491-2252 |
| Address: | Colorado State University Library<br>c/o ILL Department<br>Fort Collins, CO 80523 |

**IV. DEADLINE**

The deadline for completion of the General Characteristics Questionnaire and Cost Data Worksheets is **March 31, 2003.**

**V. GENERAL CHARACTERISTICS QUESTIONNAIRE**

1. Please read all instructions and questions carefully before answering the questionnaire or completing the worksheets. These instruments collect data comparable to the previous cost studies. However, the format has been revised and some specific questions updated. New to this study is the use of Excel worksheets for data entry.

2. Complete all questions. If the appropriate answer is zero or none, use "0." If the appropriate answer is not applicable, use "NA." If an exact figure is not available, estimate the total by collecting a two-week sample and annualizing the total. Use the "Comments" section to expand on or clarify your responses.

3. Report data for the central ILL unit, or, in the case of decentralized ILL operations, for the main library or largest ILL service unit participating in the study. Please be sure to indicate the name of the unit, but please do not use the OCLC symbol for the name. The study is designed to collect data from one ILL unit; if you wish to include another ILL unit, please contact Mary Jackson mary@arl.org.

4. Supply data for the entire fiscal year, the one that ended in 2002. Report actual statistics collected, or collect a two-week sample and annualize. Please indicate the sample time period. If you have switched from one record keeping system or requesting mechanism to another in mid-year, please try to get data from both systems, and combine them for the response. When figures are not available, use the most recent figures and statistics available for the category.

5. Supply accurate data. If information available for a particular category is for the library as a whole, estimate the ILL percentage by collecting a two-week sample and annualizing, or consulting staff most closely involved in the activity. Without accurate data, incomplete or inaccurate conclusions may be drawn.

6. Separate borrowing and lending costs, and within each as requested, track returnable and non-returnable costs. If you cannot answer the questions that ask specifically for returnable and non-returnable data, we will calculate the proportions from answers to questions II.1 and II.2 in the General Characteristics Questionnaire.

**VI. WORKSHEET 1: STAFF COSTS**

When identifying staff, include all staff that handle or process ILL transactions. Staff may work in the ILL unit as well as other library departments or branch libraries. The aim is to be comprehensive in accounting for all staff time spent in processing ILL requests.

For example, if ILL requests are accepted at a branch library or the central Reference desk, photocopying completed by a outside contract service, or packages wrapped by mailroom staff, a portion of the staff time in

each of those units and operations should be counted.

See Definitions (Section II) for an explanation of the staff categories used in the study.

The Worksheet includes an example of a part-time support staff member (Type 4, as illustrated on the chart). The individual works only on mediated ILL requests. The staff member has an annual salary of $21,520, with a fringe of $4,943 (23%). The total reimbursement is $26,463. The individual works 3 days in ILL, and 1 day in circulation, so the percentage in ILL is 75%. Her time is spent as follows: 40% in borrowing and 60% in lending. Note that the borrowing and lending percentage must add up to 100.

A. STAFF: Identify all individuals who assist in the processing of ILL requests and complete a separate row on the worksheet for each. Separate staff assigned to the ILL unit from other library staff that perform ILL tasks but are primarily responsible for other duties. Use names, initials, or codes that would permit subsequent verification of data.

B. TYPE: Indicate position type using definitions on the worksheet. See Definitions (Section II) for additional clarification.

C. SALARY: For each staff, record the salary earned. Record actual salary earned for part-time, hourly, or monthly salaries for individuals who worked less than full time. Use the salary for the incumbent. Do not use the average for the classification or ranking of the individual. ARL ensures confidentiality of individual salaries and will not include an institution's data if individual salaries can be inferred.

D. FRINGE AMOUNT: Record the institutional fringe (staff) benefit amount in dollars for all individuals who receive fringe benefits. Convert a percentage rate the annual fringe compensation. Include the amount even if paid by the parent institution or outside organization.

E. TOTAL REIMBURSEMENT: Will self-calculate on the worksheet. Verify that you have entered data correctly as this total should be the same as you calculated for total compensation.

F. % WORKED IN ILL: Of the total amount of time worked, calculate the percentage of time for each staff working on ILL requests. See notes 1 and 2 below for instructions on how to calculate the percentage.

G. % BORROWING: Of the percentage worked in ILL, determine the percentage of time each staff spends on processing ILL borrowing transactions. If possible, separate time processing returnable requests from time spent on nonreturnables. If the total amount or percentage for borrowing is not known, keep a detailed log of time spent on ILL activities for two weeks or use the percentages from the formal job descriptions.

H. % LENDING: Determine the percentage of time each staff spends on processing ILL lending transactions. If possible, separate time processing returnable requests from time spent on nonreturnables. If the total amount or percentage for lending is not known, keep a detailed log of time spent on ILL activities for two weeks and annualize or use the percentages from formal job descriptions.

NOTE: The percentage of G and H must total 100%. However, this sum is the total of the time the individual works in ILL.

*Additional Instructions for Staff:*
1. Time away from the ILL unit. Many staff assigned to work in the ILL unit full-time will spend some portion of their work week attending meetings, training sessions, performing other non-ILL related library functions, or out of the office for vacation or sick time. This time away from processing ILL requests should not be deducted from the time assigned for ILL tasks. Count staff who work in ILL full-time as 100% ILL, even if they attend meetings, etc.

2. Staff with multiple responsibilities. Some staff in the ILL unit have non-ILL responsibilities assigned on a regular basis. For example, if an individual is assigned to work in ILL 60% of the week and 40% in circulation, record 60% in Column F, % in ILL. Of that 60%, the time spent on borrowing and lending must total 100%.

3. Part-time employees. Some employees work fewer hours than the institutionally-defined full-time work week. For example, an individual may work 20 hours a week for the library, all in ILL. Record the total salary paid to each part-time employee.

4. Student employees. Report the wages paid for the complete fiscal year. Include students on financial aid, even though the library does not directly pay their wages.

5. Vacant positions. If the ILL unit has a vacant position during the fiscal year, record the salary of the previous incumbent for the period of time that individual filled the position.

6. Outside reimbursement. Include staff for whom the library gets partial or full reimbursement from a source other than the library, or for whom there is no cost (e.g. temporary replacements hired from an employment agency). Use the actual salary for those staff. If staff are paid by an outside agency, use the salary and benefits paid by the library or institution to the agency, rather than the amount paid by the agency to the individual.

**VII. WORKSHEET 2: NETWORK AND COMMUNICATION COSTS**

A. NETWORK/COMMUNICATION: For each method used to send and receive ILL requests, calculate costs using the details as examples. Use annual or monthly invoices to determine total costs, if necessary.

B. TOTAL: Record annual total costs for each category.

C. % BORROWING: Calculate the proportion of use for borrowing. If necessary, keep a two-week log to determine the percentage.

D. % LENDING: Calculate the proportion of use for lending. If necessary, keep a two-week log to determine the percentage.

*Additional Instructions for Network/Communication:*

1. Types. Include applicable telephone, Ariel or other electronic transmission, electronic mail, Internet, and network fees (OCLC, RLIN, etc.).

2. Telephone. Calculate total cost for borrowing and lending, or estimate percentage for borrowing and lending. If actual costs are not known, keep a two-week log including the following:

*Local.* The flat rate phone fees, local area message unit costs. Include only desk phones. Charges for other telecommunication equipment (fax & email) are captured elsewhere in the survey.

*Long distance.* Long distance charges for calls made to support either borrowing or lending.

3. Membership fees. Do not include membership fees unless the network is used exclusively by or for ILL.

4. Actual costs. Actual costs are highly desirable, but if the cost of electronic mail and network and services are unavailable, use vendor price lists.

5. Exclude fax. Do not include fax telecommunication costs in this section; report fax costs on Worksheet 3: Delivery.

**VIII. WORKSHEET 3: DELIVERY COSTS**

A. BORROWING: Include the cost of mailing articles to patrons; mailing or faxing ALA ILL request forms to potential lenders; pick-up notices, overdue notices, and recalls to patrons; returning borrowed items to the owning library, and other materials related to borrowing.

B. LENDING: Include the cost of shipping returnables and nonreturnables to the requesting library or individual, overdue and recall notices, returning unfilled ALA request forms, and other materials related to lending.

*Additional Instructions for Delivery Costs:*

1. Ariel/electronic delivery charges. Include costs for Ariel or other electronic transmission of ILL request forms as a borrower and articles as a lender, etc.

2. Commercial delivery services. Include costs incurred for FedEx, UPS, or other commercial parcel couriers.

3. Courier services. Include costs incurred using inter-institutional shuttle services, statewide delivery services, or other delivery service or carriers between institutions.

4. FAX charges. Determine fax charges from actual phone bills or a two-week log. If the fax machine is rented, include the local and long distance charges in this section, and the rental expenses on Worksheet 6: Equipment/ Software/Maintenance. Separate borrowing and lending, if possible.

5. Postal service. If postage and other delivery costs for ILL cannot be separated from general library delivery expenses, determine the percentage applicable to ILL through actual records or keep a two-week log.

6. Non-ILL shipments. If the delivery service is used for purposes other than just interlibrary loan, include the ILL portion of the cost, or keep a two-week log. If staff costs can be separated out, include those costs in Worksheet 1: Staff. Otherwise, include here all costs associated with the ILL delivery service - staff, vehicles (using 25% of purchase cost if vehicle is less than four years old), & maintenance, etc. Separate borrowing and lending, if possible.

7. Multiple shipments. If a package contains both borrowing and lending material, try to determine the majority of the material in the package and include the cost of that package in that category. If exact proportions cannot be determined, separate based on annual borrowing and lending proportions. If a package contains both returnables and nonreturnables, count as a returnable.

**IX. WORKSHEET 4: PHOTOCOPY COSTS**

A. BORROWING: Record total costs of photocopying the patron's citation or source of information; borrowing policy sheets; letters/overdues to patrons; copying invoices to be paid; borrowing policy statements; and all other in-house copying for borrowing.

B. LENDING: Record total costs of photocopies made in response to individual photocopy orders from other libraries or individuals; lending policy sheets; overdue notices, invoices, recalls; and all other in-house copying for lending.

*Additional Instructions for Photocopy Costs:*

1. Type of copying. Include all types of copying: paper-to-paper, microform-to-microform, microform-to-paper. Do not include paper-to-microform copies.

2. Copying by non-ILL staff. Many libraries assign responsibility for ILL photocopying to non-ILL staff or units. Copying may be done by a central photocopy service, by a service managed by an outside organization, or by branch/departmental library staff. The costs for those staff should be included in Worksheet 1, Staff.

3. Related costs. Whenever possible, include costs of equipment, etc. associated with the photocopy activity under the relevant categories (Staff, Equipment, etc.).

4. Article length and page charges. When actual ILL photocopy costs are not available, estimate the total number of articles photocopied for lending each year and apply your average institutional article length and per page charge. If the per page costs include staff and equipment, do not include those costs in those categories. Use the following formula if you cannot determine institutional article length or page charges.

*7 pages per article* *$0.07 per page*

**X. WORKSHEET 5: SUPPLIES COSTS**

BORROWING: Record total costs for specialized supplies used primarily for borrowing. Include printer, fax, or photocopy paper; printer ribbons or ink cartridges; patron request forms; mailing labels; ALA ILL request forms; imprinted forms or envelopes; book bands; policy statements and handouts; flyers and brochures; book trucks; padded bags and other mailing supplies; and other supplies for borrowing.

B. LENDING: Record total costs for specialized supplies used primarily for lending. Include printer, fax, or photocopy paper; printer ribbons or ink cartridges; mailing labels; imprinted forms or envelopes; book bands; policy statement and handouts; flyers and brochures; padded bags and other mailing supplies; and other supplies for lending.

*Additional Instructions for Supply Costs:*

1. Office supplies. Costs for general office supplies such as pencils and paper clips are minimal and should not be included in

supply costs. Do not count paper if counted in Worksheet 4, Photocopy Costs.

**XI. WORKSHEET 6: EQUIPMENT, SOFTWARE, AND MAINTENANCE COSTS**

A. ITEM: Include all equipment and software used in ILL such as PCs, OCLC & RLIN workstations, Ariel or other electronic delivery workstations and software, fax machines, word processing or database software, OCLC ILLiad, ILL Manager, Clio, VDX, or other management software. Only include software that was installed on the machine after purchase. For example, if a PC was delivered with MS Office installed as part of the purchase price, do not add a separate line. Include servers that are dedicated to ILL, such as an OCLC ILLiad server or a Web article storage server.

B. AGE IN YEARS: Record the age of the equipment and software using the definitions on the worksheet. If age is unknown, use "UA" years old. Use this column to record donated equipment.

C. EXPECTED LIFESPAN IN YEARS: Estimate the amount of time a piece of equipment will be in service before it is replaced.

D. PURCHASE PRICE: Determine the purchase price of each item using invoices and price lists. Record ONLY the purchase price if the equipment or software if the equipment is younger than its expected lifespan in years. Equipment older than the anticipated lifespan in years should be listed with a purchase price of $0.00.

E. RECURRING COSTS: Determine the annual maintenance fee, rental, software licensing fee, or other recurring costs for each piece of equipment. Include costs that have not already been included in other cost categories (such as Network).

F. TOTAL COST: This column will self-calculate as a total of columns D and E.

G. % BORROWING: Determine the percentage for borrowing activities. If possible, separate into returnables and nonreturnables.

H. % LENDING: Determine the percentage of use for lending activities. If possible, separate into returnables and nonreturnables.

*Additional Instructions for Equipment/Software/Maintenance Costs:*

1. This model employs the concept of annual use charges, widely used in government contracts, to assign an estimated cost for equipment even in periods when no new equipment is purchased.

2. Shared equipment. If the equipment is used by ILL and other departments calculate or estimate the percentage of use by ILL staff. Calculate the borrowing and lending use and record those percentages and calculate the cost from that percentage. Use the section on shared staff to assist in calculating use of shared equipment.

**XI. WORKSHEET 7: BORROWER FEES**

A. TYPE OF FEE: The worksheet lists common fees paid to obtain materials from other libraries, document suppliers, and other sources. Itemize under "Other" any fees not included in this list.

B. RETURNABLES: Include amount expended from deposit accounts, prepaid coupons, international postal coupons, IFLA vouchers, OCLC IFM fees (do not include OCLC's administrative fee), fees paid to suppliers (including libraries and document delivery suppliers), postage reimbursement, invoices paid, and other fees paid to borrow items for your patrons.

C. NONRETURNABLES: Include deposit accounts, prepaid coupons, international postal coupons, IFLA vouchers, OCLC IFM fees, invoices paid, fees paid to suppliers (including libraries and document delivery suppliers), Copyright Clearance Center charges, royalty fees paid directly to copyright holders, and other fees paid to obtain photocopies for your patrons.

D. TOTAL: If a breakdown by returnables and nonreturnables is not possible, list the total fees for each type in this column. We will pro-rate if only a total is included.

# APPENDIX F

## GENERAL CHARACTERISTICS QUESTIONNAIRE FOR MEDIATED ILL/DD SERVICES

**Assessing ILL/DD Services Study**
General Characteristics Questionnaire
**Mediated ILL/DD Services**
**February, 2003**

### I. General Institutional Profile

| | |
|---|---|
| Reporting Institution | |
| Name of ILL operation | |
| Person completing survey | |
| Position | |
| Phone | |
| Fax | |
| Email | |
| Ariel/electronic address | |
| Contact person (if different) | |
| Phone | |
| Fax | |
| Email | |
| Ariel/electronic address | |
| Date survey returned to ARL | |

**Fiscal year: July 2001 to June 2002, or your fiscal year that ended in 2002.**

### II. Questions about Level and Type of Activity

| **1. Borrowing requests** | Returnables | Nonreturnables | Total |
|---|---|---|---|
| How many were filled? | | | |
| How many were unfilled? | | | |
| How many were locally owned? | | | |
| Total | | | |

| **2. Lending requests** | Returnables | Nonreturnables | Total |
|---|---|---|---|
| How many were filled? | | | |
| How many were unfilled? | | | |
| Total | | | |

**3. How you count borrowing requests for materials that are locally owned and on your shelves as:**

| | | |
|---|---|---|
| As a filled request | | |
| As an unfilled request | | |
| Do not include them in either | | |
| Other | | |

## III. Organizational/Administrative Questions

**1. Total number of separate ILL processing units in the library system (a processing unit is one that has responsibility for borrowing, lending, or both):**

| |
|---|
| |

**2. How would you characterize your services for the main ILL processing unit?**

| | Borrowing | Lending |
|---|---|---|
| Centralized | | |
| Decentralized | | |

**3. Organizationally, in which department/division is ILL included? (Check One)**

| | | |
|---|---|---|
| Access Services | | |
| Acquisitions | | |
| Assistant/Associate Univ. Libn. | | |
| Circulation | | |
| Collection Development | | |
| Public Services | | |
| Reference | | |
| Reports to director/dean | | |
| Technical Services | | |
| Other (Please Specify) | | |

**4. Who has day-to-day responsibility for the ILL operation? (Check One)**

| | | |
|---|---|---|
| Administrative Head | | |
| Support staff supervisor | | |
| Other (please specify) | | |

**5. Does the library have a separate budget line for borrowing or lending expenses? (For example, does the library budget track ILL expenditures and/or income for such items as lending fees, delivery, fees collected from patrons?**

| | |
|---|---|
| Separate budget for borrowing | |
| Separate budget for lending | |
| Separate budget for both | |
| No separate budget | |

## IV. Staffing Questions

**1. Is the library staff unionized?**

| | Yes | No |
|---|---|---|
| Professional | | |
| Support Staff | | |

**2. Does the professional staff have faculty status?**

| Yes | No |
|---|---|
| | |

**3. List the number of staff (FTE) in the central ILL processing unit, including those not in the ILL unit who directly supervise ILL operations. (See Definitions Section for clarification of these terms.)**

| | Borrowing | Lending | |
|---|---|---|---|
| Administrative head | | | |
| Support staff supervisor | | | |
| Professional non-supervisor | | | |
| Support staff | | | |
| Student/hourly staff | | | |
| Other (please specify) | | | |

**4. Does your department have someone with Information Technology (IT) responsibility?**

| | |
|---|---|
| Yes | |
| No | |

## V. Questions about Equipment and Services

**1. Provide or estimate the percentage of use for each of the methods by which mediated ILL requests can be sent or received:**

| | Borrowing | Lending |
|---|---|---|
| Ariel/electronic transmission | | |
| DOCLINE | | |
| E-mail | | |
| Fax | | |
| Lender's web form | | |
| Mail/Post | | |
| OCLC | | |
| OPAC ILL module | | |
| Peer-to-Peer (ILL Manger, VDX, etc.) | | |
| RLIN | | |
| Supplier dedicated system (e.g., Infotrieve) | | |
| Other | | |
| Total (**MUST BE 100%**) | | |

**2. Does your library engage in international ILL?**

| | |
|---|---|
| Yes | |
| No | |
| Borrowing Only | |
| Lending Only | |

**3. Check any of the following OCLC services you use:**

| | |
|---|---|
| Check Union List | |
| Custom Holdings | |
| Enter my symbol twice | |
| FirstSearch direct request | |
| FirstSearch-ILL link | |
| ILL Fee Management (IFM) | |
| ISO ILL | |
| ILL Management Statistics | |
| OCLC Consolidated Produce | |
| Prism interface | |
| Web interface | |
| MicroEnhancer | |

**4. Do you have one workstation per full time staff that enables staff to access the local catalog, national utilities, Internet, etc.)?**

| Yes | No |
|---|---|
| | |

**5. Check all equipment and software located in the ILL office or used primarily by ILL staff:**

| | Borrowing | Lending |
|---|---|---|
| Ariel/electronic delivery | | |
| Clio | | |
| Fax | | |

| | | | |
|---|---|---|---|
| ILL Manager | | | |
| Multiple access workstation(s) | | | |
| Online Catalog terminal(s) | | | |
| Photocopy machine(s) | | | |
| OCLC ILLiad | | | |
| VDX | | | |
| Other (please specify) | | | |

**6. Check all delivery methods used:**

| | Borrowing | Lending | |
|---|---|---|---|
| Ariel/electronic delivery | | | |
| Campus mail | | | |
| Commercial courier (other than Fed Ex or UPS) | | | |
| Email | | | |
| Fax | | | |
| FedEx | | | |
| Internet | | | |
| Post to Web | | | |
| Prospero | | | |
| Relais | | | |
| State, regional, or consortia courier | | | |
| UPS | | | |
| US or Canadian Postal Service | | | |
| Other (please specify) | | | |

## VI. Borrowing Questions

**1. Check all patron categories eligible to use the borrowing service.**

| | | |
|---|---|---|
| Undergraduate | | |
| Graduate student | | |
| Faculty | | |
| Staff (including library) | | |
| Courtesy/community | | |
| Other (please specify) | | |

**2. Do you limit the number of requests patrons may submit per day/week/month? Check yes if any type of llimit has been established for any patron category.**

| Yes | No |
|---|---|
| | |

**3. Can your patrons submit requests electronically? Check yes if you offer Web ILL forms, email, ISO ILL, OCLC FirstSearch link, etc. If yes, provide the percentage of requests submitted via email.**

| Yes | No |
|---|---|
| | |
| | |

**4. Do you fill requests from your users for materials held in your local collection?**

| Yes | No |
|---|---|
| | |

**5. Do you charge any of your patrons for:**

| | Yes | No | Depends |
|---|---|---|---|
| Returnables | | | |
| Nonreturnables | | | |

**6. If yes, how do patrons pay?**

| | |
|---|---|
| Cash | |
| Credit card | |
| Debit on circulation patron file | |
| Department charge | |
| Deposit Account | |
| Invoice | |
| Other (please specify) | |

**7. If yes, are patrons charged full cost-recovery or does the library subsidize the service?**

| | Returnables | Nonreturnables |
|---|---|---|
| Charged full cost-recovery | | |
| Charged partial cost-recovery | | |
| Other (please specify) | | |

**8. Do you limit the number of requests a patron can submit at one time?**

| Yes | No |
|---|---|
| | |

**9. Does the system limit the number of active requests a patron may have at one time?**

| Yes | No |
|---|---|
| | |

**10. Does your library use document suppliers to fill photocopy requests? If so, estimate the percentage of photocopy requests filled by document suppliers.**

| Yes | No |
|---|---|
| | |

If Yes, % of total filled:

**11. Where do your patrons submit requests? Check all that apply.**

| | |
|---|---|
| Branch/dept. library | |
| Circulation Desk | |
| Electronically from home, office, library, etc. | |
| ILL Office | |
| Reference Desk | |
| Other (please specify) | |

**12. Where do patrons pick up ILL material?**

| | Returnables | Nonreturnables |
|---|---|---|
| Branch/dept. library | | |
| Circulation desk | | |
| ILL office | | |
| Mailed to person | | |
| Post to web | | |
| Reference desk | | |
| Other (please specify) | | |

**13. Estimate the percentage of borrowing requests filled by libraries using reciprocal agreements:**

## VII. Lending Questions

**1. Do you charge institutions with whom you do not have cooperative/reciprocal agreements?**

Yes, charge for loan requests ☐
Yes, charge for photocopy requests ☐
No ☐

**2. If you charge, check the payment methods you accept (for either loans or copies):**

Charge (VISA, MC, etc.) ☐
Check ☐
Coupon ☐
Deposit account ☐
EFTS ☐
IFLA vouchers ☐
OCLC IFM ☐
Other (please specify) ☐ ☐

**3. Estimate the percentage of lending requests supplied to libraries using reciprocal agreements:**

☐

**4. When using Ariel, do you scan directly from the volume or do you photocopy first? If scan directly, please supply the percentage of all filled photocopy requests scanned directly.**

Scan from volume ☐ ☐ percent scanned
Photocopy, then scan ☐

## VIII. Other

**5. Other Comments or Clarification of Responses to Other Questions (please specify question number)**

☐

## APPENDIX G

## COST WORKSHEETS FOR MEDIATED ILL/DD SERVICES

**Worksheet 1: Staff Costs**

Institution:

| | Type | Annual Salary | Fringe Amt. | Total Reimb. | % in this service | % Borr. | % Lend. |
|---|---|---|---|---|---|---|---|
| *Example* | 4 | $21,520 | $4,943 | $26,463 | 75 | 40 | 60 |
| ILL Staff | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Other Staff | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Type:
1=Professional Supervisor
2=Professional Nonsupervisor
3=Support-Staff Supervisor
4=Support Staff
5=Students/Hourly

| Worksheet 2: Network and Communication Costs | | | |
|---|---|---|---|
| Institution: | | | |
| | Total | % Borrowing | % Lending |
| Phone | | | |
| Local | | | |
| Long Distance | | | |
| | | | |
| OCLC | | | |
| General Membership Fee | | | |
| IFM Administration Fee (IFM4572) | | | |
| ILL Consolidated Produce (ILL4518) | | | |
| ILL Consolidated Searches Adjustment (ILL4564) | | | |
| ILL Direct Profiled Produce (ILL4505) | | | |
| ILL Direct Searches (ILL 4506) | | | |
| Display Holdings (3581) | | | |
| ILL Keyword Search (SER 0314) | | | |
| ILL Loan Review PRISM (ILL4502) | | | |
| Scan Title – ILL (SER 0315) | | | |
| ILL Searches, Numeric/derived (SBL 0431) | | | |
| ILL Management Statistics (OOF 4530) | | | |
| ILL stat rep per page (OOF 4541) | | | |
| OCLC Full User Fee | | | |
| Regional Network Admin. Fee | | | |
| Requests (ILL 4501) | | | |
| Statistics Report Annual Fee (OOF 5431) | | | |
| TCP/IP 56K Network Facility Fee (RCM 6125) | | | |
| TCP/IP Access &N User Support Fee (RCM 6805) | | | |
| TCP/IP Overflow Connect Charge (CON 6806) | | | |
| UL Holdings Display Use (IDH 3581) | | | |
| Other | | | |

| Worksheet 2: Network and Communication Costs – page 2 | | | |
|---|---|---|---|
| Institution: | | | |
| | Total | % Borrowing | % Lending |
| RLIN | | | |
| Dialup | | | |
| Telecommunications | | | |
| Connect hr. chg. Search only | | | |
| Dedicated IP network link fee | | | |
| Dedicated IP network port fee | | | |
| Private async link fee | | | |
| Private async port fee | | | |
| Private async subscription fee | | | |
| PC Maintenance | | | |
| Account Activity | | | |
| Acct activity per X search rate | | | |
| % of fixed price contract appropriate to ILL | | | |
| Other | | | |
| | | | |
| Other networks | | | |
| | | | |

| Worksheet 3: Delivery Costs | | |
|---|---|---|
| Institution: | | |
| | Borrowing Expenditures | Lending Expenditures |
| Ariel/electronic delivery | | |
| Commercial delivery services | | |
| Courier services | | |
| Fax | | |
| Postal service | | |
| Other | | |

**Worksheet 4: Photocopy Costs**

\Institution:

| | Borrowing Expenditures | Lending Expenditures |
|---|---|---|
| Photocopy costs | | |

**Worksheet 5: Supply Costs**

Institution:

| | Borrowing Expenditures | Lending Expenditures |
|---|---|---|
| Supplies | | |

**Worksheet 6: Equipment/Software/Maintenance Costs**

Institution:

| Item | Age in Years | Expected Lifespan in Years | Purchase price | Recurring costs | Total cost | % in this Service | % Borrowing | % Lending |
|---|---|---|---|---|---|---|---|---|
| Computer | 2 | 3 | $2,500 | $0 | $2,500 | $100 | 80 | 20 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**Worksheet 7: Borrower Fees**

Institution:

| | Returnables | Nonreturnables | Total |
|---|---|---|---|
| Deposit Account (amount expended in fiscal year, not total amount in the account) | | | |
| Coupons | | | |
| Invoices/direct charges | | | |
| Net borrower charges | | | |
| Document delivery suppliers | | | |
| Copyright Clearance Center | | | |
| Copyright royalty payments | | | |
| Other | | | |

# APPENDIX H

## GENERAL CHARACTERISTICS QUESTIONNAIRE FOR USER-INITIATED SERVICES

Note: Individual worksheets were developed for each of the user-initiated services. This is a representative sample of the questionnaires.

### Assessing ILL/DD Services Study
### April, 2003
### General Characteristics Questionnaire
### INN-Reach Patron-Initiated System

This worksheet is to be used by libraries that use INN-Reach (IR).

| | | |
|---|---|---|
| 1 | Reporting Institution | |
| 2 | Name/Location of the unit | |
| 3 | Person completing survey | |
| 4 | Position | |
| 5 | Phone | |
| 6 | Email | |
| 7 | Contact Person (if different) | |
| 8 | Phone | |
| 9 | Email | |
| 10 | Date survey returned to ARL | |

**Data requested is for the fiscal year July, 2001 to June, 2002, OR the fiscal year that ended in 2002.**

11 **How many IR requests did your patrons initiate in the last fiscal year?**

| | Returnables | Nonreturnables | Total |
|---|---|---|---|
| How many were filled? | | | |
| How many were unfilled? | | | |

12 **How many IR lending requests did you receive in the last fiscal year?**

| | Returnables | Nonreturnables | Total |
|---|---|---|---|
| How many were filled? | | | |
| How many were unfilled? | | | |

13 **What type of requests are included in the service?**

| | |
|---|---|
| Returnables | |
| Nonreturnable copies | |
| Other (please specify) | |

14 **What do you call the INN-Reach service on your campus?**

15 **Organizationally, which department/division is responsible for INN-Reach?**

| | |
|---|---|
| Access Services | |
| Acquisitions | |
| Circulation | |
| Interlibrary Loan | |
| Photocopy dept. | |
| Public Services | |

| | |
|---|---|
| Reference | |
| Serials | |
| Shared by two or more departments | |
| Technical Services | |
| Other (please specify) | |

16 **How does the INN-Reach service relate to the mediated ILL service?**

| | Returnables | Nonreturnables |
|---|---|---|
| Integrated into main ILL process | | |
| Parallel process | | |

17 **Check all patron categories eligible to use the service:**

| | Returnables | Nonreturnables |
|---|---|---|
| Undergraduate | | |
| Graduate student | | |
| Faculty | | |
| Staff (including library) | | |
| Courtesy/community | | |
| Other (please specify) | | |

18 **How do patrons place orders? (Check all that apply.)**

| | Returnables | Nonreturnables |
|---|---|---|
| Via a web form | | |
| In person | | |
| On the phone | | |
| Through the mail | | |
| Via fax | | |
| Via email | | |
| From a union catalog | | |
| Other (please specify) | | |

19 **Which department receives patron requests?**

| | Returnables | Nonreturnables |
|---|---|---|
| Access Services | | |
| Acquisitions | | |
| Circulation | | |
| Interlibrary Loan | | |
| Photocopy dept. | | |
| Public Services | | |
| Reference | | |
| Serials | | |
| Shared by two or more departments | | |
| Technical Services | | |
| Other (please specify) | | |

20 **Are patron requests reviewed by staff before being sent to the owning library?**

| | Returnables | Nonreturnables |
|---|---|---|
| Yes | | |
| No | | |
| Depends (please explain) | | |

21 **Which department prints off incoming ("lending") requests?**

| | Returnables | Nonreturnables |
|---|---|---|
| Access Services | | |
| Acquisitions | | |
| Circulation | | |
| Interlibrary Loan | | |
| Photocopy dept. | | |
| Public Services | | |
| Reference | | |
| Serials | | |
| Shared by two or more departments | | |
| Technical Services | | |
| Other (please specify) | | |

22 **Which department retrieves the items?**

| | Returnables | Nonreturnables |
|---|---|---|
| Access Services | | |
| Acquisitions | | |
| Circulation | | |
| Interlibrary Loan | | |
| Photocopy dept. | | |
| Public Services | | |
| Reference | | |
| Serials | | |
| Shared by two or more departments | | |
| Technical Services | | |
| Other (please specify) | | |

23 **Which department photocopies the items?**

| | |
|---|---|
| Access Services | |
| Acquisitions | |
| Circulation | |
| Interlibrary Loan | |
| Photocopy dept. | |
| Public Services | |
| Reference | |
| Serials | |
| Shared by two or more departments | |
| Technical Services | |
| Other (please specify) | |

24 **Which department ships the items?**

| | Returnables | Nonreturnables |
|---|---|---|
| Access Services | | |
| Acquisitions | | |
| Circulation | | |
| Interlibrary Loan | | |
| Mail room | | |
| Photocopy dept. | | |
| Public Services | | |
| Reference | | |
| Serials | | |
| Shared by two or more departments | | |
| Technical Services | | |
| Other (please specify) | | |

25 **How are items shipped? Check all that apply.**

| | Returnables | Nonreturnables |
|---|---|---|
| Ariel/electronic delivery | | |
| Commercial courier (other than FedEx or UPS) | | |
| Fax | | |
| FedEx | | |
| Pony Express | | |
| Post to web site | | |
| state, regional, or consortia courier | | |
| UPS | | |
| US or Canadian Postal Service | | |
| Other (please specify) | | |

26 **To which location are items shipped?**

| | Returnables | Nonreturnables |
|---|---|---|
| To the patron | | |
| To the patron's main library | | |
| To the patron's branch library | | |
| Other (please specify) | | |

27 **How do patrons receive the items?**

| | Returnable | Nonreturnables |
|---|---|---|
| At ILL office | | |
| At Reference desk | | |
| At Circulation desk | | |
| At Branch/dept. library | | |
| Patron's library delivers to patron | | |
| Sent to patron by patron's library | | |
| Sent to patron by supplying library | | |
| Posted to web | | |
| Other (please specify) | | |

28 **Are patrons charged for the service?**

| | |
|---|---|
| Yes, for loans and copies | |
| Yes, for copies only | |
| Yes, for loans only | |
| No, not charged | |
| Depends (please explain) | |

29 **How does patrons pay?**

| | Returnables | Nonreturnables |
|---|---|---|
| Cash | | |
| Check | | |
| Credit card | | |
| Debit on circulation patron file | | |
| Departmental charge | | |
| Deposit Account | | |
| Invoice | | |
| Other (please specify) | | |

30 **Are patrons charged full cost-recovery or does the library subsidize the service?**

| | Returnables | Nonreturnables |
|---|---|---|
| Charged full cost-recovery | | |
| Charged partial cost-recovery | | |
| Library subsidizes full costs | | |
| Other (please specify) | | |

31 **Is the software the same as used by the ILL department?**

| | Returnables | Nonreturnables |
|---|---|---|
| Yes | | |
| No | | |

32 **Is the software:**

| | Yes | No |
|---|---|---|
| Developed and managed by the consortium/institution | | |
| Purchased by the library | | |
| Purchased and maintained by each participant | | |

33 **Are you required to use specialized hardware?**

| Yes | No |
|---|---|
| | |

34 **If yes, is the hardware:**

| | | |
|---|---|---|
| Donated by a consortium/institution | | |
| Paid by the consortium | | |
| Paid by each participant | | |

35 **Other Comments**

| |
|---|
| |

# APPENDIX I

## COST WORKSHEETS FOR USER-INITIATED SERVICES

**Worksheet 1: Staff Costs**

Service:

Institution:

| | Type | Annual Salary | Fringe Amt. | Total Reimb. | % in this service | % Borr. | % Lend. |
|---|---|---|---|---|---|---|---|
| *Example* | 4 | $21,520 | $4,943 | $26,463 | 75 | 40 | 60 |
| ILL Staff | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Circ. Staff | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Other Staff | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Type:
1=Professional Supervisor
2=Professional Nonsupervisor
3=Support-Staff Supervisor
4=Support Staff
5=Students/Hourly

**Worksheet 2: Network and Communication Costs**

Service:

Institution:

| | Total | % Borrowing | % Lending |
|---|---|---|---|
| Phone | | | |
| Local | | | |
| Long Distance | | | |
| Other networks | | | |
| | | | |

| Worksheet 3: Delivery Costs | | |
|---|---|---|
| Service: | | |
| Institution: | | |
| | Borrowing Expenditures | Lending Expenditures |
| Ariel/electronic delivery | | |
| Commercial delivery services | | |
| Courier services | | |
| Fax | | |
| Postal service | | |
| Other | | |

| Worksheet 4: Photocopy Costs | | |
|---|---|---|
| Service: | | |
| Institution: | | |
| | Borrowing Expenditures | Lending Expenditures |
| Photocopy costs | | |

| Worksheet 5: Supply Costs | | |
|---|---|---|
| Service: | | |
| Institution: | | |
| | Borrowing Expenditures | Lending Expenditures |
| Supplies | | |

**Worksheet 6: Equipment/Software/Maintenance Costs**

Service:

Institution:

| Item | Age in Years | Expected Lifespan in Years | Purchase price | Recurring costs | Total cost | % in this Service | % Borrowing | % Lending |
|---|---|---|---|---|---|---|---|---|
| Computer | 2 | 3 | $2,500 | $0 | $2,500 | $100 | 80 | 20 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**Worksheet 7: Borrower Fees**

Service:

Institution:

| | Returnables | Nonreturnables | Total |
|---|---|---|---|
| Deposit Account (amount expended in fiscal year, not total amount in the account) | | | |
| Coupons | | | |
| Invoices/direct charges | | | |
| Net borrower charges | | | |
| Document delivery suppliers | | | |
| Copyright Clearance Center | | | |
| Copyright royalty payments | | | |
| Other | | | |

# APPENDIX J

## TURNAROUND TIME WORKSHEETS AND SUMMARY SHEETS

Assessing ILL/DD Services
MEDIATED ILL/DD
**Borrowing Turnaround Time Worksheet**
March, 2003

| | | | |
|---|---|---|---|
| 1 | Transaction # | | |
| 2 | Type of Request | Returnable | Non-Returnable |
| | | | |
| | DATE: | | |
| 3 | Recorded on form or received by system: | | |
| 4 | Accepted at service point: | | |
| 5 | Processed by ILL staff: | | |
| 6 | Sent to first potential supplier: | | |
| 7 | Material received in ILL department: | | |
| 8 | Patron Notified: | | |
| 9 | OR, Transaction not filled: | | |

| | | | | |
|---|---|---|---|---|
| 10 | Final outcome of request: | Filled | Not filled | Still in process |
| | | | | |

IF REQUEST WAS FILLED

| | | |
|---|---|---|
| 11 | Was the item owned locally, but not available? We will assume not locally owned; check only if locally owned. | |
| 12 | Name of supplier/lender: | |
| 13 | Call number: | |
| 14 | If this was not filled by the first supplier, the number of suppliers tried, including the one that filled the request: | |
| 15 | Language of item (if other than English) | |
| 16 | Was this a resubmission of a previous ILL request to get missing volume/pages etc? We will assume it was not a resubmission; check only if it was. | |

IF REQUEST WAS NOT FILLED

17 Reason(s) not filled

| | | | |
|---|---|---|---|
| at bindery | | | not owned |
| cost exceeds limit/unable to pay | | | on hold |
| in use or on loan | | | on order |
| in process | | | on reserve |
| lacking | | | patron canceled |
| lacks copyright compliance | | | policy problem |
| Locally owned | | | poor condition |
| locations not found | | | prepayment required |
| lost | | | unable to obtain by need-by date |
| non-circulating | | | volume/issue not yet available |
| not found as cited | | | other (please explain) |
| not on shelf | | | |

Assessing ILL/DD Services

MEDIATED ILL/DD

## Lending Turnaround Time Worksheet

March, 2003

1 Transaction #

2 Type of Request — Returnable | Non returnable

**DATE:**

3 Request received:

4 Transaction filled

5 Sent to mailroom

6 Shipped or sent electronically

7 Online request updated

8 Received via — O=OCLC, R=RLIN, D=Docline, E=Email, F = Fax, M = Mail, X = Other

9 Final outcome of request: Filled | Not filled | Still in process

IF REQUEST WAS FILLED

10 Was this filled from a remote storage or depository facility? We will assume it was not from such a facility. Check only if it was.

11 Call number of item

IF REQUEST WAS NOT FILLED

12 Reason(s) not filled (check one)

| | | | |
|---|---|---|---|
| At bindery | | | Not owned |
| Cost exceeds limit | | | On hold |
| In use or on loan | | | On order |
| In process | | | On reserve |
| Lacking | | | Patron canceled |
| Lacks copyright compliance | | | Policy problem |
| Locations not found | | | Poor condition |
| Lost | | | Prepayment required |
| Non-circulating | | | Unable to obtain by need-by date |
| Not found as cited | | | Vol/issue not yet available |
| Not on shelf | | | Other |

## Turnaround Time Summary Sheet for Mediated Borrowing

**Institution Name (no OCLC symbol, please):**

| Transaction Number | 1 | 2 | ... | 100 |
|---|---|---|---|---|
| Type of Request | | | | |
| Date Recorded on Form or Received by System | | | | |
| Date Accepted at Service Point | | | | |
| Date Processed by ILL Staff | | | | |
| Date Sent to First Potential Supplier | | | | |
| Date Material Received in ILL Department | | | | |
| Date User Notified | | | | |
| Date Request Not Filled | | | | |
| Final Outcome of Request | | | | |
| Was Item Locally Owned? | | | | |
| Name of Supplier/Lender | | | | |
| Call Number | | | | |
| Number of Suppliers Tried | | | | |
| Language of Item | | | | |
| Was the Request a Retry? | | | | |
| Reason Not Filled | | | | |

## Turnaround Time Summary Sheet for Mediated Lending

**Institution Name (no OCLC symbol, please):**

| Transaction Number | 1 | 2 | ... | 100 |
|---|---|---|---|---|
| Type of Request | | | | |
| Date Request Received | | | | |
| Date Transaction Filled | | | | |
| Date Sent to Mailroom for Shipment | | | | |
| Date Shipped or Sent via Fax, Ariel, etc. | | | | |
| Date Online Request Updated | | | | |
| Received Via | | | | |
| Final Outcome of Request | | | | |
| Filled from Remote Storage or Depository Facility? | | | | |
| Call Number | | | | |
| For Unfilled Requests, Reason Unable to Supply | | | | |

# APPENDIX K

## COMPARING WORKFLOW OF MEDIATED AND USER- INITIATED SERVICES

The following charts outline the typical steps of the borrowing and lending process by illustrating the individual or system primarily responsible for each step. Although the specific products and their implementation in individual libraries may vary, the charts illustrate how user-initiated products automate some of the steps of the process or enable users to perform that task. In these charts, *ILL Software* refers to Clio, ILL Manager, OCLC ILLiad, VDX, etc. The *ILL System* is the OCLC ILL system. The *Circulation System* refers to the circulation module of the library's integrated library system, and *System* is used to designate the user-initiated software such as INN-Reach, RAPID, or URSA.

**Table K1: Borrowing Process for Returnables**

| Steps of the Borrowing Process | **Mediated ILL/DD** | **User-Initiated ILL/DD** |
|---|---|---|
| Submit Requests | Users | Users |
| Verify Requests | Staff | Users |
| Choose Lenders | Staff/ILL system | System |
| Send Requests | Staff/ILL system | System |
| Receive Material | Staff | Staff |
| Process Material | Staff | Staff |
| Notify Users | Staff/ILL software/ Circulation system | System |
| Distribute/Check out Material | Staff | Staff/Users |
| Generate Overdue Notices, Renewals, Recalls, Invoices, etc. | Staff/ILL software/ Circulation System | System |
| Return Material | Staff | Staff |
| Maintain Records | Staff/ILL software | System/Staff |
| Handle Unfilled Requests | Staff | Users/Staff |
| Solve Problems | Staff | Staff |
| Track Performance and Report Activity | Staff | System/Staff |

**Table K2: Lending Process for Returnables**

| Steps of the Lending Process | **Mediated ILL/DD** | **User-Initiated ILL/DD** |
|---|---|---|
| Receive Requests | ILL System/Staff | System |
| Check for Local Availability | Staff | System |
| Retrieve Material | Staff | Staff |
| Process Loan Requests | Staff | Staff |
| Prepare Material for Shipment | Staff | Staff |
| Generate Overdue Notices, Renewals, Recalls, Invoices, etc. | Staff/ILL software/Circ. system | System |
| Discharge Returned Material | Staff | Staff |
| Maintain Records | Staff/ILL software | System/Staff |
| Handle Unfilled Requests | Staff | Staff/System |
| Solve Problems | Staff | Staff |
| Track Performance/ Report Activity | Staff/ILL software | System |

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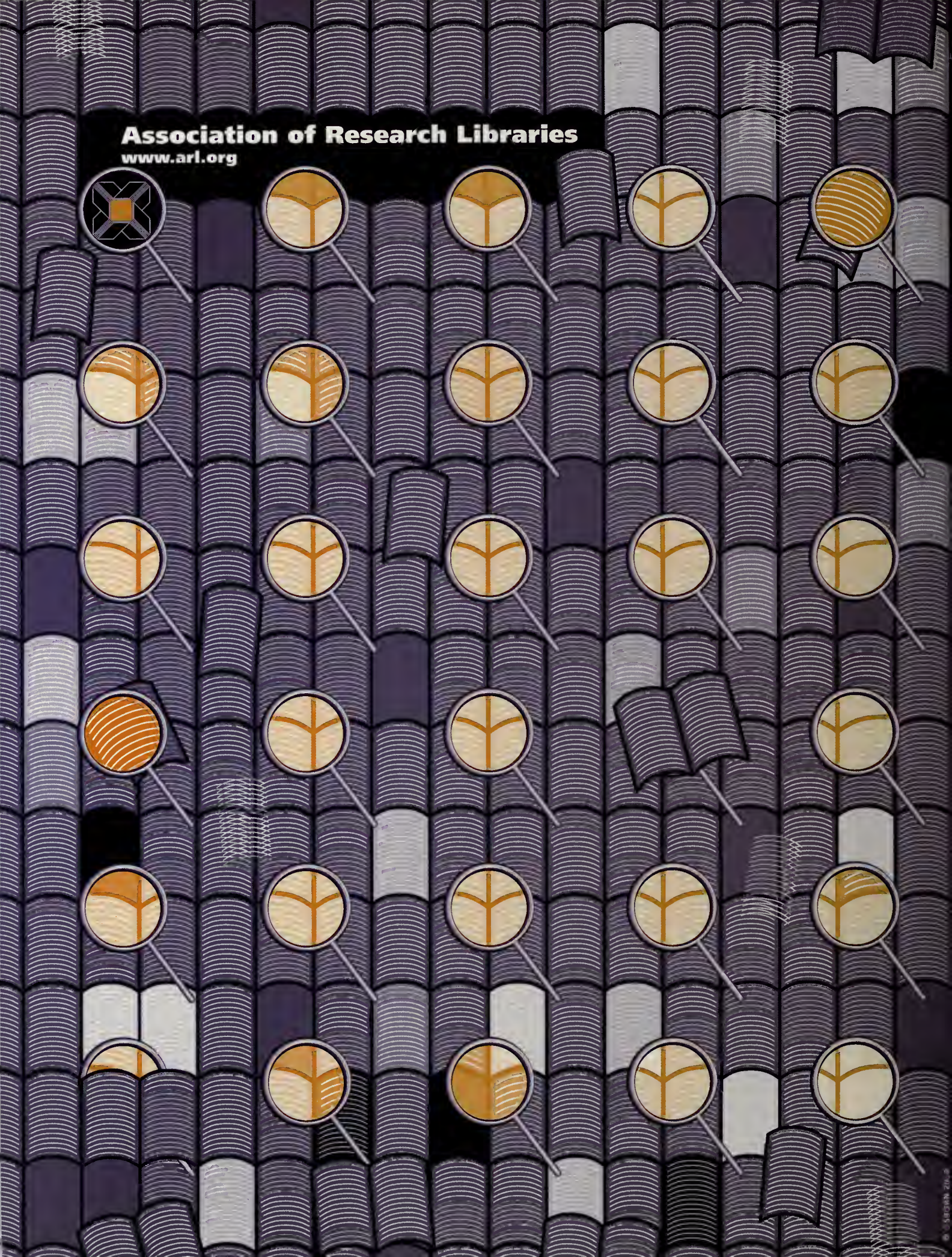
# Assessing ILL/DD Services Study: Mean Performance

| | User-initiated ILL/DD* | Mediated ILL/DD |
|---|---|---|
| Borrowing Unit Cost | $2.39–$14.70 | $17.50 |
| Lending Unit Cost | $3.27–$12.06 | $9.27 |
| Combined Unit Cost | $6.16–$26.76 | $26.77 |
| Borrowing Fill Rate | 84%–90% | 86% |
| Lending Fill Rate | 82%–87% | 58% |
| Borrowing Turnaround Time | 2.5–6.6 calendar days | 7.6 calendar days |
| Lending Turnaround Time | 0.1–1.5 calendar days | 1.5 calendar days |
| Borrowing Transactions | 5,790–37,327 | 16,698 |
| Percent Returnables | 0%–100%** | 44% |
| Lending Transactions | 4,540–30,716 | 41,088 |
| Percent Returnables | 0%–100%** | 45% |

* Includes ILLINET Online, INN-Reach, RAPID, URSA, and user-initiated commercial document delivery (CDD). Loansome Doc is excluded from summary data because only three libraries submitted data. Local document delivery is also excluded from this summary because of the different nature of the service.

** ILLINET Online, INN-Reach, and URSA handle returnable requests, while RAPID and user initiated CDD are designed to handle nonreturnable requests.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