Cost Analysis of Interlibrary Loan (ILL) Services

Health Sciences and Human Services Library
University of Maryland, Baltimore

Na Lin
601 Lombard Street
Baltimore, MD 20201
410-706-6986
nlin@hshsl.umaryland.edu

June 24, 2011

This project has been funded in whole or in part with Federal funds from the National Library of Medicine, National Institutes of Health, Department of Health and Human Services, under Contract No. N01-LM-6-3502 with the University of Maryland Baltimore.

Executive Summary

The Cost Analysis of Interlibrary Loan (ILL) Services was a study undertaken by the Resource Sharing department of the Health Sciences and Human Services at the University of Maryland in Baltimore. The purpose of the study was to determine the costs of borrowing and lending requests, and to make decisions to improve our services in the most economical manner.

The Library hired Mary Jackson from Association of Research Libraries (ARL) as a consultant to design the study. The study tracked all contributing factors in ILL operations for FY2009-2010, with the exception of staff time, which was tracked during the study. The study resulted in the unit cost (average cost per request) of $33.88 for borrowing and $24.54 for lending, where staff cost contributes 76.57% of the borrowing cost and 94.50% of the lending cost. The study also found that staff other than Resource Sharing spend a total of 80% of FTE time supporting the ILL operation. A follow-up study on Docline costs was also conducted, which resulted in the unit cost of $26.00 for both borrowing and lending.

The findings were analyzed and rationalized, and a number of recommendations were made accordingly.

Introduction and Background

The Cost Analysis of Interlibrary Loan (ILL) was a study undertaken by the Resource Sharing department of the Health Sciences and Human Services at the University of Maryland in Baltimore. The purpose of the study was to determine the costs of borrowing and lending requests, factoring in all aspects contributing to the services, and to make decisions to improve our services in the most economical manner.

We were also interested in knowing the cost of Docline requests, in light of the elimination of the national maximum ascertained in the current RML contract. The findings will assist us in the evaluation of the current service charges versus request volume associated with staff resources.

This project has been funded in whole or in part with Federal funds from the National Library of Medicine, National Institutes of Health, Department of Health and Human Services, under Contract No. N01-LM-6-3502 with the University of Maryland Baltimore.

Stakeholders

At the onset of the project, the team identified stakeholders to be the users, the Library, the Resource Sharing staff who were the primary participants of the study, and external clients including Docline and OCLC libraries, all of whom may be impacted as a result of the study.

Scope

This study was to determine the costs of borrowing and lending requests. It does NOT include the document delivery operation that provides service with in-house materials, print or electronic. It also did not look at fill rate and turnaround time as the consultant did for an earlier ARL study, although the methodology of that study applies.

Deliverables

The team also decided on the following deliverables at different stages:

- All required data collected (see Methodology below.)
- Determined costs for borrowing, lending and Docline requests
- An analysis based on the findings
- Recommendations made to the management
- Execute decisions upon the approval of the recommendations (post-study)

Methodology

The study adopted the methodology used in the 2004 ARL ILL Performance Measures Study (see Appendix). It is a simplified version tailored for our study that is on a much smaller scale.

1. Collect direct cost data from the following categories:
    1) Staff (including non-RS as support staff)

2) Network & communication
3) Delivery
4) Photocopy
5) Supplies
6) Equipment, software, maintenance
7) Borrowing Fees

And

The total number of borrowing and lending requests, separately

These direct costs were used to calculate the cost of a filled request (unit cost). To estimate the non-ILL supporting staff's time, an arbitrary allocation of 41% time on Borrowing and 59% time on lending was set, as was done in the ARL study.

Data were collected from FY 2009-2010

2. Track ILL staff time spent on borrowing / lending for 10 business days.

3. Calculate costs using the data in #1 and #2.

4. Review the results, and repeat #1-3 as needed for maximum accuracy.

Timeline

The targeted due date to complete the study was set for May 2011. However, due to the combination of an unexpected leave of the consultant and the follow-up study on Docline, the study was completed in June 2011.

Findings

Direct cost

	Borrowing	% of Total Borrowing Cost	Lending	% of Total Lending Cost
Staff	$121,687.64	76.57%	$158,749.42	94.50%
Network & Communication	$2,168.54	1.36%	$3,120.57	1.86%
Delivery	$709.35	0.45%	$1,020.77	0.61%
Photocopy	$113.89	0.07%	$1,926.68	1.15%
Supplies	$561.98	0.35%	$808.70	0.48%
Equipment, Software, Maintenance	$2,008.65	1.26%	$2,370.25	1.41%
Borrowing Fee	$31,680.50	19.93%		0.00%
TOTAL	$158,930.55		$167,996.39	
Unit Cost (average cost of a request)	**$33.88**		**$24.54**	

Fig.1a. Direct Cost

Direct Cost in Borrowing Unit Cost

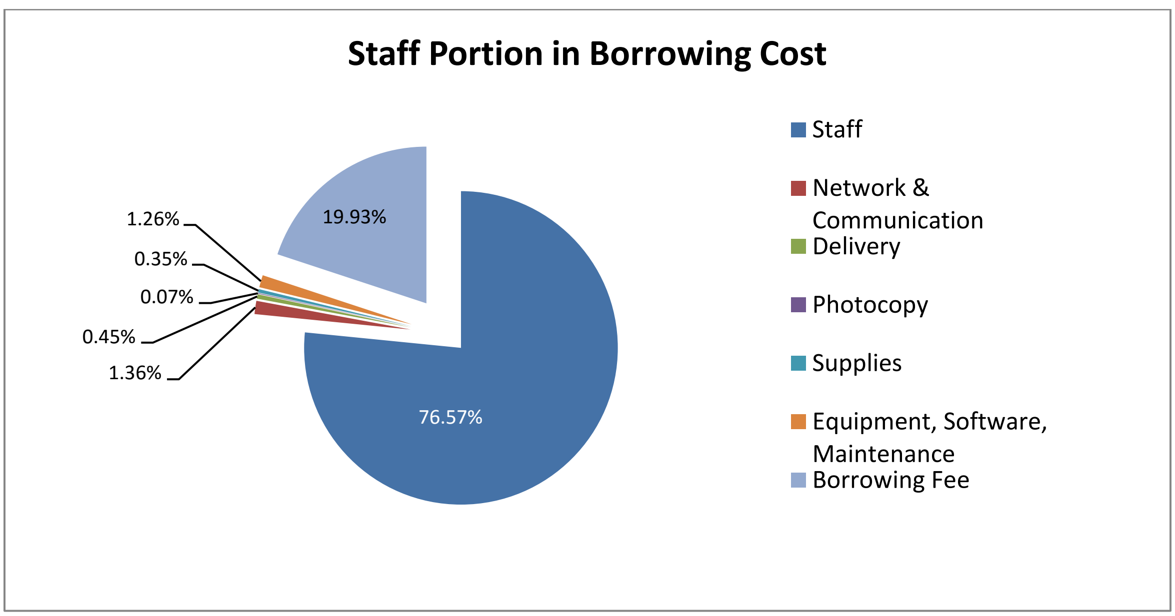

Fig.1b. Direct Cost in Borrowing Unit Cost

Direct Cost in Lending Unit Cost

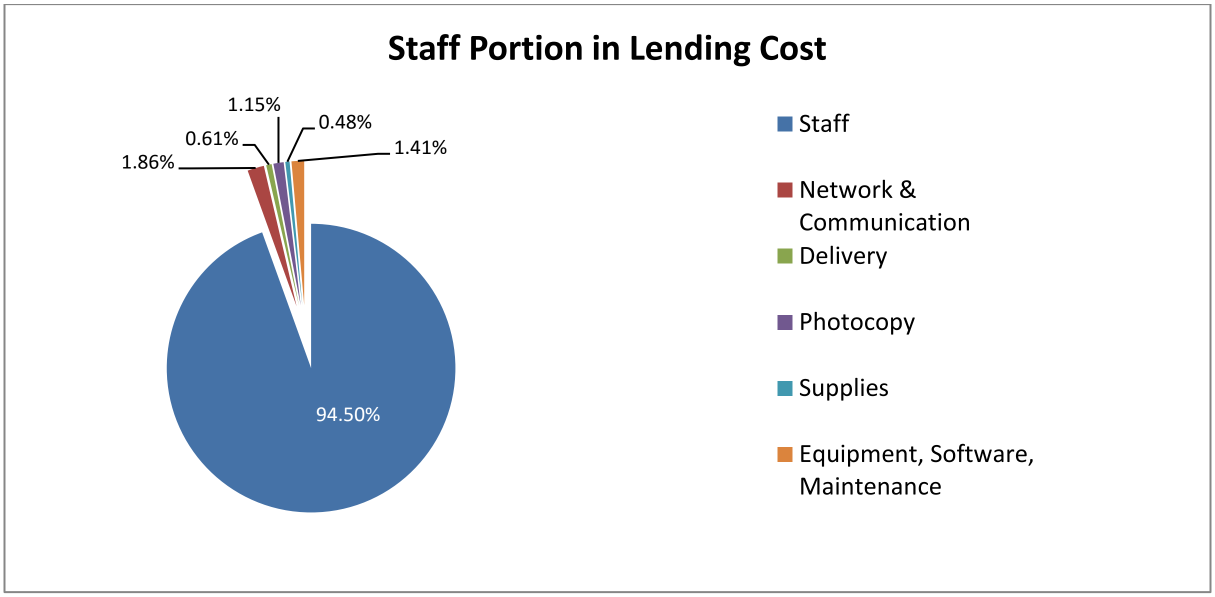

Fig.1c. Direct Cost in Lending Unit Cost

Total Requests and Associated Fees

	Articles	Loans	Total	Fees
Borrowing	4,589	167	4,756	**-$31,681***
Lending	6,431	450	6,881	**$44,719***

Fig.2 Total Request and associated Fees for 2009-2010
**Data collected from IFM and EFTS and ILLiad billing to Non-ETFS & Non-IFM Libraries*

Support vs. Professional Staff Cost

	Borrowing	% of Total Borrowing Cost	Lending	% of Total Lending Cost
Support Staff*	$103,921.24	65.39%	$135,572.00	**80.70%**
Professional Staff	$17,766.40	11.18%	$23,177.42	**13.80%**
Total	$121,687.64	76.57%	$158,749.42	**94.50%**

Fig.3 Support vs. Professional Staff Costs
**Non-librarian staff incl. ILL techs, CATS and Admin*

RS vs. Other Staff Time Spent on ILL

	% Time Spent in ILL
RS Staff	
RB	90%
VC	100%
AC	94%
CS	34%
NL	50%
Total RS Staff Time	**368%**
Other Staff	
BG	45%
JC	5%
LB	19%
PW	6%
SG	2%
TP	2%
RH	2%
Total Other Staff Time	**80%**

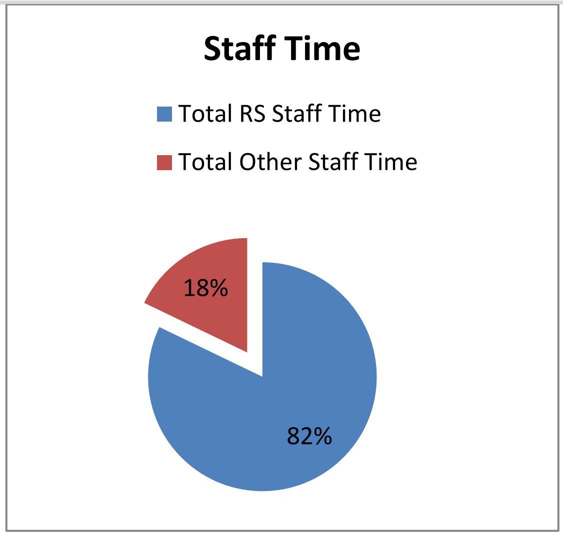

Fig.4 RS staff vs. other staff time spent on ILL

Other Studies

	Borrowing Unit Cost - Average	Lending Unit Cost - Average
University of Maryland, HSHSL	$33.88	$24.54
Medical Library, 2004	$7.62	$5.33
Medical Library, 2005	$25.53	$48.43
Medical Library, 2010	NA	$11.52
Academic and Research Libraries, 2004	$17.50	$9.27
Boston Library Consortium, 2005	$20.64	$11.30
CT Public and Academic Libraries, 2010	$14.93	$7.91

Fig.5 Other Studies

Docline

After receiving the above findings, we requested a follow-up study on Docline cost. Staff members recorded another week of their time spent on handling Docline lending and borrowing requests. Based on these data, in conjunction with the other data collected for the study, the calculated cost for both lending and borrowing requests is $26.00. (Fig.6)

Docline Request Unit Cost	Borrowing	% of Total Borrowing Cost	Lending	% of Total Lending Cost
Support Staff*	$103,921.24	65.39%	$135,572.00	80.70%
Professional Staff	$17,766.40	11.18%	$23,177.42	13.80%
Total	$121,687.64	76.57%	$158,749.42	94.50%
Unit Cost	**$26.00**		**$26.00**	

Fig.6 Docline Request Unit Cost

Interpretation of the findings

Fig. 1a exhibits that the unit cost for Borrowing is $33.88 and $24.54 for Lending. Also observe that the total of borrowing cost is less than the total of lending cost ($158,930.55 vs. $167,996.39), while the unit cost of borrowing request is higher than that of lending's ($33.88 vs. $24.54). This is because each category in the direct costs on lending is higher than that of borrowing's, making lending a more expensive operation. However, because of the higher request volume, the lending unit cost is less than borrowing's. For the same reason, the service charges from lending were able to cover the borrowing costs (Fig.2).

Not surprisingly, staff cost accounts for the biggest slice of the pie. It constitutes 76.57% of the borrowing cost and 94.50% of the lending cost (Fig.1b & Fig.1c). Between support (non-librarian) staff and the professional supervisor, the former takes up 65.39% of the borrowing unit cost and 80.7% of the lending unit cost, and the latter 11.18% of the borrowing unit cost and 13.8% of the lending unit cost (Fig.3). In the 2004 ARL study, according to the consultant, the support staff was 22% of the borrowing unit cost, and 59% of the lending unit cost. The professional supervisor was 17% of the borrowing unit cost, and 7% of the lending unit cost. In comparison, while our professional percentages are within the general ranges of the research and academic libraries, our support staff costs are higher than those libraries. The consultant also provided data from other previous studies to put our data in perspective

(Fig. 5). Bear in mind, however, that these numbers resulted from different times and environments than ours.

We may contemplate the following reasons for our higher unit costs compared to those coming out of the ARL 2004 study:

1. We do not employ students as most of the academic libraries do. A student cost would be much lower than that of a permanent FTE's.
2. We have, according to the consultant, a larger pool of non- ILL support staff in CATS and Admin. Their time spent on ILL totals up to 80%, or 18% of total staff time, almost equivalent to an FTE (Fig.4).
3. Lending requests, especially in the case of Docline, have been consistently decreasing over the years while our headcounts have not.
4. We did not implement unmediated service such as RAPID, for various reasons, as many of the ARL libraries do, which would have cut down the staff time.
5. Certain processes may not be productive. For example, Mary Jackson suggested that we do away with the quality control on materials received from lenders. She argued that if the incoming materials are generally in good quality, we may skip this step since the user will inform us should there be a problem.

Conclusion

The ILL cost study established the average unit costs for both borrowing and lending requests processed in the fiscal year of 2009-2010. The unit costs of Docline borrowing and lending request were also ascertained through a follow-up study. Because it was a single institution study, the study was not intended to be benchmarked with peer libraries. The consultant provided some contextual data from her previous studies attempting to put our data in perspective, and our numbers appeared to be on the high end (Fig. 5). However, since those studies were done in times when the ILL landscape was quite different and the subject nature of most of the libraries studied bore little resemblance to ours, it is not appropriate to do an apple-to-apple comparison. Although there were three studies done on medical libraries, the sample size was too small to evince our position in the spectrum of ILL operations among health sciences libraries.

Despite the fact that the study was less quantitatively indicative of our ILL position in the health sciences library community, it's clear that we have room to bring our costs down through a number of tactics.

1. An RML sponsored ILL cost study across regional health sciences libraries –
   This would produce a benchmark based on a much more comprehensive dataset generated from comparable environments to pinpoint our position. It would also allow us to do an apple-to-apple comparison to identify our strengths and weaknesses and, consequently, take targeted actions. The previous ARL studies done in different times and environments only provide a landmark for us to get an idea, however opaque it is, as to where we are in terms of the costs. The consultant agreed with this observation.

2. Increase services charges –
   We may consider increasing ILL service charges, especially for Docline requests in light of the elimination of the national maximum ascertained in the current RML contract. The challenge is to find the optimal increase amount that will achieve more cost recovery and yet be comparable to what other Docline libraries decide should they choose to increase their charges. The same principle applies to OCLC libraries. A drastic increase of service charges will only alienate fellow libraries and our own constituents, especially in this economic climate, and bring down the number of requests, which in turn drives up the cost. In addition, there are other factors to consider such as our mission, best practices, relationship management, etc.

On another note, starting July 1st 2011, we are imposing a $5.00 surcharge per Docline request if the borrowing library is not a member in the NLM Electronic Fund Transfer System (EFTS). The decision is two-fold: To partially recover our costs resulting from invoicing and payment processes and to encourage EFTS participation that is more cost efficient.

3. Repurpose staff –

   While raising charges moderately will bring the costs down somewhat, it will not address the issue entirely since staff cost is the major contributing factor to costs (Fig.1b & 1c). To utilize staff resources conscientiously is the most efficient way to reduce the overall ILL cost. Although ILL requests have been gradually decreasing, our documents delivery requests are going up consistently, largely due to the free student service started two years ago. Starting this year, we have transferred some of the staff time from ILL to document delivery in order to address the resource need. More significantly, with the introduction of the Digital Archive service, we have further redefined staff roles and responsibilities to cover both fronts. Starting FY2011-2012, one FTE will be pulled out from lending to devote 50% of her time to the Digital Archive and the other 50% to documents delivery. Another FTE will spend about 25% of her time on digitization projects for the Archive. This resource reallocation will not only cut down 1 ¼ FTE in ILL and consequently the cost, but also effectively balance service demand and supply within Resource Sharing. At the same time, a team with more diversified skillsets will emerge by taking on new responsibilities.

4. Process improvement –

   Increasing productivity allows staff to not only do more but to do more value-added work. We have implemented a number of process improvements this year. For example, we automated metrics collection, eliminating at least 10% of staff time on doing it manually. In addition, we put meaning into these data through analysis to help us measure performance, identify gaps, track trends, and take appropriate actions accordingly. Instead of pulling e-journal articles or placing book holds for students, we train them to “do-it-yourself.” We are transforming our pay per view model from purchasing from individual publishers to “one-stop shopping” at the Copyright Clearance Center through ILLiad. We are also considering creating a new student request form separate from the current “catchall” form to address student needs and eliminate confusion that delays the process; to investigate the OCLC's direct lending service that identifies local holdings on-the-fly, thus eliminating the need to search multiple sources; to enable ILLiad billing for borrowing that will cut down administration staff's time on generating ILL invoices.

We will continue process improvements through knowledge sharing and partnership with the University System of Maryland and Affiliated Institutions (USMAI) consortium, other library communities, vendors, as well as our staff.

5. ILLiad Tune-up –

   We have been using the same setups in ILLiad since its installation in 2003. We designed workflows based on the services and needs at that time. Eight years later, it is time to re-evaluate our process and eliminate unnecessary steps that bloat the system and slow down the processing. It may be useful to having the ILLiad vendor, Atlas, come on site to tune the system based on our needs and practices. Although there is a fee for this service, it is worth considering down the road.

6. Student workers –

   While there is always room for process improvement, staff cost still remains an issue that needs to be addressed. A best case scenario would be to use experienced FTE staff to do more challenging and value-added work, gradually moving from doing requests to managing requests such as troubleshooting, researching and working on projects. The "do" part such as photocopying and routine request processing could be done by student workers at a lower cost. In the larger picture of the division or the library, this shift would also provide staff with opportunities to acquire new skillsets, as in the case of the Digital Archive, and help relieve certain bottleneck situations due to resource crunch.

An added value in determining our actual costs for borrowing ($33.88) is the fact that we can use that number to benchmark our e-journal usage. Any subscription per use value over this threshold may be considered for cancellation. This just-in-time, rather than just-in-case, approach will help us deal with the budget crunch.

Based on this cost analysis study and suggested cost cutting tactics, there are several possibilities for management to explore in order to make the ILL service more efficient and economical.

Appendix

1. General Instructions for NNLM Cost Study
2. Mediated Worksheet