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HKALL and ILLIAD: The Search for Improved Interlibrary Loan

Gayle R. Chan, Loletta Chan, and Anthony Ferguson

University teachers and students want information when they want it. This is why the web is so popular because it provides instant gratification. For academic researchers, the ideal information supply system provides quick access to a lot of material, and quick delivery of what they want from among all the available choices. If the researcher personally has many books, or if their friends have what they want, that is ideal because it meets the instant gratification criteria. If they don't own what they want, or if their friends lack these materials, the next best thing is that their library should own it. If the library doesn't have it, the patron becomes frustrated, especially if they now need to wait a week or more for their library to borrow what they need.

Libraries have long had interlibrary loan programs to borrow books from other libraries in behalf of their patrons. A good interlibrary book borrowing system enables the library to get what the patron wants fast. The question is, what is fast? Google has defined fast: instantaneous. A library's non-ILL definition of fast ranges from the amount of time that it takes the patron to go from the catalogue terminal to the shelf, to the amount of time it takes the library to retrieve what patrons want from their remote storage collection -- since most libraries these days don't have enough storage on campus space. In this latter case, the definition for fast might mean 24 hours, e.g., you ask for it at 2 PM today, you expect it by 2 PM tomorrow. One might propose, therefore, that the definition of fast for the ideal ILL book borrowing system might be at least as good as for the amount of time it takes for a library to retrieve from its own remote storage collection: you ask for it today, you get it tomorrow.

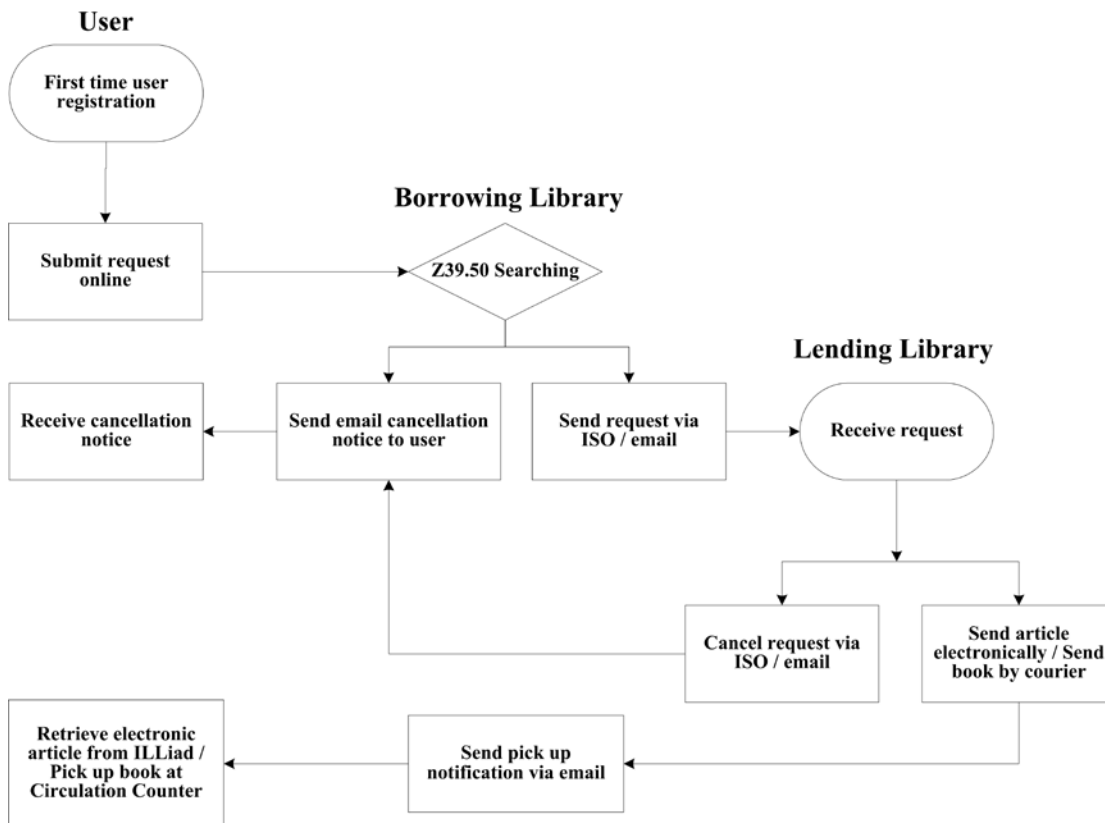
The challenge for libraries becomes how to achieve this speed of delivery? The purpose of this paper is to discuss two alternatives, though not necessarily conflicting systems designed to improve the speed at which libraries are able to get the patron what they want into their hands as quickly as possible. In the first section of this paper Loletta Chan provides information on ILLiad, a software system designed to facilitate ILL and which is now used by six of the eight Joint Universities Librarians Advisory Committee (JULAC) libraries. In the second section Gayle Chan and Anthony Ferguson describe the HKALL project, another software system that takes a completely different approach to achieve the same objective. They will explain why the HKALL project was pursued, why the Innovative Interfaces UIDD product was employed, describe what has been learned thus far in the experiment, and then discuss the issues that remain to be dealt with by JULAC before a final decision can be made to implement this system.

(Section One) ILLIAD: An Interlibrary Loan Management System

ILLiad (InterLibrary Loan internet accessible database) was developed at Virginia Polytechnic Institute and State University as a borrowing client system. It has been expanded and further enhanced by Atlas Systems – the software developer. In June 2000, OCLC (Online Computer Library Center) became the exclusive distributor with Atlas Systems continuing to develop and support the software.

OCLC ILLiad is one of the high use interlibrary loan (ILL) management systems and currently provides 401 libraries with streamlined workflow enabling ILL staff to manage all borrowing, lending, and document delivery functions through a web-based user interface. With the ISO (International Organization for Standardization) ILL capability, it is a truly “inter-lending” system with the ability to transmit and receive interlibrary loan requests via the ISO ILL protocol. Its useful features allow a paper-free environment in which users may submit interlibrary loan requests online, track their request status and retrieve their electronic articles from anywhere they have access to the Internet. It helps ILL offices go paperless and increase their overall efficiency. A new technological door was opened for us and it has changed the way we manage ILL tasks and services.

TABLE 1. ILLiad workflow at Hong Kong Baptist University Library



ILLIAD: New Collaborative Effort Among Hong Kong libraries

With the goal of enhancing the ILL services to the users and facilitating resource sharing amongst its members, Hong Kong Baptist University Library actively searched for a system with document delivery functions and better ILL management capabilities at the end of 2001. Although the general impression of the ILLiad system was positive, there was a major concern that we wanted to first use it on a test basis. The successful negotiation of a free trial use with OCLC on ILLiad in January 2002 set the stage for collaboration with interested libraries in Hong Kong. With interest expressed by two other libraries, Chinese University of Hong Kong and the University of Hong Kong, an evaluation team was formed as a collaborative partnership to make actual test use of the system. To minimize the initial investment cost, Hong Kong Baptist University provided the test server for the trial. Consequently, the three partner libraries were able to make working comparisons of its functionalities with extant processes.

To better understand how the users feel about the new system, comments were collected from them as well. During the trial period, Hong Kong Baptist University Library staff also conducted a demonstration to share their testing experience with City University of Hong Kong ILL staff. After a 3.5-month trial, Chinese University of Hong Kong, University of Hong Kong, Hong Kong Baptist University, and City University of Hong Kong decided to purchase the system (the rationale for the purchase will be elaborated under the Section "Success of using ILLiad"). Another benefit was that the four libraries were able to negotiate for a group training program with Atlas and thereby lower the training cost for individual libraries. The system went live in September 2002.

Today the system has been widely adopted by altogether six Hong Kong academic libraries, including two new partners - Hong Kong Institute of Education and Lingnan University Libraries.

ILLIAD: Working Collaboratively is Fun

It was fun to have the opportunity to work with our partners in testing the system together. More importantly, the collaboration allowed us to explore the system fully over a range of functions. The collaborative effort allowed all the partners to send and receive interlibrary loan requests by ISO protocol and messages to and from cooperating libraries. We also gathered problems encountered and forwarded them to OCLC for solutions. Our collaborative efforts focused on brainstorming, streamlining ILL procedures, evaluating, overcoming obstacles and developing plans for implementation of the new system. We learned that good communication and mutual support were critical elements of effective collaboration. In addition, it offered a good opportunity to learn to see things from a different perspective. Much time was saved during the problem-solving process. The advantage was not only cost-saving but all partners could learn from each other as well. With the successful implementation of ILLiad, existing services were enhanced, current practices were streamlined, and innovative solutions were developed.

Success In Using ILLiad

The user-friendliness of ILLiad benefits both users and ILL staff. The electronic document delivery feature is a main factor for improved turnaround time. Articles are now delivered to users' desktop in 4 days as compared to 7 days before. Another immediate benefit we found from using ILLiad was that it only takes 6 hours instead of 1 day previously to have the loan requests sent to the lending libraries. With ILLiad, the whole process helps save staff time in filing, producing slips, typing email notifications and from making time-consuming phone calls. Moreover, the features of sending and receiving ILL requests via the ISO ILL protocol among other local ILLiad libraries and sending customized email notifications to users help to speed up the process. Because our work is now more efficient and streamlined, we can handle more requests with faster turnaround time without additional staffing. In addition, our staff now has more time to work on difficult transactions and take up other responsibilities.

The Hong Kong Baptist University Library has received many compliments from its users, who find ILLiad easy and simple to use. They like the features that allow them to track their request status and retrieve the electronic documents online by accessing the user interface without waiting for paper copies. Some faculty members commented that the turnaround time for obtaining ILL materials is much shortened and it has become so convenient to view their articles in PDF format online. One faculty member also appreciated the capability to view his previous requests. In short, ILLiad has enabled the Library to provide faster, and more cost-effective ILL service to our users.

With the implementation of ILLiad, the number of requests rose by 34% during the same period in 2002/03.

TABLE 2 Total Number of Requests Received
(Between December and November in 2001/02 and 2002/03 respectively)

	Dec 2001 – Nov 2002	Dec 2002 – Nov 2003	Change
	Online ILL System	ILLiad System	
Total Number of Requests	10377	13870	+34%
Borrowing Requests	5307	7811	+47%
Lending Requests	5070	6059	+20%

TABLE 3 Usage of ILLiad System by User Categories
(December 2002 – November 2003)

Eligible ILL Users	No. of Requests Submitted	Percentage
Total	7811	100%
Staff Members	4519	58%
Postgraduate Students	2373	30%
Final Year Undergraduate Students	919	12%

Collaboration is a significant factor in improved ILL service and staff efficiency. This effort will not stop. In future, we will continue coordinating testing and evaluating of new releases, procedures and initiatives. This experience serves as a positive model of library cooperation benefiting all parties concerned.

(Section Two) HKALL

HKALL is the name for a pilot project being conducted by three of Hong Kong's Joint Universities Librarians Advisory Committee (JULAC) libraries: The University of Hong Kong, City University, and Lingnan University libraries. The name is the acronym for Hong Kong Academic Library Link (香港高校图书联网 or 港书网). The purpose of the HKALL project is to experiment with the chosen "user-initiated document delivery" (UIDD) system, INN-Reach, in behalf of the eight JULAC libraries.

A. Why Pursue HKALL?

Traditionally, the steps involved in a successful interlibrary loan transaction are fairly simple:

1. Patron identifies what they want and determines it isn't held at their library.
2. Patron asks library to borrow the item for him/her by filling out a request.
3. Library verifies the item exists.
4. Library determines what library owns the item.
5. Library requests the item from the owning library.
6. Owning library verifies that they own it and notifies the requesting library whether the library will send the item or not.
7. Owning library mails/sends the book.
8. Requesting library receives the book and notifies the patron to come get the book.
9. Patron retrieves the book.

Simple or not, each of these steps involve patron and staff time, and time costs money. In recent years, a variety of things have been done to speed up the process. One of the earliest was to speed up step 7: Owning library mails/sends the book. Instead of using the postal system, some library consortia purchased their own delivery trucks or hired a private delivery company to deliver the books. Hong Kong's academic libraries began this latter practice many years ago. In this case, costs are not reduced but better speed is achieved. Another step taken by many consortia was to develop or purchase online ILL patron request systems. ILLiad, the topic of the previous section, is a great example of this innovation. With ILLiad the patron doesn't have to go to the library to fill out a form. Moreover, the library doesn't have to re-key the information about the desired book. ILLiad shortens time spent by the patron in step 2 in which the patron asks the library to borrow the item for them and it facilitates the work of the library in steps 3, 4, and 5: verification, determining who owns the item, and making the request. ILLiad makes the library's work easier, but the staff-assisted or staff-mediated system is still quite labor and time intensive.

A more recent innovation has been the introduction of “user initiated document delivery systems” (UIDD) ¹, which further accelerates the procedures of interlibrary resource sharing among institutions. UIDD systems can process patron requests for both book and journal articles. This part of the article will focus on INN-Reach, a user-initiated book borrowing systems. A user-initiated system greatly streamlines the whole ILL operation.

The concept of user-initiated (or unmediated) borrowing via a shared online catalog and circulation system is a response to the growth in patron demand for resources and users’ expectation for faster and larger volume of information. The process is perceived to be more efficient if self-initiated. Users exercise the responsibility of searching the holdings in a catalog and borrow the item on “do it yourself” basis, regardless of its location. Since the service is web-based, it is so accessible from any workstation with internet connection. Once the request is initiated, the lending library receives notification, pulls and checks out item, and transit the requested item to user’s home library. The system automatically blocks locally owned items. Because it is so user-friendly and easy, libraries adopting UIDD usually experience a significant increase in interlibrary loans, while much less professional time is spent on processing requests (Preece and Kilpatrick, 1998). Statistics from studies in USA show that costs are up to ten times less than traditional ILL (Brandau, 2003). Essentially, libraries are pooling resources to give equal access for all users of the consortium member libraries through a union catalog and their circulation systems.

Nitecki and Renfro also documented the proven success of UIDD ILL method in a case study of the Borrow Direct service offered at seven private universities in the US (Brown, Columbia, Cornell, Dartmouth, Pennsylvania, Princeton, and Yale). Positive results from this case study illustrate that the initial service goals of better access in terms of improved turnaround time, and significantly lower transaction costs for both lending and borrowing were met (Nitecki and Renfro, 2001). Nitecki concludes that the Borrow Direct service initially provided as a solution to the growing demands and rising costs of ILL, also addresses the reality that no library can afford to provide its users all the needed resources on its own.

In April 2002, the JULAC libraries formed a Task Force to seek a desired system to facilitate UIDD ILL with the following perceived benefits:

- Expedited access to JULAC partners’ collections, which allows user to initiate an ILL request at the click of a button.
- Expedited response and delivery to make access to research resources more efficient and satisfying for the user.
- Minimized role of intermediary—routine tasks are performed by the system, including selection of best lender and provision of usage statistics and automated reports.

¹ While UIDD systems can refer to the delivery of both books and journal articles, HKALL refers to the delivery of books only.

The purpose of the HKALL project (<http://innreach.hku.hk>) is to facilitate and test the feasibility of user-initiated (unmediated) interlibrary loan among the participating libraries. In this experimental pilot project, users initiate their own loan request with minimal staff mediation to obtain a needed title. This accelerated procedure expedites interlibrary resource sharing among institutions.

B. HKALL: Why employ Innovative Interface's InnReach Product?

Because of the seeming efficiencies of UIDD systems, JULAC's libraries decided to determine which of the available systems were best suited to their needs and then to conduct an experiment to see if the best system was able to help JULAC libraries better meet patron needs. Because there were several possible systems, the task force, charged with locating the best system, established the following criteria that had to be met (Task Force Final Report, 2002):

- System must accept user initiated online ILL request
- System must support unmediated ILL requests directly from users to lending libraries, i.e. user-initiated direct borrowing.
- System must support monograph loans
- System must automatically check holdings of local collection against local incoming ILL requests, and block if locally owned
- System must support CJK characters

Journal article delivery is not made a requirement for the chosen UIDD system, because it is not the intention of the Task Force to implement unmediated article delivery. The reasons are similar to the concerns of other consortia such as OhioLINK (Orbis, 1999): copyright clearance and potential copyright fee, possible need to restrict to faculty/postgraduates, reliability of serial holdings statement, preventing requests when there is an electronic version available, and making the processing efficient for staff. Consortia generally prefer to expend funds for joint-licensing of electronic-resources to make available more full-text resources for immediate desktop-delivery rather than pursuing user-initiated article delivery, due to the labor-intensive process involving copyright and holdings verification. Anita Cook, as director of OhioLINK, commented that even with advanced systems that enable electronic delivery of articles which meets user demand for desktop delivery, the cost may turn out to be prohibitive if the volume is high (Cook, 2000).

The UIDD ILL systems assessed were: INN-Reach, IMPACT/ISO, Library Request, RLG/ILL, URSA, VDX, and Wings. Other systems (ILLiad and Clio) were not considered for UIDD because of its dependence on OCLC, a bibliographic utility which charges for transactional costs and uploading costs of bibliographic records. The final three systems short-listed for further review of their features and functionalities as well as cost implications were INN-Reach, Library Request, and VDX. The final system recommended to JULAC was INN-Reach.

INN-Reach not only met all of the mandatory criteria, but it was also the only system experienced in handling CJK records, although the cost implication was by no means small. The estimated start up cost is about HK\$.55M per institution based on 8 libraries. This one-time cost includes the server, INN-Reach central hardware and software and local system software and installation. In addition, there is annual maintenance fees for server, central and local system software estimated at HK\$57,000 per institution.

Despite the cost implication, the Task Force decided that Innovative Interfaces' INN-Reach system was the best available system for the following reasons:

1. The Inn-Reach system automatically creates a complete union catalogue enabling the user to completely search the holdings of all member libraries using the same commands, with all the same functions available, that they have already learned
2. The Inn-Reach system can already handle CJK records.
3. Users can track where their request is all along the way and are automatically informed when their book arrives.
4. The Inn-Reach system, because it was created by the same company that developed each of the JULAC libraries' circulation systems, meshes exactly with each library's circulation system:
 - Detects whether the owning library will lend this book;
 - whether the book is already in circulation and users request only available materials or place a hold on items;
 - authenticates the patron;
 - adjusts the circulation period to the patron's circumstances;
 - checks out the book to specific patrons, and not to their library
 - all circulation functions such as charge, discharge, renewal, patron reminder notices, fines, returns, billing, etc. are exactly the same as already being used; and
 - generates use statistics
5. The INN-Reach system uses the circulation module to enable sharing or borrowing of materials, and because transactions are integrated into the circulation module, circulation staff processes the request. The overlap workflow required by mediated ILL process is eliminated.
6. The INN-Reach system tracks usage and generate reports for analyzing user request at the title level, activities including requests and check-outs between the local system and each of the other systems.
7. The INN-Reach system links libraries via a union catalog server, which determines the lender based on item availability and load balancing; once the lender is determined, a message is sent to the requester's systems from the union catalog resulting in a temporary records being created in the lender system. The lender systems then page and circulate the item within its library systems. If lender cannot supply, a cancellation will be generated and the union catalog will attempt to find another lender.
8. Requests are tracked using temporary records retained on the local integrated library system until the borrow transaction is completed.

9. All messaging between systems is over the network and reflects record updating in real time.
10. Patron has the option to checkout/ borrow item on location;
11. Request—user verification, feedback of successful request in less than 5 seconds; transactions send in real time. Temp records are created immediately in lender's systems; tracking of status by patron is instantly upon placing request. Request transmitted immediately boasting 24 hour turnaround time. Patron picks up item within 3 days at circulation.
12. Entire process is unmediated with a staff mode option for staff to place request on behalf of a user (specific lender may be selected in this option)

C. The HKALL Experiment: What We Have Learned Thus Far?

Cooperation is work. Once the decision had been made that the Inn-Reach UIDD system was the best choice among the available systems, the question was then which of the eight JULAC libraries would experiment with its use. Negotiations with the vendor proposed that upwards of four libraries could try it out for nine months. In the end, only three libraries chose to take part: The University of Hong Kong Libraries (HKUL), City University of Hong Kong, and Lingnan University. Altogether their holdings include more than three million catalogued volumes. These three libraries began by establishing an implementation task force, and went through all the same steps that would have been required for the entire consortium:

- Set-up of hardware
- Complete Systems Worksheets (agreements governing the loading of union catalog)
- Complete Circulation Worksheets (agreements governing the circulation of materials and patron types/privileges, loan rules, etc.)

One of the first lessons learned was that collaboration was a time-consuming activity. While the above mentioned three activities might seem simple, it took the participants many hours of work to develop policies that all three libraries could support. The actual experiment began on February 1, 2004 and will run up until October 31, 2004.

ILL traffic increases. The results of employing INN-Reach have been dramatic. If we compare borrowing and lending statistics using INN-Reach and non-INN-Reach ILL for the same periods of time in 2003 and 2004, we find that INN-Reach borrowing increased by 447% and lending by 394%.

TABLE 4 HKUL Before and After INN-Reach ILL Traffic

	Before Pilot (1Feb - 12 Apr 03)	HKALL INN-Reach Transactions	Percent Change
Borrow from HKALL Partner Libraries	118	645	447 %
Loan to HKALL Partner Libraries	245	1210	394%

Some might suppose that the reason why HKUL borrows and lends so much more with its INN-Reach partners is simply because this traffic has been redirected from its other Hong Kong partners. Yet, the data shows that HKUL’s borrowing from the other libraries in Hong Kong has not gone down:

TABLE 5 HKUL Borrowing From Non-INN-Reach Libraries

Lending Library	Before Pilot (1Feb - 12 Apr 03)	Pilot Period
CU	216	213
HKIED	39	75
HKBU	152	178
HKP	65	100
UST	76	110

A significant portion of the increased amount of ILL traffic is, however, because under INN-Reach undergraduates are allowed to use ILL – whereas before they were not. The following table shows that HKUL undergraduates borrowed 361 items and we lent 799 items to undergraduates at the other two institutions:

TABLE 6 HKALL Transactions by Patron Type

	Before Pilot (1Feb - 12 Apr 03)	HKALL INN-Reach Transactions (Percent of Total Transactions)			
		Staff	Post-grad	Undergrad	Total
Borrow from Partner Libraries	118	90(14%)	194(30%)	361(56%)	645
Loan to Partner Libraries	245	242(22%)	169(17%)	799(78%)	1210

Nevertheless, not all the traffic was for undergraduates. HKUL staff and postgraduates accounted for 44% of the borrowing and partner readers from these groups accounted for 39% of the items lent by HKUL.

Users are satisfied. User satisfaction has so far been very positive. “HKALL was great” was a comment received from a recent HKUL library-wide user survey. An undergraduate exchange student who is very familiar with this service at her home university expects to find such service here and commented that it is indeed necessary even for undergraduate level to have this access beyond the local library. When libraries are unable to purchase everything users require, users appreciate gaining access to more extensive and diversified resources. Users also appreciate being able to “DIY” – do it yourself to gain the quickest to the wanted material.

Net borrowing is a problem. In most ILL systems there are net borrowers and net lenders. In HKALL City University Library is the most significant net borrower, with HKUL and Lingnan University being net lenders (See Tables 7, 8). ILL cooperatives

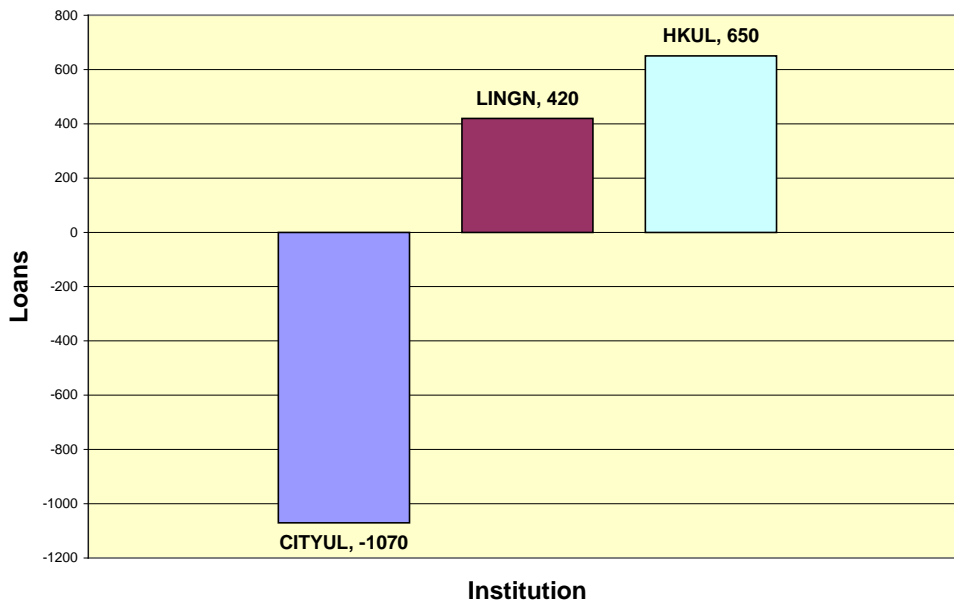
have dealt with this problem in two ways: charge net borrowers a fee which is then paid to the net lenders; figure out a way to balance the load. It is interesting to note that in the case of HKALL, the largest and smallest libraries are both net lenders. Using the INN-Reach software, the consortium has not adjusted the settings to insure that whenever City University and another library have the same item requested by a user, the request will go to City University in order to try and achieve a greater balance within the system.

TABLE 7 % of Borrow request/Loan of Total HKALL transaction (1 Feb to 20 Apr 2004)

Institution	Loan %	Borrow %	Ratio
CITYUL	690 (23%)	1760 (59%)	0.39
HKUL	1410 (47%)	760 (25%)	1.86
LINGNL	910 (30%)	490 (16%)	1.86
Ttl B/L transaction	3010 (100%)	3010 (100%)	

TABLE 8 Net Loans (Feb 1 – Apr 20, 2004)

Net Loans (Feb 1 - Apr 20, 2004)



Thus far, we do not have sufficient statistics to analyze the degree to which HKALL has improved the speed with which users are able to obtain the materials they request.

D. Issues For Further Study

HKALL is an experiment. Before JULAC's libraries can make a final decision on whether it should be employed system wide a number of questions/issues need to be resolved:

1. Does the level of increase in ILL traffic produced by this UIDD warrant the extra expense?
2. Did the system increase the speed of access?
3. Was the amount of standardization in circulation policies among the participating libraries acceptable?
4. What impact did this UIDD system have upon each libraries traditional interlibrary loan operations? Those using ILLIAD?
5. Did the system permit the balancing of borrowing and lending? If not, what should be done?
6. Who benefited most from the system on the basis of library size, enrollment, borrower's status, level of collection, etc.?
7. Should JULAC decide to implement Inn-Reach system-wide, where would the money come from?
8. Innovative's INN-Reach system is not ISO compliant. Does this matter? Standards-compliant distributed ILL systems allow libraries to choose different system platforms that meet local needs and at the same time allowing the different systems to interact seamlessly (Krall, 2000). Currently this doesn't matter for Hong Kong's JULAC libraries since they all use III. Is it important in the longer run?

Conclusions

We began with the challenge of all ILL systems: how can a library increase the speed at which books can be borrowed from another library to meet users' needs? Two systems, both of which improve greatly the speed of delivery compared to traditional paper form-based ILL were discussed. Both systems employ the same courier system to move the books from the lending to the borrowing library. How do they differ? ILLiad focuses on helping the ILL department speed up its work by pushing some of the work on the patron and turns the whole process into a greatly streamlined paperless enterprise. INN-Reach tries to remove the library's staff from the picture as much as possible:

TABLE 9 INN-Reach versus ILLiad

Process Step		ILLiad	INN-Reach
Find	Patrons identify what they want	Patron	Patron
	Resource owner is identified	ILL Staff	Automatically
Request	Request of lending library is made	ILL Staff	Automatically
	Lending library decides if it can comply		
	Item is fetched from shelf	ILL Staff	Circulation Staff
Borrowing	Item is checked out to borrowing library	ILL / Circulation Staff	Circulation Staff
	Item is shipped	Courier Service	Courier Service
	Item is received	ILL Staff	Circulation Staff
	Patron is notified	ILL Staff	Automatically
	Item is checked out to patron	ILL Staff	Automatically
	Patron returns item and borrowing library checks it in	ILL Staff	Circulation Staff
	Item is shipped	Courier Service	Courier Service
	Item is returned to lender	ILL / Circulation Staff	Circulation Staff
	Item is checked back in	ILL Staff	Circulation Staff

Both systems do speed up the process, but ILLiad remains more staff intensive than INN-Reach. If INN-Reach is less staff intensive, and therefore judged to be quicker and cheaper to operate in the long run, can a library do without ILLiad? The answer to this question is a simple, but resounding, NO!

- No, because INN-Reach can only provide those things owned by other INN-Reach libraries. There will always be needed items that can only be provided by libraries outside the INN-Reach sphere.
- No, because some users have become used to the Libraries doing all the work for them and simply want to drop off some forms at the ILL office and ask that they do all the work.
- No, because sometimes the patron only has partial bibliographic information and it takes the trained ILL “detective” to discern what is really wanted and how to find it in the databases that they are trained to use.

The two systems are therefore complimentary.

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