

Interlibrary loan and document delivery : a new deal in the "bid deals" era

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Introduction

A precise terminology concerning Interlibrary Loan (ILL) and Document Delivery (DD) has not yet emerged in the Library profession ([Line](#), 2003), but managing this service in an efficient way is one of the most challenging tasks for any medical library today. The enormous increase in electronic journal subscriptions taken out as packages by university libraries and the open access (OA) initiatives, has led many professionals to predict the irreversible decline and fall of document delivery services – the availability of online full text articles being considered as a substitute. However there is no sign yet that patrons' needs are completely covered by electronic subscriptions or OA articles.

There is no doubt that statistics from many medical libraries show that requests have certainly plummeted since 1996 ([Robertson](#), 2003), but they have now stabilized. Besides, if the overall number of requests has fallen, the users' expectations, particularly in the medical field, have increased. Users want simple procedures to place order on the web, if possible directly from bibliographic databases. With the electronic subscriptions, patrons are used to immediate satisfaction - that is to say very short delays between the discovery of a reference and the access to the full text. Users also expect good copy quality, if possible electronic format, without showing much concern about copyright issues. At the top of this, they expect no charge for the delivery of articles, since they are not price conscious when they access a licensed electronic journal. The attitude of the ILL/DD staff has also changed. Many library tasks have long been assisted by powerful and integrated systems, but the ILL/DD workflow has often been only partially assisted by different applications. This resulted in fragmented processes, repetitive tasks, a lot of clerical work, especially in terms of re-typing of information, a totally incongruous activity today with the technology at hand. Even if there is a downturn in numbers of requests, there is no reason that work environment should not be optimized with the incorporation into the ILL/DD operations of recent developments in the web technologies such as Open-URL, web services, etc. In order to deal with these needs at different levels, medical libraries today have to simplify procedures, optimize efficiency, while of course minimizing costs.

In 2005, the Medical Library of the University Hospital Lausanne decided to address the issue of maximizing efficiency by redesigning the ILL/DD process. The global aim was to manage all ILL/DD activities online, with minimal intervention from the initial stage of the patron requesting the item to the time the end user receives the document. However the idea of a totally unmediated service was rejected. Unmediated solutions enable the users to select themselves the provider, to receive directly the material, and even to pay. In the application described below, the library remains the mediation center for the requests. The objective of an automatically mediated ILL/DD service was successfully achieved by developing a local web-based application for monitoring the processing of requests. However the process could be even more efficient if supplying libraries - and their ILL/DD management systems - were more interconnected.

Background to the University Hospital Library, Lausanne

The library is located on the ground floor of the University Hospital ([CHUV](#)), Lausanne. It is a central library serving 1'100 medical students, 900 clinicians working at CHUV, along with 2'300 nursing staff members.

With more than 40'000 patients treated per year, the University Hospital is one of the 5 University Hospitals in Switzerland and provides care and treatment to meet the health-care needs of almost 600'000 people.

The [University Hospital Library](#) offers 130 seats, 40 public computers and a multimedia center. Its collections cover all the main clinical disciplines. It currently subscribes to 550 printed journal titles, and offers access to 15'000 electronic journals, 1/3 being in the biomedical field. The book collection is, on the contrary, still predominantly in print format, with 30 000 printed volumes against 50 subscribed electronic books. The library also provides access to 50 international bibliographic databases, at least 10 of them being relevant for the biomedical field : Pubmed, Medline/Ovid, Web of Science, Scopus, PsycInfo, Cochrane Library, CINAHL, Biosis, International Scientific Abstracts, etc.

Around 10 small departmental university libraries are also implanted in specialized institutes attached to the University Hospital. These libraries are providing proximity services to the researchers in their respective fields such as public health, social and preventive medicine, forensic medicine, occupational medicine, psychiatry, history of medicine.

Although these libraries have been collaborating for many years and share common library management software, they were urged in 2003 by the central administration of the hospital to intensify collaboration and explore new ways of sharing work and resources. The processing of copy orders soon appeared to be one of the projects which could strengthen collaboration. As long as requests are electronic and copies also dematerialized, it is relatively easy to centralize the process and establish a mediated direct-to-user copy delivery service. It was decided that the central medical library would be the hub and take in charge all the copy requests coming from the institutes : around 2'000 orders per year. The departmental specialized libraries would concentrate more on proximity and personalized services. The new organization would avoid the duplication of efforts and the multiplication of invoices from suppliers. But it was decided that centralization would only work for non returnable, dematerialized items, that is to say document or copy delivery, but not for returnables (the traditional interlibrary loans), which are still dealt with by the respective libraries. Anyhow, it was evident that an integrated system was needed to streamline both the centralized and the decentralized work procedures for ILL/DD .

Electronic journals at the University Hospital Library

The table below shows that the University Hospital Library in Lausanne has experienced over the last decade a huge growth in the number of e-journals.

1995	1997	1999	2001	2003	2005
5	50	250	5'000	13'000	15'000

The growth is largely due package acquisitions (big deals), mostly negotiated by the [Consortium of Swiss Academic Libraries](#), whose licensed collections represents 50% of 15'000 e-journals available in Lausanne in 2005.

Obtaining accurate use statistics for the hospital is complicated. Even if the university hospital is on a separate network, with its own IP range, the statistics are given for the whole Lausanne University campus and are not split up, except for some providers, namely Elsevier and Lippincott on Ovid. These data show a high acceptance of e-journals and prove that clinicians and researchers are now familiar with electronic access and formats.

But it is by no means certain that the current big deals arrangements will continue in their present form. The Consortium license with Elsevier Sciencedirect was not renewed at the end of 2004. Negotiations with Elsevier had to be run during the course of 2005 at a local level, on each Swiss campus. Some universities dropped out and renounced to access the full Sciencedirect package. Lausanne University decided to carry on with the subscription to the so-called "Freedom collection", but consequently had to bear with a huge increase in price. The lesson to be learnt is that libraries must get ready in case big deals arrangements crash down and current level of electronic journals accessible collapses ! Since the situation concerning big deals is still unstable, ILL/DD services remain a strategic component in medical libraries.

Document delivery organization in Switzerland

Swiss libraries lack the three pillars vital to a healthy ILL/DD system, that is to say :

- A national electronic system
- A strong National Union Catalog.
- The support of a National Library

The state's highly federal structure, is not in cause. It is often true that the general division of Switzerland into a German-speaking and a French-speaking region, and the political sub-division into 26 cantons and sub-cantons, make national solutions difficult to achieve. However, in the past, Swiss libraries had implemented under the auspices of the [Swiss National Library](#) (SNL) one of the first automated serials union catalog ([Répertoire des Périodiques](#)). At the end of the nineties was also developed a sophisticated ILL system for the whole country, once more with the support of the National Library in cooperation with the Swiss Libraries Association. Within 5 years everything collapsed due to technological changes in the library networks and also financial cuts. The serials union catalog stopped being updated by the National Library which opted for a [federated solution](#) with KVK (Karlsruher virtueller Katalog) technology. The common ILL application was also buried, nobody had money to invest to upgrade it further in order to interconnect it with the two major library networks which were implemented.

Roughly following language boundaries, two major library networks have indeed established themselves on a national level, with differing IT-platforms (despite all efforts). A large part of the libraries in the western French-speaking region of Switzerland have combined to form a network named [RERO](#) (Réseau Romand) and jointly administrate their collections using the VTLS/Virtua

system. At the end of 1999, libraries in the German-speaking region of the country invested in a common system : Aleph 500 and built up the [IDS](#) network (Informationsverbund Deutschschweiz) network. As 2 University Hospitals are in the French-speaking region and the 3 others in the German-speaking, the respective Medical University Libraries are attached to one or the other network.

The two networks run their own ILL applications, which are not interconnected ! Besides, these ILL systems are designed to order items catalogued in the network : mainly books, theses, etc. They are awkward to manipulate when articles are to be ordered and are not programmed to easily integrate metadata coming from external bibliographic databases.

Although there is currently no central organization in Switzerland which would guide the development of a nationwide system, university libraries carry with strong determination the responsibility for the dissemination of documents in the country. The 5 Swiss medical university libraries have long worked closely together to provide with a very reliable and efficient service with a turnaround time which was always under 48 hours for the copy of an article - even at the time of postal delivery ! But collaboration has weakened now, due to the lack of a common infrastructure and the emergence of the German delivery system, [Subito](#), which offers an extremely rapid delivery time, low costs and, extremely rich collections. Swiss medical libraries could not compete ! The CHUV medical library even asked the 4 other Swiss medical libraries to stop ordering copies in Lausanne. The cost of staff for making copies could not be covered by the fees paid for the delivery of items.

Document delivery trends at the University Hospital Library Lausanne

At the University Hospital Library, 95% of the requests are for copies of journal articles.

The copy requests coming from both internal users and also external requesters peaked in 1996. The reason for this growth was certainly the democratization of access to bibliographic databases. On the Lausanne campus, a local online server for bibliographic databases was introduced in 1995. Then, between 1998 and 2002, the number of internal copy requests declined considerably and in 2002, the requests coming from external libraries also started to drop due to the competition of [Subito](#).

However, the document delivery trend has varied little over the last two years, 2004-2005, and seems to have stabilized.

	Copy requests submitted by internal users		Copies supplied to external customers	Total requests handled
	filled in locally	filled externally		
1995	14'300	13'000	12'700	40'000
1996	10'500	16'000	20'700	47'200
1997	10'000	14'000	16'350	40'350
1998	2'800	9'200	20'000	32'000
1999	2'400	8'600	19'600	30'600
2000	2'200	8'750	19'700	30'650
2001	1'800	6'900	16'100	24'800
2002	2'000	6'400	10'300	18'700
2003	2'000	7'100	8'150	17'250
2004	1'700	5'100	5'450	12'250
2005	2'000	7'300	4'070	13'370

It is clear that the most significant factor contributing to the fall in the number of internal requests was the expansion in electronic journal subscriptions taken out during this period. Instead of requesting copies from the library about journals held locally or externally, users have come to rely more on electronic access to fulfill their needs. In 2004, the introduction of a symbolic fee (5 Swiss francs = 3,20 euros) charged to the internal users for any request placed with the library may have also influenced the slowdown in ordering.

The requirements for redesigning the ILL/DD service

In order to redesign the library document delivery service, all the components of the service had to be examined. The workflow was divided in 7 steps. For each step a goal was assigned and a technical solution determined.

Step	Objective	Solution
Formulation of the original request	Web form with minimum typing	Linkresolver tool or web services
Location of a supplier	Reduce manual actions to type in search requests (journal titles, etc.)	Use of formatted outbound links containing the search parameters
Transmission of the order to supplier	Minimal intervention to forward the orders ILLink → external suppliers	Direct transmission of metadata through formatted outbound links
Reception of the material	Electronic format, when possible	Attached files or ftp
Delivery of the material to end-user	Desktop delivery by e-mails	Scanner with a feeder to scan loose pages and pre-formatted mails
Closure of the request, return of the material if a loan was provided	Manual and/or automated changes of status to monitor the whole process	Short and clear list of order status.
Reporting, payment of fees, statistics	Tools to verify / prepare invoices and reports	Export functions in excel format

The application, called ILLink, was developed by a computer programmer who had a background in librarianship and who worked closely with ILL/DD librarians. It was built using some modules and tables of Alexandrie, a [4D](#) database management system, which was already implemented in the library for the management of a specialized collection and hosted on a server at the University Hospital. The only software required on the PC is a web browser.

Open-URL and web services

The main innovations of ILLink is the integration of new web technologies to assist the workflow from the initial request to the delivery of material. Since one of the main goals was to eliminate most of the typing for users - as well as for librarians - bibliographic databases had to be used as sources of reliable metadata. Clinicians and medical researchers regularly consult databases and catalogs to look for bibliographic references. Requests for materials had to be generated automatically, as part of an

online search on a bibliographic server. Most databases interfaces include document order functions but they create e-mails which have to be parsed semi-automatically to be incorporated in a database for the follow up ! A simple web form that sends ILL request data to the email account of the ILL department was not "smart" enough. More integration was wanted. The use of a link resolver (Ovid [Linksolver](#)) helped to generate the request from the point of discovery, whatever the tool : the Virtua Catalog, Pubmed, Ovid databases, WOS, Scopus. Open linking provides access to electronic documents when available, but it also speeds up the process of filling in local order forms ([Jackson, 2005](#)).

Although patrons are encouraged and trained to present requests electronically, the library accepts requests coming from a variety of channels : phone (in case of urgencies), unstructured e-mails, printed listings, hand written bibliographies, etc. To streamline the process, these kinds of requests are mediated by librarians who first check the references in bibliographic databases and use the order link in the resolver screen to send the request in the system.

Direct access to the web order form is also possible of course. A quick input is possible if the PubMed Unique Identifier (pmid) of an article is known. In that case only the pmid is typed in the web form. A click on the "enter" button and the metadata of the reference are automatically sent into the ILLink web form through the [NLM web service](#). A user can of course always fill in the bibliographic fields manually, if the reference was not identified in an online source.

As there is no personal identification for end users to log into the application. A cookie on the desktop allows for retention of personal details : names, service and e-mail address. A user can always check the status of an order by entering his e-mail address. Authentication with login and password is only requested for library staff. When the request is sent into the system, it is time stamped and identified with a unique identifier automatically created.

Dynamic links and formatted URLs

Once the request is inserted in the ILLink database, the first action taken is to determine if the material is available in the local library, as users may have overlooked the journal title in the location tools at their disposition. A direct link built into the application interface sends the journal title words into the local web-based serials catalog called [Perunil](#) which lists the printed and electronic journals available. Other links send automatically the ISSN of the journal - or the ISBN for a book - to search into other online catalogs.

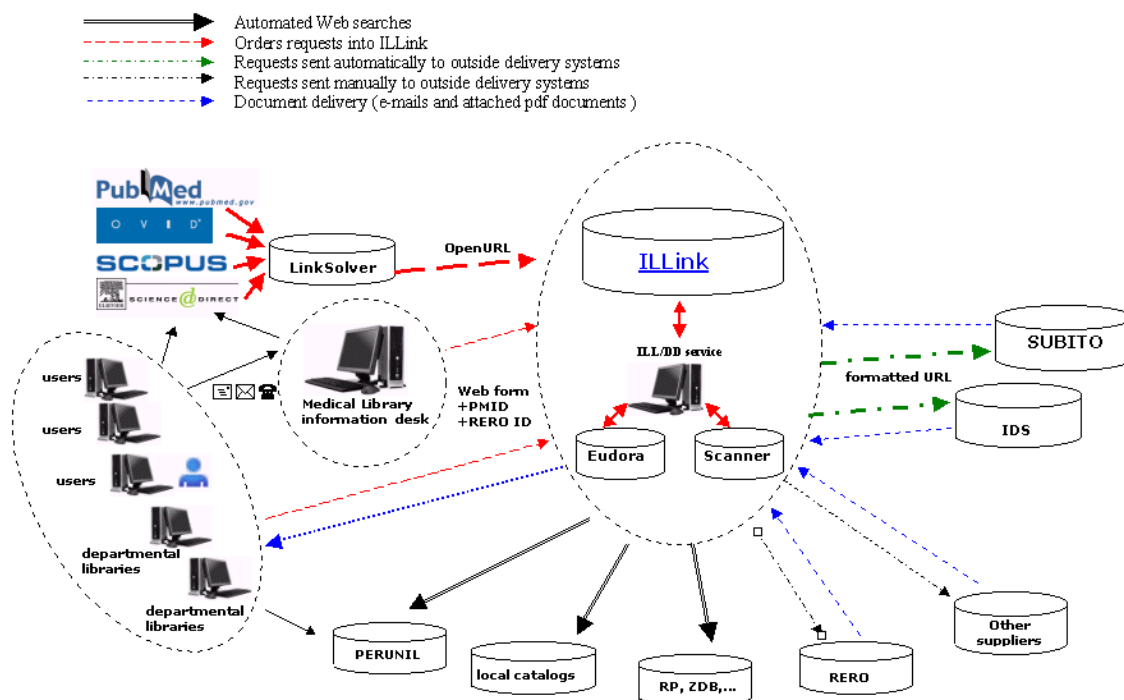
If location fails, the reason for the failure must be identified. Even in those cases when the information has been retrieved from an online source, errors may appear in the citation or at least differences in ISSN for example. It is important to be able to easily edit a reference using the web form, in order to create the correct links for location. In ILLink, all fields can be edited, apart from the order identifier and the entry dates.

After a potential outside supplier is located for an item which is not available locally, an order request must be transmitted to the supplier. Most suppliers now have web forms to collect orders.

These web forms are more or less automatically accessible. Sometimes the login (identification of the requester) and the location process come first before any other action can take place. This may constitute a barrier to the smooth and easy integration of document references and order details. International standards exist to facilitate this process, such as [ISO ILL](#). Although the ISO ILL protocol has been in existence for many years, the number of systems implementing it are very few. This standard was designed before the emergence of widespread Internet standards and is not very well suited for modern Web service applications. Besides it attempts to model all sorts of complex interactions necessary to the exchange of physical items, but not necessarily relevant to the delivery of electronic copies. The low number of users of the protocol seems to be a consequence of the complexity of the protocol and difficulty of its implementation. In comparison, the [OpenURL](#) framework is more specifically designed for simple Web service applications and is easy to implement from a technical point of view. No actual document supplier does officially support OpenURL, but some accept at least formatted Url to enter directly into their system.

[Subito](#) for example has created a "[preOrder form](#)" that overlays the "normal" Subito request process which starts with the periodical search (with ISSN, journal title, abbreviation etc.) in order to match the request to the official Subito journal record. The alternative access accepts direct requests as formatted links containing all the metadata required to fill in the preOrder form, including the login and password ! Unfortunately very few ILL systems allow this seamless integration of orders. Besides, the ability to forward with a simple click an unfilled request from Subito to another provider does not really exist. For the time being, ILLink remains the pivotal point since unfilled requests have to be sent again through the links programmed in the application when it was possible to set them up, as illustrated in the figure below.

Workflow ILLink



Conclusion

In medical libraries ILL/DD requests are no longer loans, the focus point has shifted from borrowing transactions to delivery and fulfillment transactions. Several names can be suggested as replacements for interlibrary loan, but whatever the term that could eventually replace present names, libraries' mission is to deliver materials to the users when, where and in the format they need it. With electronic journals access, library users are experiencing the thrill of receiving full text articles at their desktops anytime, anywhere. But ILL/DD activity remains strategic since it is an alternative which allows to order what is needed instead of buying bulks of articles, just in case. As electronic journals have raised the standards concerning accessibility and integration, library systems and discovery/delivery systems have now to work more towards interoperability. OpenURL standard appears today well adapted for sending bibliographic metadata and can be used to transmit requests. A few extensions could be added to convert it in what could be an "Open ILLink" protocol : parameters with the login and password necessary to access the suppliers' systems and also for the identification number of the local system with may be some elements concerning the end-user.

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