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Working Title:
Cancellation of print journals at a national research laboratory

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At the Los Alamos National Laboratory, on the wall of nearly every office in the Research Library is a copy of the library's vision, mission and goals. It is burned into our minds. Phrases like "increase the efficiency of laboratory research staff," "create a network of knowledge systems" and "anticipate customer needs" drive our every thought and action. To accomplish these things we have developed a way of doing business that focuses on understanding change and achieving strategic goals. All this is another way of saying that our organization is intensely focused on the future.

To say that the world of information and scholarly communication is changing would be an understatement. A decade ago the Internet as we know it did not exist, email was an uncommon method of communication and there were no electronic journals. The rapid advance of technology has precipitated many changes in the information world and opened the door for opportunities that are exciting and not without some risk.

Sweeping technological changes have provided opportunities for integrating information sources in ways that were not possible before. New technology created "alternative paths" to scholarly information. At the same time tighter budgets, rising serials costs and downsizing challenged the ability of libraries to continue to provide research support at previous levels. In addition, the overwhelming quantity of information outpaced the ability to collect it.

Digital technology has the potential to provide more integrated information in a highly distributed, quick and cost-effective manner. The Los Alamos National Laboratory (LANL) Research Library has leveraged the advantages of digital technology by focusing on integration of electronic information sources and moving them to the customers' desktop. We have moved from the "come and get it" print access model to the desktop access model. The Research Library has been canceling print journals in favor of the electronic version for two subscription cycles. To date we have canceled over 750 print subscriptions.

We can no longer afford to fund two journal formats—print and electronic. We can no longer continue to support dual collection management—print and electronic. Our organization is spread over a 43 square mile area—customers cannot afford the time to drive to the library, find a parking place and find and make a photocopy of a print journal. No one can afford to ignore the opportunities of digital information technology—the integration of finding tools with full-text with reference sources with multimedia.

BACKGROUND

Los Alamos National Laboratory is a multidisciplinary, multi-program scientific laboratory whose central mission revolves around national security. The LANL Research Library is a special library whose collections emphasize the physical sciences. We serve 10,000 laboratory employees and are currently providing access to over 4300 electronic journals. Electronic journals are linked at the article level through our locally loaded databases that are searched through a multi-database search tool called FlashPoint.

WHY CANCEL PRINT JOURNALS?

One of the goals of the LANL Research Library is to develop innovative digital library applications that anticipate customer needs. One of the tools we are using to accomplish this goal is the electronic journal. There are many reasons why we are canceling print journals in favor of their electronic counterparts.

Electronic journals provide opportunities for integration with other forms of digital information to enhance the traditional forms of scholarly communication. Linking is one of the enabling technologies that allows the user to move from a citation database record to the full-text item, then to the full-text of citations within that item.

Our customers are continually telling us they want access at their desktops to more full-text in a greater number of journal titles in a broader range of disciplines. To accomplish this we need access to electronic forms of materials. The traditional library model of providing information through print-on-paper will not support our customers' requirements.

The major costs of supporting a library print collection are purchase costs, staff costs and space costs. Electronic journals allow cost savings in all these areas. We have experienced an average of 10% savings in price by purchasing an electronic-only subscription. Staff costs have been reduced both in time and number of people required by moving to electronic-only subscriptions. In addition, we save money on titles we no longer have to bind. Space costs within our organization are enormous. In FY2000 the library space tax was $1.3M, which is 14% of our total annual budget.

HOW TO CANCEL PRINT JOURNALS?

We began our first print cancellation project in spring of 1999. The cancellation of print journals was not without its detractors on the library staff. We struggled with the issues of archiving, the definition of content, the quality of the online image vs. the laser printed image and what to do about journals that had LANL researchers as editors or board members. We did not always come up with an answer for these questions. Our Library Advisory Board members were advised of our plans prior to commencement of the project. We did not involve customers at this stage.

To begin the process we formed a team of library staff who were collection subject specialists, who then developed a prioritized list of criteria for use in targeting journals for print cancellation. The list included criteria such as content (enhanced, full, partial), usage (electronic and print), image quality and color and timely availability of the online journal. Other criteria included archival availability (does the publisher have an archival commitment or policy? Are there mirror sites for the journal?), access limitations (is the title available to limited IP addresses within the organization?), publisher server reliability, licensing requirements (does our license require us to retain print?) and price (how will print cancellation affect a package subscription? Is the electronic-only option more expensive than the bundled option?).

Each subject specialist was assigned the journals in their subject area. The team developed a step-by-step methodology for comparing the print with the electronic version of a title. We first retrieved the most recent print issue of a title from the collection, then located the equivalent electronic issue. To evaluate content we compared the table of contents of the print with the table of contents of the electronic version and noted any differences. Since availability is one of the major advantages of an electronic publication, we noted if the electronic version was x# issues ahead, same as or x# issues behind the print version of the journal. Image quality and availability of color images in the electronic version were also considered of high importance in targeting a title for print cancellation. For each title we chose some of the most complex graphics, viewed them on the computer screen and printed them out on laser printers. These types of images often include micrographics—photographs taken through a microscope that have a high level of detail.

Journal usage was one of the most important criteria we used in our first year of the print cancellation process. Since we load many electronic journals on our own servers we had access to at least a year's worth of usage in most cases. For titles lacking this type of data we relied on statistics supplied by the publisher or usage of the print versions in our collection to get an indication if the title had high, moderate or low usage in general. For the first year of the process we did not cancel print for titles with high usage.

	Justification	Title	Distributor	Content	Availability	Usage
1	Justification	Title	Distributor	Content	Availability	Usage
2	high usage	Accounts of chemical research	ACS	Full - online incl.	E is ahead w/ASAP Contents	High - 205-e (#105 of 1915)
3		ACM computing surveys	ACM	Full	Same as print	Mod - 50-e
4		ACM transactions on computer systems	ACM	Full	Same as print	Low - 23-e
5		ACM transactions on computer-human interaction	ACM	Full	Same as print	Mod - 26-e
6		ACM transactions on database systems	ACM	Full	Same as print	Mod - 27-e
7		ACM Transactions on design automation of electronic systems	ACM	Full	Same as print	Low - 23-e
8		ACM transactions on graphics	ACM	Full	Same as print	Mod - 26-e
9		ACM transactions on information and system security	ACM	Full	Same as print	Vlow - 0-e
10		ACM transactions on information systems	ACM	Full	Same as print	Low - 21-e
11		ACM transactions on mathematical software	ACM	Full	Same as print	Mod - 75-e
12		ACM transactions on modeling and computer simulation	ACM	Full	Same as print	Mod - 76-e
13		ACM transactions on programming languages and systems	ACM	Full	Same as print	Mod - 33-e
14		ACM transactions on software engineering and methodology	ACM	Full	Same as print	Low - 24-e
15		Acta applicandae mathematicae	Kluwer	Full	Same as print	Low - 25-e
16	electronic image poor	Acta astronautica	Elsevier	Full	Varies title to title.	Mod
17	high print usage	Acta astronomica	ADS	Full		High
18		Acta materials	Elsevier	Full	Same as print	Low
19		Advanced materials	Wiley	Full - missing ad e 2 issues		Mod - 53-e
20		Advanced materials for optics and electronics	Wiley	Full - missing ad e 1 issue		Low - 37-e

Figure 1.
Print journal cancellation worksheet

In 1999, the first year we began canceling print journals, the process took approximately two months to complete review of almost 1000 titles. Nine librarians participated in the process and targeted over 460 titles for print cancellation. Table 1 is a breakdown of canceled print titles by subject.

Table 1
Percentage (and number) of canceled print titles by subject

Biology	Chemistry	Engineering	Environment
56% (93)	59% (100)	42% (51)	64% (54)

General	Math/Computer Science		Physics
33% (18)	60% (103)		29% (44)

IMPLEMENTATION

One of the bigger hurdles we had to clear the first year was explaining to our journal vendors what we were doing. The existing vendor renewal process was set up to allow a yes/no answer to a cancel/renew question. This process did not easily accommodate a hybrid situation such as the one we were now facing. We ultimately had to complete the renewal process in two steps. The first step was to complete the usual cancel/renew list. To get our list of print cancellations to the vendor we created a spreadsheet that contained titles, ISSNs and publisher names. The spreadsheet was then sent via email as an addendum to the renewal list.

Many emails and mini-decisions then ensued as various small problems arose. We discovered titles that were part of a package where you could not cancel print on one

title without canceling print for all the package titles. We were able to get non-policy agreements with some publishers allowing us to cancel print under various conditions. Through some of our consortia agreements we paid the publisher directly for electronic journals, which meant that when we canceled print we essentially canceled the entire title through the vendor and ended up paying the publisher directly for both formats. This had the effect of redirecting some of our collection budget to the publisher and away from the vendor.

Next we developed a process for internal implementation of print cancellations. In this step we involved additional staff in the areas of cataloging and check-in. To get customers acclimated to the print cancellations we decided to remove the targeted titles from the display shelves 2-3 months prior to the end of the calendar year. In place of the display shelf labels for each of these titles we placed neon-colored signs saying, "This title is available electronically from the Electronic Journals web page."

Staff responsible for the check-in process were given a list of cancelled print titles. Print holdings were closed in the online catalog for these titles. Canceled print titles were not checked in. For the last few months of the year, new issues of canceled print titles were shelved immediately on the back-issue shelves, which allowed us to complete the print holdings run for that year. It took several months after the beginning of the calendar year before all canceled print titles had finally ceased delivery. During that time we began to notice the benefits of less staff time spent processing journals, a decrease in the amount of time to get a new print issue to the display shelf, less storage space required (which ultimately means less shifting and changing signage) and the number of claims dropping.

CUSTOMER RESPONSE

The entire library staff braced themselves for an onslaught of complaints about print cancellations—which never came. The most alarming sights to customers were the empty slots in the display shelves where print journals used to be. We received many questions about what was happening to the print journal collection and upon explanation of our reasons these customers were satisfied. We pre-empted many questions by posting signs in the journal area explaining that we were not canceling subscriptions. Support was strong and we were pleasantly surprised at the response. The few complaints received were from older customers who were not regular users, or in many cases not users at all, of the electronic journals.

We gleaned a few very interesting bits of information about our customers' information seeking behavior from this project. For example, we found out from at least one of our very prominent scientists that he did not actually know the title of some of the print journals he read regularly—he only knew them by their location on the display shelf. In addition, many of our highly esteemed researchers have told us that if the journal is not available electronically they will not use it, or use it less frequently.

LESSONS LEARNED

To our surprise we discovered customers had embraced and adjusted to electronic journals prior to the print cancellation project to a far greater degree than we had suspected. The LANL Research Library provided customer access to its first electronic journal in 1996. By the fall of 1999, when we completed our first year of print cancellations, we were providing access to almost 3000 electronic journals including links through six locally loaded bibliographic databases. Our customers had been using electronic journals for almost four years at this point and had become very accustomed to them.

One of the most challenging aspects of using the electronic version of any print product is figuring out how to do in a digital format what you used to do in the print format. How do you browse an electronic journal? How do you find an article by page number? How do you find an article on a particular topic? To a large extent, customers had already replaced their print browsing behavior with its electronic counterpart—by utilizing alerts. They were already using subject, table of contents and latest issue alerts to "browse" electronic journals. Customers were also very savvy users of the various search capabilities at publishers' websites.

Staff is spending less time handling print journals and consequently has taken on higher level responsibilities. Very expensive library shelf space is not being consumed by a continually expanding collection of print journals. Money saved by not purchasing print has been funneled into purchase of additional digital content. We are currently developing a process to identify which of the remaining print journals will be bound and which titles will not. This will save further money in staff time and binding costs.

By spring of 2000 when we began our second year of print cancellations, we had learned several lessons about our own process as well. It is very important that all participants have a common understanding of terms such as "high usage." What is considered high journal usage by one person may not be considered high usage by another person. In addition, we learned the importance of uniformly applying the criteria to each print cancellation decision. Applying criteria consistently improves the quality and reliability of the final decision.

THE FUTURE

As of early 2001, we have approximately 400 journals that we still subscribe to in both print and electronic formats. It remains to be decided what the final nature of the current print journal collection will be. One option is to retain print subscriptions for current news-type (browsing) publications only such as *Science*, *Nature*, *Forbes* and, *Computerworld.* Another possibility is to retain print for only the 100 most highly used journals. Or perhaps the current print journal collection will be some combination of these two concepts.

As we look further into the future, we may consider remote storage of certain print journals. Like many libraries we have a finite amount of space and a still growing collection, especially for books. Another option to preserve space is to send print journals to the Astrophysics Data System (ADS) for scanning or to another library for archiving. Weeding is a possibility as well, though one of last resort. The LANL Research Library may also consider the option of scanning journals ourselves to accommodate the needs of our customers for older issues that so far are not available online.

CONCLUSION

By de-emphasizing the print journal collection our organization has been able to accomplish several goals:
- provide access to additional digital resources through cost savings;
- support customers' requirements for information at the desktop;
- reduce staff costs;
- free staff time for higher level tasks;
- reduce space costs.

Print journal cancellations have now become incorporated into the regular routine of our library. We have a proven process in place that we can rely on to provide sound decisions.   We have been aided in our successful accomplishments by the enormous support of our customers, our Library Advisory Board and laboratory management. Opportunities and challenges will continue to present themselves as our organization continues to emphasize digital resources over print.