

E-Commerce for Libraries

By Richard W. Boss

E-commerce, or electronic commerce, is the exchange or transfer of funds via the Internet or a local area network. For most of the past dozen years, it was the sole domain of businesses offering goods and services via the Internet and accepting online payments by credit/debit cards or secured accounts. In the past few years, an increasing number of libraries have adopted e-commerce to accept the payment of fines and fees by library patrons; collect funds for the sale of books or other product or service a library chooses to offer; or to make purchases from vendors of books, journals, supplies, or equipment.

While some would argue that the mounting of libraries' patron access catalogs on the Internet beginning in the 1980s was an early example of e-commerce by libraries, virtually all definitions of "e-commerce" emphasize that it involves buying and selling, not just providing online access.

Before committing to e-commerce, a library should decide what it hopes to achieve:

1. Improved patron service
2. Increased revenue
3. Improve the efficiency of dealing with suppliers to the library
4. Greater staff productivity
5. Reduced cost

There are two types of e-commerce: patron e-commerce, also known as business to customer e-commerce, and vendor e-commerce, also known as business to business e-commerce.

Patron E-Commerce

Patron e-commerce enables library patrons to make electronic payments for fines, program fees, facilities rentals, printing/copying, interlibrary loan, access to electronic content, etc. When outside a library, the access is via the Internet; when inside a library it may be via the Internet or via the library's LAN (local area network).

Patrons increasingly expect to utilize e-commerce with libraries because they do so routinely not only with businesses, but also with municipalities and state government agencies. Examples of government use of e-commerce are payment of parking and traffic tickets, permit fees, garbage fees, and auto tag renewals.

Online payments can include payment for goods and services delivered online or by mail as well as in the library. It improves service to patrons because it gives them the option of making payments from home or office when they do not want to take the time to come into the library. When in the library, it may avoid waiting to pay at a service desk.

Anecdotal evidence suggests that it increases revenues because the convenience reduces delinquencies.

Patron e-commerce is self-service. The ability of library staff to accept credit and debit cards at a service desk is not e-commerce. As a self-service, patron e-commerce reduces demand on staff, thus reducing the cost of collecting payments. The staff savings may make it possible to reallocate staff time to more important service priorities.

While e-commerce has reduced theft and robbery in many types of organizations, there is no evidence that it has had that effect in libraries.

Some libraries have used patron e-commerce to improve revenue by offering non-traditional services. For example, book purchases by patrons can be handled through patron e-commerce, either directly from the library or indirectly from an online bookseller accessed through a library's patron access catalog. Amazon.com has been a particularly enthusiastic partner to libraries. This can add an important new revenue source for a library.

A library need not limit itself to the sale of books. One public library has negotiated agreements with more than 200 merchants to feature their products on the library's Web site. Every purchase initiated through the library generates a commission for the library. That commission ranges from .5 to 7.5 percent of the selling price.

E-commerce has also been used by some libraries as a convenient way for donors to may their donations from outside the library, at a service desk, from a patron access catalog device, or—in the case of some large library facilities—from a donation kiosk in the library entrance.

Payment can be by credit or debit card—in which case, the library has to contract with a credit/debit card processing service. A processor is a company that handles the card transactions electronically. The card swipe terminal may be part of a kiosk, self-check, or a patron access catalog station. The processor can be a bank or a third-party agent such as Verisign or PayPal. If it is a third-party agent, the processor makes deposits to the library's bank. Card processing services typically charge up to \$.25 per transaction plus a percentage of the value of the transaction. The percentage typically is 1.5 to 2.5 percent. The charges are usually based on three criteria: the average transactions amount, the minimum amount accepted electronically (\$5 is recommended), and the monthly total for all transactions. Fees can be reduced by requiring that the card be swiped, rather than the number entered, and by requiring that the CVV2 (the special 3-digit code printed on the card) be entered because that reduces the likelihood of fraud. A bank with which a library maintains an account may offer somewhat better terms than those described herein.

Smart cards are another option. Extensity has been supporting smart cards for payments of fines and fees in Belgium and the Netherlands for several years, and CARL.Solution has been supporting smart cards in Singapore. Smart cards are not yet popular in North

America; therefore, the focus of the vendors of integrated library systems serving North American customers is on the support of widely carried credit and debit cards.

A library can also choose to be its own “bank.” That eliminates fees to a payment processing service, but it does require that the library develop policies and procedures, implement a secure Web-server, issue its own debit card or smart card, and assign staff to handle customer services issues that may arise. This approach is not worth it unless the amount a library expects to collect is in the tens-of-thousand of dollars annually.

The ease of navigating an e-commerce site is a major factor in patrons’ decisions to take advantage of the service. The majority of the early efforts by libraries were not popular and did not result in the anticipated volume of activity. Difficulty in navigation also resulted in more calls for library staff to provide assistance. Given that most patron expect e-commerce to be available 24/7, that posed serious public relations and/or financial issues for libraries. Only in the past three years or so has patron e-commerce begun to equal the user friendliness of Amazon.com.

Authentication of users and a secure connection are essential components of patron e-commerce because identity theft is a serious problem in the online environment. A credit or debit card account that is compromised can result in the theft of thousands of dollars. The card holder’s liability may be limited to \$50, but the card issuer will incur a loss that it will seek to recover from its entire customer base.

Back-end processing of the financial information is also an important component; both an interface to the library’s accounting system and the production of reports. RFPs for integrated library systems that specify patron e-commerce rarely mention back-end processing, but the libraries that have implemented patron e-commerce say that reconciling all of the information on a daily basis and at the end of each month is very labor intensive. Particularly important is the reconciliation of the monthly statements of the credit card processing service and the bank into which the deposits are to be made. Rules and fees differ among Amex, Discover, MasterCard, and Visa. Transactions post at different intervals. Some libraries have found significant discrepancies, with the deposited amounts claimed by the credit card processing service greater than the deposits recorded by the bank.

As libraries collect cash as well as receive credit card payments, integrating all of the financial transactions can be a real challenge, one that no back-end processing component of available e-commerce solutions had fully addressed as of mid-2009.

The perception of most vendors of integrated library systems appears to be that libraries think of patron e-commerce as a service to patrons, rather than both as that and as a potential cost saving to the library. For that reason, the product development emphasis has been on the payment transaction itself, rather than the entire e-commerce process. Libraries that are concerned about back-end processing of patron e-commerce transactions should include that requirement in their RFPs, but should expect that to be offered as a series of future enhancements.

The pace of development of patron e-commerce was agonizingly slow for some libraries. For that reason, a number of them developed their own e-commerce systems or purchased software from companies such as Baan, Commerce One, and PeopleSoft beginning in 1997. Unfortunately, the in-house development proved to be very expensive, as was the purchase and adaptation of software that was designed to support large commercial enterprises. For that reason, most libraries turned to the vendors of integrated library systems after 2006.

The first general release of a patron e-commerce product from a vendor of integrated library systems did not become available until mid-2004. It was introduced by *Innovative Interfaces* and supported only the payment of fines, fees, and donations. As of mid-2006, it had been enhanced to allow patrons to purchase books from the library, an affiliated vendor, or products from other partner merchants. E-commerce is integrated with the “My Millennium” feature in the patron access catalog. The financial data can be output to an accounting system.

SirsiDynix introduced an optional product called OneStop in the first quarter of 2006. It is an integrated solution for full self-service, including patron charge and discharge, payment of fines and fees, adding value to a library-issued debit card, and PC reservation. Instead of a self-service kiosk, patrons can now use a patron access catalog station or the Internet to make payments.

TLC introduced its e-commerce solution in late 2005, *Polaris* followed in 2006, and *VTLS* in 2007. As of mid-2009, all were using a third-party product from EnvisionWare, a market leader in PC and print management. EnvisionWare is interfaced with each of these vendors’ integrated library systems using SIP2. Patrons may make payments of fines and fees or make donations from a self-service kiosk, a patron access catalog device, or via the Internet. At the option of the library, EnvisionWare can also be used for print management. The EnvisionWare e-commerce server provides a bridge among the library’s ILS, its Web server, and the library’s card processor. The server appears as a merchant terminal.

By mid-2009, several other smaller vendors had a patron e-commerce product in various stages of development.

Now that vendors of integrated library systems are actively marketing and supporting patron e-commerce products, libraries should write specifications and solicit responses before considering in-house development or a purchase from a vendor unfamiliar with the library market. The specifications should be started only after determining what the reasons are for a library to pursue e-commerce.

Vendor E-Commerce

Vendor e-commerce involves the interfacing of a library’s integrated library system with those of book jobbers and serials subscription agencies for online ordering and claiming, and receipt of vendor reports and invoices. It may also be used to interface with vendors

of supplies and equipment, but that is dependent on these vendors supporting standards that are common to their systems and those of libraries.

A typical vendor e-commerce scenario might involve searching a vendor's database by ISBN, ISSN, or other search keys for a record to download, creating the order record in the library's integrated library system, transmitting the order directly to the vendor's fulfillment system, sending an electronic claim if nothing has been received after a library-specified period of time, receiving an electronic report, and finally receiving an electronic invoice.

The major vendors of integrated library systems offer online ordering and claiming as of mid-2009, however, the standard supported was EDI x.12, not EDIFACT, the current U.S. and international standard for business to business transactions. The major reason is that most North American book jobbers and serials subscription agencies did not yet support EDIFACT at that time. Vendors of integrated library systems reason that it makes more sense to support superseded standards that are in widespread use than to support a current standard that is not yet widely adopted.

Several vendors of integrated library systems did support EDIFACT online ordering and claiming as of mid-2009. *Ex Libris*, which focuses on the academic library market, was the first to offer EDIFACT because the European book jobbers and serials subscription agencies used by many academic libraries have adopted EDIFACT. *VTLS*, a vendor that has the majority of its customers outside North America also adopted EDIFACT early on. *TLC* was also an early adopter because of its work in Singapore. *Innovative Interfaces*, a vendor that has a large international customer base of academic and public libraries also conformed to the EDIFACT standard as of mid-2009. *SirsiDynix's* Horizon product came with a choice of EDIFACT, enhanced EDI, and XML-based online ordering—the last a protocol it developed called Vendor Integration Protocol (VIP), but the *SirsiDynix's* Symphony product that is the successor to Horizon supports only EDI x.12. *Polaris* supported EDI x.12 for online ordering, but provided only the generation of e-mailed claims for serials as of mid-2009.

As of mid-2009, Baker & Taylor, Book Wholesalers Inc., Brodart, Ebsco, Ingram, Midwest, Quality Books, United Library Services, and W. T. Cox all support EDI x.12 for online ordering and claiming. This is a major improvement over 2006, a year in which BISAC, a seriously obsolete standard, was still the supported online ordering standard. Several were evaluating EDIFACT, but there were no firm commitments yet. Most book jobbers and serials subscription agencies based outside North America were supporting EDIFACT online ordering and claiming as of mid-2009.

While a library should specify the online ordering and claiming standards that its major suppliers support, it should also specify that a change in online ordering and claiming to a subsequent standard should be part of the maintenance and enhancement program, not a separate product that must be purchased. If not in the response to an RFP, in negotiation the vendors that do not offer EDIFACT will almost always agree to no cost migration

from EDI x.12 to EDIFACT when it is more widely adopted, or to a possible later standard that may be EDIFACT in XML, XML, or Web services.

Online reporting was still more often done using e-mail than EDI or EDIFACT as of mid-2009. Online invoicing was more common internationally than domestically and usually was done by e-mail attachment, rather than with EDI x.12 or EDIFACT.

Far more important than online reporting and invoicing per a standard is getting online ordering and claiming on one standard supported by everyone. Vendors of integrated library systems share libraries' frustration that many book jobbers and serials subscription agencies have not adopted the latest standard, but are continuing to support the superseded EDI x.12 standards. It is, therefore, not possible to offer a single solution that meets every library's needs. Unfortunately, this muddled picture may last for several more years.

Vendors of integrated library systems are not convinced that most libraries consider online ordering, claiming, reporting, and invoicing important. Online ordering and claiming is specified in a minority of RFPs, and online reporting and invoicing in almost none. This despite the fact that a computer-to-computer interface between a library's system and a book jobber or serials subscription agency's system can reduce turnaround time and labor costs for both the supplier and the library. It can also shorten response times. It may not be until book jobbers and serials subscription agencies extend discounts for orders and claims submitted online that libraries will elevate e-commerce with vendors to a high priority.

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