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E-Commerce — A Collection Development Perspective - Parts 2 & 3

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(Part 1 of this series, "E-Commerce: A Collection Development Perspective — Part 1 — Identification and Selection," appeared in *Against the Grain*, v.10, #5, November, 1998, pp.1, 15, 18.)

Part 2 — Paying

The manner of payment is a collection-development concern primarily to the extent that it affects the price or availability of materials or funds available for development. The best examples of the latter are the pre-payment discounts offered by subscription agents or the "interest" increases offered by approval-plan vendors for advance deposits. To assess the value of these choices, one must consider the "time value of money." Essentially, whichever organization (whether vendor, agent, or a library's parent institution) has control of funds at a given time has the opportunity of gaining a return on such funds. I became acutely aware of the tension arising in such a situation when **RoweCom** offered the alternative of investing pre-payments in a short-term CD with **Bank One**. My institution's finance office objected that it kept the money in such an instrument, and this would be lost to the institution if the library were to participate in the **RoweCom** program; however, my institution had fewer reservations about gaining a discount by early prepayment (even though the rate of return was substantially lower).

Electronic Funds Transfer

Even with prepayment, the mode of payment can affect the institution. Since prepayment arrangements generally vary according to duration by month a payment on August 31st earns the same discount as a payment on August 1st. As the institution can also invest the money, an electronic funds transfer (**EFT**) on the last day would be preferable, in terms of institutional benefit, to one on the first. And this is a case where electronic funds transfer can minimize the float (or period between when one institution pays and the recipient gains control of the funds).

RoweCom's use of **EFT** as part of the **EDI** (**Electronic Data Interchange**) subscription transaction, at least in theory, also represents an important means of instantaneously effecting payment. In this case, however, I have learned that even some of the most sophisticated scholarly societies are ill-equipped to identify such a transaction. One society—whose journals are all in electronic format—informed me that electronic transfers were reconciled only at the end of the month and thus a payment in July would only provide

for access in August (in contrast to a check, with which the society would immediately allow electronic access).

EDI and **EFT** are clearly the future, at least for substantial transactions; however, while **EDI** is becoming increasingly accepted in terms of orders and claims, **EFT** seems more distant. At the November 1998 **Charleston Conference**, both **John Riley** (**Eastern Book**) and **Roy Reinaida** (**Faxon Company**) argued for **EFT** as preferred form of payment (over credit cards) based on the cost of such transactions.

Credit Cards

Strangely, given their long pervasiveness in consumer transactions, credit cards are just gaining widespread attention from libraries. Although the **Acqnet** surveys by **Janet Flowers** of the **University of North Carolina** (report in **Acqnet Archives** [<http://www.lib.ncsu.edu/stacs/a/acqnet>], Vol 8, No. 23) and **Katina Strauch** (Vol. 8, No. 24) revealed that a majority of respondents were using credit cards, attendance at the credit card session at the **18th Charleston Conference** and reactions following made it clear that the survey responses were not representative of the larger library community. That same evidence, however, demonstrated that libraries that are not using credit cards are increasingly looking to them as a means of facilitating electronic commerce. There can be little doubt that the 1998 explosion in Web commerce contributed significantly to this interest.

Obviously, credit cards can facilitate some transactions (as with online and foreign vendors), but—for cost reasons alone—they are unlikely to replace other forms of electronic payment. A major hindrance to credit card adoption are the fees imposed by financial institutions on vendors. For example, beyond the costs to a seller of purchasing/leasing terminals and/or software, there are transaction fees (20-50 cents) and a discount (often based on volume but in the 1.5-2.5% range). The importance of these costs was evident in the **U.S. Internal Revenue Service** announcement that it would accept credit card payments for taxes in 1999 but, under Congressional mandate, would add the processing charges (estimated at 2%-3%) to the bill of a taxpayer choosing the credit card option. Whether apparent in a specific library-vendor transac-

tion or not, one can understand that a vendor can ill-afford to provide the same discounts to libraries wishing to use credit cards compared with those that use less-costly means. In a retail environment, a seller usually has factored the cost into the price. Still, the cost is evident in gas-station transactions (or often when shopping abroad) wherein a discount is offered for cash.

Recognizing these limits, credit cards are especially advantageous to libraries (or their parent organizations) for occasional transactions (such as specialty vendors or used/rare-book dealers, especially via the Web). An institution may be able to pay with one check for purchases that previously would have required one hundred. How this impacts a library's operations is a function of reengineering. In purchasing materials from abroad, the savings can be more substantial. Traditionally, dealers in many parts of the world have offered dollar as well as local-currency prices (with an exchange rate that conservatively protects if not fattens a dealer's profits). A credit card transaction can eliminate the need for dual pricing since the card issuer will pay in the local currency and the conversion is near the wholesale rate. For example, an Australian publisher recently offered a directory for 245 Australian dollars or 195 U.S. dollars. Checking conversion rates, we purchased at the Australian price by credit card at a cost of US\$145.

In 1999, the benefits of such transactions eroded as financial institutions sought to increase income through higher fees. According to an Associated Press report in May, many credit card providers added surcharges of one to four percent on currency transactions (in addition to the traditional one percent currency-exchange fee). A standard caveat in e-commerce should be that the field and costs are constantly changing. Approaches to purchasing need to be nimble to balance availability of materials with alternative costs of purchasing.

Micro-payments or Nanobucks

This is a form of e-payment that has been long awaited but remains in its infancy. In 1996, a *Wired* article asked: "Will nanobucks be the next big thing or are we just talking pocket change?" By 1998, an *Infoworld* ar-

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ticle began: "Micropayments are one of the Internet's great failures." While we're still waiting, this approach to e-commerce deserves mention. In moving to electronic resources, libraries have emphasized access over ownership, subsumed under the rubric, "just in time" not "just in case." In fact, in many cases, we have continued to pay for "just in case" even while, in many cases, foregoing ownership. The best examples would be the aggregations of relatively popular library periodicals by vendors such as **EBSCO**, **Faxon**, **Information Access Corporation**, and **Bell and Howell Information and Learning** (formerly **UMI**). These vendors offer an annual price for library or campus-wide access to electronic copies of articles in the covered publications. Scholarly journal publishers (both commercial and non-commercial), led by **Academic Press** and **Elsevier**, offer electronic versions of their print repertoires. In effect, libraries are buying these services "just in case" their users may access the information resources offered (often with only limited reporting on usage). Even the **PEAK** (alluded to in Part 1 of this discussion, *ATG*, p.15) initiative by the **University of Michigan** and **Elsevier** is based on pre-purchasing "views" just in case they may be needed.

Micropayments, if they mature, promise an alternative. They facilitate small transactions without the overhead of a credit card. A transaction takes place in which the information seeker immediately receives the information in the form of a view and the supplier receives payment from a virtual purse, a smart card, or the viewer's bank account (in effect, a debit card transaction). One can relish the possibilities (while fearing the impacts and uncertainties) of a library user requesting a view of a publication and library's account debited for the view. In a hypothetical free market, one would expect demand to affect the price of a view. This is a giant step from the cur-

rent reliance on commercial document delivery services. Recent research at **Louisiana State University Library** with usage data from the **University of Illinois Urbana-Champaign** found that usage of U.S. society-published chemical journals cost \$1.79 to \$45.50 per use while foreign commercially published chemical journals cost \$3.29 to \$4,079.27 per use. With usage and payment directly linked (rather than later interpreted, as in current usage studies), collection development would enter a new world.

Without presupposing a conclusion, pay-

per-view using micropayments would permit real consideration of "just-in-time" versus "just-in-case" and confront issues such as the extent to which just-in-case is essential to just-in-time delivery. Is a subscription as much to preserve an archive for future generations as to meet immediate demand? The answers are not obvious; however, the questions offer new perspectives on present practices.

Part 3 – The Future

"Forecasting is difficult, especially if its about the future." **Martin Sandeline**, Nokia

"One of the fascinating things about this [Internet] business and one of the things that makes it almost impossible to predict is that virtually any prediction you make is bound to come true." **Michael Wolff**

During the planning of—and reflected in the RFP for the **OhioLINK** system, "real time" was as much a key concept as "distributed system." Even in the late 1980s, library systems generally relied on batch processing to add, modify, index, and delete records and transactions. In a distributed system, however, where access to materials depends on records accurately reflecting the status of those materials, batch processing was unacceptable. If a user is to request an item from another institution, it is important that the potential lending institution's system be able to advise whether the item were available or had been checked out earlier in the day.

Looking to the future, real time may be as unacceptable as "batch processing" was a decade ago. **Eric Harslem** of **Dell Computer Corp.**, in an advertising supplement focusing on the future, emphasized that: "The notion of having to get your information in real time will go away." Although his reference is limited (addressed to broadcast programming), in a world where WWW is likely to mean World Wide

Wait, the observation finds added currency.

Agents in Anticetime

In thinking of what may come after real time, I fail to find an accepted term. I would suggest "pre-time" or "anticetime." The principle is that the information is already at hand when asked for, not that a search is launched. An instrument to have gathered, sifted, and be ready to present this information when asked would be an "agent," in the computer sense. The archetype for such an agent would be the Librarian daemon envisioned by **Neal Stephenson** in *Snow Crash*. Briefly, "all of

the information [in the **Library of Congress**] got converted into machine readable form. ... And as the number of media grew, the material became more up to date and the methods of searching the Library became more and more sophisticated, ... there was no substantive difference between the **Library of Congress** and the **Central Intelligence Agency**." (p. 22) So they merged to form the **Central Intelligence Corporation** of Langley, Virginia. An interface, a virtual globe is "Earth" (which I interpret as the world of information) and the Librarian daemon "can move through the nearly infinite stacks of information in the Library with the agility of a spider dancing across a vast Web of cross-references." (p. 107)

To put the Librarian daemon or agent at the service of collection development might begin

with an approval-plan vendor's database. Reversing the **Amazon.Com** service that informs a buyer or browser of other books that persons who bought a particular book have bought, I see the agent informing me of titles of the same subject that haven't been bought.

In **OhioLINK**, we seek to encourage breadth and heterogeneity and to discourage unnecessary redundancy among collections. As of April 1999, 55.9% of the more than 7.1 million master records held by 76 member institutions were unique records and 76.9% by three or fewer institutions. In this context, I especially want to know those titles that no other (or few other) **OhioLINK** institutions have bought.

Celia Scher Wagner reported in *ATG* on titles that are listed by an approval plan vendor (the then **Academic Book Center**) but bought by no academic libraries. I see a Wagner agent that would inform me of such omissions and rejections at the time I was considering ordering a title. As noted in **Part 1**, the **OhioLINK** approval plan system with **YBP** already provides information on how a title has been treated by other **OhioLINK** institutions to be available during the consideration and ordering process. The Wagner agent would provide information on related titles. But one could expect more as well. It is helpful to know what has not been bought (or bought in small quantities); however, the important question is "why not." The unbought titles may be treasures or trash. One could well expect the daemon (or Wagner agent) to also provide tables of contents, full-text copies of reviews (not just a link), background on the author(s), information on citations or other allusions in the literature, and even assessments by **OhioLINK** colleagues knowledgeable about the subject. Of course, such an agent would begin with a knowledge

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base of local and state users, their courses and research interests. Then I would really be in a position to decide if we need a twelfth copy of a title or if the information needs of one's users and others in the state would be better off with a copy that others had not bought.

But that is only the beginning. Approval plans, covering 45-50,000 titles a year, account for only a fraction of the world of knowledge. Helpful as it would be to know what is not being bought on approval plans, it is more vital to know what is not even included in approval plans. One would like the agent to follow not only the information highways but also by-ways and cattle paths (successors to fidonets) to really identify what exists in whatever medium on a subject and is not being acquired to be available to current and future users. For these titles, published in Sandakan, Bomoko, or Zagheb, the enriched information identified for omitted titles in an approval plan would be even more important in making informed decisions. It would also bring information on sources and costs for the titles discovered.

Essentially, a CD agent would collect and offer all possible information needed by a selector. A book described "intelligent agents" as "software programs designed to help human beings deal with the overwhelming information overload that is the most obvious drawback to the information age." But too many collection-development decisions must be made based on too little information, not too much. The agent foreseen here would not only deal with the information overload by filtering to only that relevant to the decision but also with ignorance. It would glean from the world of knowledge all that might be available on the decision. As elaborated below, it would not make decisions but provide a collection development officer or selector with what would be needed for an informed decision. And, having received the decision, it (or its cousin) would be able to complete the transaction through payment and delivery.

Agents Today

As farfetched as Stephenson's Librarian daemon or my CD agent may appear, they are actually nearer than you may suspect. Not long after *Snow Crash*, a company, **General Magic**, offered a product description not unrelated to Stephenson's daemon. The company's emphasis swung to "mobile agents," aimed at personal data assistants (**Apple's Newton** caught its attention). At about the same time, the field of artificial intelligence (AI) was turning to agents and bots. Indeed, **Nicholas Negroponte** has provided a similar vision.

Although I would distinguish between "agents" and "bots" (defining the latter as essentially a rules-based script with the former

capable of greater autonomy), the latter have begun to replace the standard approaches to selection (such as contacting a single site—Amazon.com—or single aggregator of sellers—**bookfinder**) noted in **Part 1** of this paper. Today, a shopbot (a software robot for shopping that aggregates offerings) can survey hundreds of offerings. The November 17, 1998, issue of *PC Magazine* reported on three shopbots (or shopping agents) for books, with *Acse*s (which in September 1999 changed its name to **DealPilot**, with a URL of www.dealpilot.com) preferred. Instead of searching a single site, you can set the number of "stores" in a search and the amount of time (defaults being 25 stores and 30 seconds). Test searches report results, sorted by total price (including shipping), for bookstore, book price, discount, shipping costs, shipping service and shipping time. With the defaults, I would receive 25 quotes (with several from a few stores for shipping alternatives) and reports on another 15-18 sites that could not be reported (because of no stock—using ISBN—or timeouts). Included were **Amazon.com**, **Barnes & Noble USA**, **Powells**, and many others but not **Borders**. The report is hotlinked to actually place orders. In my tests, **Alibris** (with which I was unfamiliar) generally reported the best discount and net total price. Its logo carries the type of sign that reminds me of the amusing signs on stores in Houston: "Selling Books Online since 1995." Since, the literature on "bots" has multiplied.

To move from the AI (artificial intelligence) domain to the more mundane, the software **BookWhere? 2000** demonstrates the

use of the Z39.50 protocol to gather information (search the databases or online public access catalogs) of multiple sites and report the results. The striking feature, and one would expect an agent to take advantage of, is that one has to enter a search only once, rather than contacting each site. While less than anticlimax, it is at least a kind of batch job which can run in the background.

Up-To-Data

Rather than corrigida, this section title—borrowed from **Daniel J. Boorstin** and conceptually inverted—represents an effort to cope with one problem in writing on e-commerce and the Web (represented by *Acse*s becoming **DealPilot**): that it is a river that cannot be stepped into the same place twice. Two of the major resources identified in **Part 1** of this article have changed their names and URLs. **Interloc** (a resource to identify out-of-print books for sale) is now **Alibris** at www2.alibris.com. Its homepage now describes it as "in association with" **Amazon.com** and its procedures now call for creating a passworded account for central processing of orders rather than the previous connections to individual dealers. It also maintains a bricks and mortar warehouse with 150,000 books and capacity for that many again in Sparks, Nevada. Company President **Martin Manley** has noted that many book store operators have now closed their shops and simply send the books to the **Alibris** warehouse.

The other change has been that the site **MXBF** has simplified its name and URL to **Bookfinder** and www.boookfinder.com. 

Citations

¹ Based on data on industry charges from Electronic Card Service at <http://www.acceptvisamaster.com/compare.html> and Merchant Credit Card Services at <http://www.merchantedcreditcard.com/rates.html>.

² "Making it Easier to Pay Your Taxes," *Kiplinger's Personal Finance Magazine*, November 1998, p. 72.

³ Reported in *The Columbus Dispatch*, 30 May 1999, p. 3F.

⁴ Tom Steinert-Threlkeld, "The Buck Starts Here," *Wired*, 4.08 (August 1996). Available at http://www.wired.com/wired/archive/4.08/nanobucks_pr.html.

⁵ Kimberly Patch and Eric Smilely, "Drop a Dime Online," *Infoworld*, Vol. 20, No. 48 (30 November 1998), pp. 71-72.

⁶ Stephen J. Bensman, electronic colloquy response, *The Chronicle of Higher Education*, <http://chronicle.com/colloquy/98/elsevier/09.htm>.

⁷ Quoted in *Kiplinger's Personal Finance Magazine*, Vol. 52, No. 12 (December 1998), p. 95.

⁸ Michael Wolff, *Burn Rate: How I Survived the Gold Rush Years on the Internet* (New York: Simon & Schuster, 1998), p. 135.

⁹ "Harslem Inside" in advertising supplement,

"Great Minds, Brilliant Visions," p. 21, bound in *Infoworld*, Vol. 20, No. 43 (October 26, 1998).

¹⁰ Described in Neal Stephenson, *Snow Crash* (New York: Bantam Books, 1993), 107-109.

¹¹ Celia Scher Wagner, "Academic Book Trends — The Books Libraries Don't Buy," *Against the Grain*, Vol. 10, No. 4 (September 1998), p. 63.

¹² Andrew Leonard, *Bots: The Origin of New Species* (San Francisco: Hardwired, 1997), p. 11.

¹³ Its recent thinking is captured in *Mobile Agents White Paper* (<http://www.genmagic.com/technology.techwhitepaper.html>).

¹⁴ This development is chronicled in Leonard's *Bots* and demonstrated in Jeffrey M. Bradshaw, *Software Agents* (Menlo Park/Cambridge: AAAI Press / MIT Press 1997).

¹⁵ "Agents: From Direct Manipulation to Delegation," in *ibid.*, pp. 67-78 and his *Being Digital* (New York: Alfred A. Knopf, 1995).

¹⁶ Emily Cohen, "Book Shopping Agents," *PC Magazine*, November 17, 1998. www.zdnet.com/...res/e-comm_sites98/books-agent.html.

¹⁷ *PC Magazine* provided an update "E-Commerce: Shopping Bots," July 1999, p. 35 and a far more extensive survey of the "bot" world can be found in Michael Wolff and Peter Rutten with Ben Greenman, *BotGuide: The Internet's Hot-test Tools that Work the Web for You* (San Francisco: Harper San Francisco, 1999).