You don’t have to be in business (or even be a net-generation company) to be influenced by e-business. E-business has created new alternatives for individuals and institutions, offering them more options than ever before in terms of convenience, selection, and cost. Even traditional institutions are being affected. Just as these born-on-the-Web companies signal new ways of thinking about business, the patterns of e-business are shifting expectations in education. Those expectations can range from instantaneous access to convenience to cost competitiveness. Opportunities for economies of scale and enhanced “customer” experiences will have an impact on education, as well.

Beyond university business processes that may align well with traditional businesses, there are e-business principles that have the potential to affect the core of the institution. Dozens of net-generation companies have become part of the educational landscape (see Table 6.1).

This chapter explores e-business trends that may have an impact on traditional higher education institutions.

Operating Efficiencies

Many of the first e-business applications in higher education will likely be aimed at improving operating efficiencies. Because educational
Web Portals and Higher Education

Table 6.1. Examples of E-Business Vendors in Education

<table>
<thead>
<tr>
<th>Process Area</th>
<th>Some of the E-Business Vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-line admissions applications</td>
<td>Embark, CollegeNet, XAP</td>
</tr>
<tr>
<td>On-line student services</td>
<td>Campus Pipeline, YouthStream's MyBytes.com, Jenzabar.com</td>
</tr>
<tr>
<td>On-line procurement</td>
<td>CommerceOne, Ariba</td>
</tr>
<tr>
<td>On-line alumni communities, contributions, and merchandising</td>
<td>Harris Publishing, Alumniconnections.com</td>
</tr>
<tr>
<td>On-line course delivery</td>
<td>Blackboard, Centra, Convene, eCollege.com, WebCT</td>
</tr>
<tr>
<td>On-line content distributors</td>
<td>Caliber, UNext.com, Pensare</td>
</tr>
<tr>
<td>Learning portals</td>
<td>Click2learn.com, Hungry Minds, Ziff-Davis, SmartPlanet.com, Blackboard.com</td>
</tr>
</tbody>
</table>


Institutions strive to keep costs low so that education is more affordable for learners, e-business may become a vitally important tool. Educational institutions are beginning to capitalize on improved operating efficiencies by eliminating paper transactions and reengineering processes, and using the Web for “comparison shopping.”

E-business can systematically reduce transaction costs. By squeezing time and distance out of the equation, e-business can eliminate many of the costs that we have long assumed to be more or less fixed (Hartman, Sifonis, and Kador, 2000). In higher education we tend to assume that we must shoulder the costs associated with purchase orders, manually transmitted forms, multiple signatures, and a well-established bureaucracy. E-business is causing us to challenge those assumptions.
Eliminating Paper with E-Procurement

Virtually any organization can generate savings by capitalizing on less expensive ways of processing transactions. Conceptually, this is relatively simple. By eliminating the need to receive forms and invoices in paper format and then manually rekeying them into applications, organizations can reduce costs. A traditional paper bill costs about ninety cents in postage and processing, according to industry estimates. On-line services can cut that cost by thirty to fifty cents per bill (PricewaterhouseCoopers, 1998).

E-procurement can be thought of as using digital technology for paperless procurement. This may involve electronic data interchange (EDI), digital processing of transactions, order management, inventory control, or the use of on-line, dynamic pricing. The move to e-procurement is often motivated by the desire to reduce cycle time, ensure faster processing, and reduce error rates.

Estimates are that a traditional purchase requisition costs $150 to process. With e-procurement the costs range from $10 to $15. Additional efficiencies and price discounts may lead to an additional 10 percent in savings (for example, finding goods and services at a lower price). HigherMarkets and CommonFind are firms that create e-procurement systems for educational institutions. The systems allow institutions to do on-line procurement and to aggregate purchases across multiple institutions.

State agencies are seeing big benefits from on-line procurement. Last year the state of Pennsylvania bought 155,000 tons of anthracite coal through Internet auctions. It paid $10 million, which was $1 million less than it expected to spend. The state also bought 972,000 tons of road salt for $30 million through a Web auction, a savings of $2.5 million (Birnbaum, 2000).

Requests for Proposals (RFPs) are another area that may be transformed by e-procurement. An example is provided by DABS—Defense Automated Bidders Service. The bidding process is a time-consuming,
inefficient process, involving cumbersome paperwork. Realizing the efficiencies gained via the Internet, organizations are now starting to move these RFP processes on-line. DABS, being tested by Baruch Defense Marketing, is a first move by the government to automate the RFP process. By using dynamic pricing via the Internet, the government can save time, money, and labor resources that can be used elsewhere (Open Site, 1999).

Reducing the Cost of Service Delivery
The Web and e-business principles are allowing institutions to reduce the cost of service delivery. Perhaps more than other entities, educational institutions must contain the cost of service delivery—in part because of the desire to keep costs down, but also because so much of what occurs in educational institutions is related to the delivery of a service (for example, student services, human resources, and library resources).

Some services, such as admissions, are based on paper applications processed by the staff. West Virginia Wesleyan College (WVWC) has partnered with Embark to move to an entirely electronic application process. Establishing the process will cost WVWC $25,000 for the first year and $15,000 for each subsequent year. WVWC will also pay Embark a $10 fee per application; applicants pay WVWC a $30 fee. The college expects to save money. Under the old system, printing costs alone exceeded $30,000. In addition, the admitted student typically received thirty-four pieces of mail, from initial inquiry to acceptance. Switching to e-mail will eliminate production and postage costs. The new software is expected to relieve the staff of mundane chores such as data entry, as well (University Business, 2000).

Across a host of segments (such as retail and banking), alternative mechanisms for providing customer service are being used. In business, for example, respective figures for the cost of service are

- Direct sales force: $250 to $400 per customer contact
- Telecoverage: $30 to $40 per customer contact
• Telemarketing: $3 to $8 per customer contact
• Direct mail: $1 to $4 per customer contact
• World Wide Web: $0.01 to $0.50 per customer contact  
  (Greene, 2000)

Although these functions do not coincide with higher education processes, they do illustrate the order-of-magnitude difference between face-to-face delivery and on-line access.

In the last few years we have seen many examples of services being delivered over the Web rather than face-to-face. At the University of Minnesota it was found that this better met student expectations and allowed the institution to concentrate its personnel in areas where students most needed personal attention.

For example, the number of transactions managed by student service units is enormous. Hundred of thousands of grades are reported and recorded, thousands of students are registered, and several hundred million dollars of tuition and fees are collected. Many of these transactions are done manually, on paper, at fixed times and at fixed locations.

Fully 75 to 90 percent of all transactions currently done manually and on paper should be done electronically and without the intervention of an administrator. Moreover, these transactions should be linked strategically to minimize runaround. For example, dropping a course should automatically and simultaneously adjust financial aid, credit a student’s account, and notify a student of the academic or financial consequences of his or her decision (Kvavik and Handberg, 1999).

The University of Minnesota student Web site receives in excess of thirteen million hits a month, and three million pages of information are downloaded. The numbers continue to grow dramatically. Clearly the old mode of delivery involving paper and person-to-person contact at advising sites did not begin to meet the demand for information. Presumably students are receiving more, timely, and better
information and have a better opportunity to make better academic choices. As Kvavik indicates, the value of these services has increased for the student.

When discussing on-line versus in-person services, two points should be made. First, there is an up-front cost to developing the infrastructure needed to move from a face-to-face delivery mode to one that is Web-based. Such transitions are neither inexpensive nor easy. However, they are possible. Examples can be found at the University of Minnesota, Deakin University (Australia), and West Virginia Wesleyan College.

Second, this chapter does not advocate the delivery of all services via the Web—perhaps not even the majority. However, if there are ways to conserve resources by delivering services in a different mode (for example, over the Web), then the institution has the opportunity to reinvest those resources in other high-priority areas, such as teaching and learning. In many discussions we continue to hear the argument that the delivery of services via the Web is impersonal. When we ask students, we find that most of them prefer the accessibility and flexibility of Web-based systems to many face-to-face situations (Robert Kvavik, personal communication, May 2000).

Infomediaries

E-business can also reduce the costs of service delivery by lowering transaction and search costs. This often occurs by aggregating and providing information about sellers, customers, and prospects. A common term for these aggregators is infomediary.

Infomediaries bring together buyers and sellers and provide value by offering advice, service, or other benefits. Infomediaries can serve as aggregators of prospects or as buyer advocates. Although infomediaries typically own nothing, they sell information about a market and create a platform on which buyers and sellers can do business.

A business world example is Autobytel.com. Their goal is to make car buying and selling as painless as possible. To do that,
Autobytel.com aggregates information about car buyers and, on behalf of its car dealer partners, wraps a streamlined set of services around the whole process. Autobytel.com enables dealers to sell more cars while reducing marketing costs. Typically, car dealers have to pay marketing costs that average $335 per car sold. By becoming a member of the Autobytel.com network, a dealer’s marketing costs drop to an average of $86 per car. The reduced costs benefit the consumer, as well as the dealer (Hartman, Sifonis and Kador, 2000).

Contentville.com is an education-oriented infomediary. The site sells books, dissertations, and legal documents and provides other material of interest to academics, such as literary advice columns. Contentville will sell any book in print through an arrangement with Ingram Book Group. The site emphasizes journal articles, magazines, scholarly research, transcripts, and historical documents. Contentville has relationships with a number of providers, including EBSCO and Primedia for magazine and journal subscriptions, Bell & Howell for dissertations, and Libris for rare books. They will also sell electronic books. Contentville will make its money by marketing and selling the products of others. As part of its marketing services the site features recommendations from a roster of contributing editors. The site also carries advice to readers (Blumenstyk, 2000).

Although we commonly talk about the network causing disintermediation of traditional functions, the pattern of infomediaries is the opposite: they aggregate information and services. At this point in the evolution of e-business, infomediaries generate the lion’s share of value in the network economy and will continue to do so for the foreseeable future. The infomediary model has proven to be a reliable source of generating new wealth. Infomediaries range from portals such as Yahoo! to net start-ups that are creating unique markets on the net (Hartman, Sifonis and Kador, 2000).

Hungrymindsuniversity.com operates as an on-line learning portal that aggregates courseware from academic institutions and corporate training providers. They currently advertise over seventeen
thousand on-line learning experiences. Their key academic partners include the University of California at Berkeley, UCLA Extension, the University of Maryland, New York University, and the University of Phoenix.

MindEdge.com has created a large, searchable database of on-line courses. They intend to expand their offerings to include services such as enrollment, billing, and marketing (Carr and Blumenstyk, 2000).

Another aggregator, Smart Force, is focused on the training, rather than the education, market. Smart Force provides an integrated learning environment—everything from career planning to Internet-delivered courses, instructor-led workshops, and mentoring. Their clients include corporations and government agencies, such as Unisys, Cisco, Compaq, the U.S. Army, the U.S. Postal Service, and the U.S. Internal Revenue Service.

Headlight.com is an aggregator of up-to-date training designed for the computer and the Internet. They tailor courses to an individual learner's abilities by matching the learner's profile to class content learning objectives. Learners are able to concentrate on areas where they need extra practice. Their key content partners include DigitalThink, Skillsoft, and ElementK.

At the moment, most infomediaries are focused on goods and services rather than courses. For example, edu.com is one of many companies competing for the student e-commerce market. The firm provides deep-discount brand-name products for college students. Edu.com sells computers, software, bank services, phone and Internet services, textbooks, credit cards, and electronics (Virtual University News, 2000c). CollegeClub is a Web site that markets a variety of academic and recreational services to students. Specifically designed to cater to the eighteen- to twenty-four-year-old, CollegeClub relies on advertising, shopping, and “bounties” (flat fees for signing up users for credit cards, and so forth) (Looney, 2000). Final-exam.com offers on-line study guides for students in survey courses. PinkMonkey.com offers literature summaries, links to aca-
demic resources for research, and reference, as well as SAT preparation and college planning.

**Price Comparisons**

On-line users—whether individuals or institutions—are finding the Internet a perfect place to compare prices. Shopping for compact discs, for instance, a consumer can expect to visit about three bricks-and-mortar stores in one hour. In the on-line world, using a shopping agent, a consumer can reach about fifty suppliers in an hour or get exposure to five hundred suppliers in the same time frame. Even big-ticket items are not immune from this new market transparency. In 1998, a quarter of U.S. automobile purchasers used the Internet for research before buying. By the year 2000, nearly 50 percent of U.S. car buyers used the Internet for research before buying. In fact, product research already is the third most common on-line activity in the United States (IBM, 1999).

Search costs are practically nil for individuals with access to the Web. For certain kinds of commodity or standardized goods, the buyer has close to, if not absolutely, perfect information about the material facts of the market beforehand. Often, it would cost next to nothing for the buyer to switch his or her purchasing from one seller to another (for example, for textbooks, chemical supplies, or office supplies). Negligible search costs, perfect information, and low switching costs were simply unheard of before the Web. Today it is becoming almost routine (Rappa, 2000c).

Potential comparisons go well beyond price. In the past it was difficult for individuals to research the quality, price, and availability of goods and services. They were dependent upon advertising, a few consumer guidebooks, and word of mouth. This has totally changed with the ability to browse on the Internet, to the point where buyers can set their own price for some goods and services. Individuals can almost instantaneously compare both qualitative and quantitative data, which they can use to make a decision.
The technology that enables one to assess the market and find the best price is an intelligent agent, also called a “shopping bot.” A shopping bot is a software program that runs autonomously, or semi-autonomously, and carries out user directives continuously. The agent can be personalized to the user, and preferences can be programmed a priori or learned in use over time. Already, dozens of specialized shopping bots are available and many more are under development. Something less obvious, but equally important to remember, is that selling bots will also become an increasingly common method by which sellers can come to understand consumer trends, as well as understand the competition (Rappa, 2000d).

There are many situations in which comparison shopping might benefit education. For individual students, being able to shop for the lowest-price textbooks (including used ones) over the Web might save a significant amount of money. For the institution as a whole, cost savings could result from comparison shopping for many goods and services, such as IT components, office supplies, chemical supplies, and utilities.

Students already use the Internet to compare features and costs associated with higher education institutions. A recent survey of ten thousand U.S. high school students revealed that an institution’s Web site is the third most important source of information for prospective students (Washington Post, Mar. 28, 2000).

The National Center for Education Statistics in the U.S. Department of Education has unveiled a Web site that lets students and parents comb through data on thousands of colleges and universities so that they can comparison shop when choosing where to go to college. IPEDS College Opportunities On-Line (COOL) contains information (such as cost of tuition, books and supplies, and housing) from thousands of public and private two- and four-year colleges and universities, as well as career schools. Statistics are available on degrees awarded, enrollment, student demographics, and the availability of financial aid (Carnevale, 2000).
Smaller-scale comparisons are possible, as well. The Ohio Learning Network is a consortium of public and independent colleges and universities. It recently launched a statewide catalog of distance education courses (OhioLEARNS!) that will allow potential students to make comparisons among over five hundred courses. The site also contains links for further information, enrollment, and textbook orders. Prospective students can also access distance learning specialists at host campuses across Ohio, who can answer questions, locate appropriate courses and degree programs, and provide “high touch” support (Virtual University News, 2000b).

Revenue Strategies

E-Pricing Models

Traditionally, higher education institutions—whether a residential campus or an adult education unit—have offered services for a fixed price. (Although many institutions “discount” tuition, there is a standard fixed price as the baseline.) Learners pay for courses based on rates determined by measures such as student credit hours. Spurred by alternatives piloted in e-business, the fixed price model may change for some. We have already seen U.S. institutions auction tuition and scholarships over the Internet.

With all the new business models, there is uncertainty over which to choose for what component of the educational enterprise. E-learning start-ups (and some educational institutions) are currently using a variety of models. A description of some revenue alternatives appears in Table 6.2.

Some models, such as seat licenses, subscription, and pay-for-use, are familiar to us, based on our experience with software or library resources. Others—such as dynamic pricing—offer a greater conceptual challenge to see their application in higher education.
Auctions

In e-business, auctioning is a popular pricing model. Rather than buying a good at a fixed price, nearly half of today’s e-commerce is based on dynamic pricing, which is used in various types of auctions, such as open-cry auctions, Dutch auctions, and reverse auctions.

In an open-cry auction, also called an English auction, the buyers gather at a common location—physical or virtual—at a pre-specified time. Each buyer can hear or see the bid submitted by a rival buyer and has a limited time to respond to it with a higher counteroffer. In physical auctions, the responses must be received within seconds; in cyber-auctions, several minutes or hours may lapse (Kumar and Feldman, 2000).

In a Dutch auction, the auctioneer starts with a high asking price. The asking price is gradually decreased until buyers emerge with bids, specifying how many items they will purchase at the current asking price. The auctioneer can continue lowering the bid to maintain a stream of buyers while the inventory lasts (Kumar and Feldman, 2000).

Table 6.2. E-Business Revenue Alternatives

<table>
<thead>
<tr>
<th>Pricing Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic pricing</td>
<td>The use of an auction to establish price</td>
</tr>
<tr>
<td>Advertising</td>
<td>The sale of advertising space on a Web site</td>
</tr>
<tr>
<td>Seat license</td>
<td>The licensing of content or software on a per-user basis (for example, license an entire library of courseware)</td>
</tr>
<tr>
<td>Subscription</td>
<td>The sale of e-learning services as a periodic payment</td>
</tr>
<tr>
<td>Pay for use</td>
<td>The sale of specific e-learning products and services (for example, purchase a specific course title)</td>
</tr>
<tr>
<td>Direct marketing/data collection</td>
<td>The sale of customer lists and market data</td>
</tr>
</tbody>
</table>

Source: Adapted from Peterson, Marostica, and Callahan, 1999.
In reverse auctions, also called name-your-price auctions, the prospective buyer makes a final (and usually binding) bid for a specified good or service. The broker’s fee is then spread between the bid and fulfillment prices, perhaps with a processing charge, as well (Rappa, 2000b).

The reverse auction is of particular interest to educational institutions. Here, a consumer-to-business model is used that permits buyers to post a price they are willing to pay for an item, and the site then facilitates a match with a seller. A well-known example is Priceline.com. Used textbook sales (a consumer-to-consumer e-business model) may ultimately be relegated to such auction sites. Related sites could be developed for classified ads, as is the case at the University of Delaware.

As institutions strive to keep costs down, they may find that using auctions to procure goods and services saves money. The state of North Carolina is currently experimenting with selling excess property (such as surplus automobiles and furniture) via auctioning (Rick Webb, personal communication, June 2000). Many colleges and universities routinely sell surplus goods. On-line auctions may be as viable for higher education as they are for state government.

Dynamic pricing is also used in the government. The Commonwealth of Pennsylvania has adopted this concept. FreeMarkets.com is a company that creates on-line auctions so that sellers can compete for a buyer’s business. Working with the state of Pennsylvania, FreeMarkets has saved $10 million on a procurement volume of $98 million through nine on-line auctions. The items involved in the auctions ranged from construction to telecommunications to license plates.

Other institutions may be intrigued by auctioning excess course capacity on the Internet. For example, Georgetown University announced that it would auction three seats in its multimedia immersion certification course on the Web. Whereas the normal tuition for the fifteen-week course is $10,000 bidders hoped to attend at discounted rates (Virtual University News, 2000a).
Advertising

A slightly more controversial and perhaps short-lived revenue strategy involves advertising. Funding the development of the e-learning infrastructure and on-line courses is a challenge. Many educational institutions and some government agencies are accepting the compromise of advertising in order to subsidize Web hosting and delivery.

There is already evidence of this trend in higher education. Many campuses in the United States are making agreements with firms like Campus Pipeline, where advertising was initially the primary source of revenue. In return, the build-out of the campus Web site and hosting services is provided at no charge. Campus Pipeline has since its inception reduced its dependence on advertising revenue.

Beyond Web sites, the next wave in Internet marketing may be “eduCommerce,” a concept that combines on-line course offerings with advertising content. Several companies devoted to eduCommerce already exist, including Powered (formerly NotHarvard.com), Learn2.com, Smart Planet, and Hungry Minds. Some believe that eduCommerce may be viable as long as companies are careful with the amount and type of advertising. For example, Smart Planet permits advertisements on introductory pages but prohibits them within course pages (Oblinger, 2001).

Although it is unlikely that eduCommerce courses will ever dominate the on-line education market, many colleges and universities face stiff competition from newcomers that offer their courses for free. These entities count on sales generated from advertisements to make their profits and draw new learners (Guernsey, 2000).

Other Models

There are other business models employed in the commercial sector that are not common in education. However, as the number of new education ventures increases, some may adopt these models.

A specialized portal (or vortal—that is, vertical portal) is a site that attracts a well-defined user audience. Numbers are not as
important as the homogeneity of the audience. For example, a site that attracts only golfers or home buyers or new parents can be highly sought after as a venue for certain advertisers who are willing to pay a premium to reach that particular audience. Predictions are that specialized portals will proliferate in the near future (Rappa, 2000b). There is likely to be a growing number of portals aimed at specific higher education audiences, such as graduating seniors.

There is a pay-for-attention model. In this case the site pays visitors for viewing content and completing forms, and it uses sweepstakes or frequent flyer-type point schemes. The attention marketing approach has the most appeal to companies with very complex product messages, which might otherwise find it hard to sustain customer interest. The approach was pioneered by CyberGold. To facilitate transactions, the company developed and patented a micropayment system (Rappa, 2000b).

Bargain discounters sell goods at or below cost. They seek to make a profit through advertising. An example is Buy.com (Rappa, 2000b).

A recommender system is a site that allows users to exchange information with one another about the quality of products and services—or the sellers with whom they have had a purchase experience (good or bad) (Rappa, 2000b).

The affiliate model provides purchasing opportunities wherever people may be surfing. This is in contrast with the generalized portal, which seeks to drive a high volume of traffic to one site. Affiliates operate by providing financial incentives to affiliated partner sites. The affiliate provides purchase-point click-through to the merchant. It is a pay-for-performance model—if the affiliate does not generate sales, it represents no cost to the merchant (Rappa, 2000b).

Conclusion

E-business offers higher education a variety of opportunities to eliminate paper, reduce the cost of service delivery, and compare prices. Educational institutions are beginning to adopt e-business principles to keep costs as low as possible so that education remains affordable.
At the same time that e-business is allowing institutions to contain costs, it is opening new opportunities for infomediaries in areas that range from precollege to postgraduation and from academic to administrative. While e-business is presenting us with multiple opportunities, it is also challenging our ability to rationalize auctions, advertising, and eduCommerce with our conventional practices.

References


