

The "E" is for Everything

E-Commerce, E-Business, and E-Learning in the Future of Higher Education

EDUCAUSE Leadership Strategies, Volume 2

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Chapter 1: Navigating the Sea of "E" by Diana G. Oblinger and Richard N. Katz

In a networked world, you can add an "e-" to almost anything: e-mail, e-commerce, e-business, e-procurement, e-tailing, e-government, e-learning. In the business community, the Internet and the World Wide Web are fundamentally changing the way many companies operate: promoting brands, selling products, communicating with customers, and managing suppliers. In government, these technologies are changing how payments are made, grant proposals are submitted, patents are filed, and services are provided. In education, the Internet and Web are changing instruction, research, administration, and public service. Student services professionals are rethinking what information is provided to students and how, as well as the decision-making tools that add value to that information. Purchasing, library services, and financial processes are being transformed as an evolving set of technologies is adapted to the needs of colleges and universities. Perhaps most striking is how this collection of capabilities, from e-mail to collaboration to knowledge management, is changing the expectations of our society.

In this evolving environment, there are many new household names-eBay, Amazon.com, America Online (AOL), and many others. More significant than the names of the latest players is the new set of dynamics that is emerging:

- The network economy thrives on speed, flexibility, and the relentless pursuit of innovation.
- Large organizations consolidate and small ones proliferate to balance scale, efficiency, and innovation.
- The delivery of value and market responsiveness are replacing traditional decisions as the basis for allocating resources.
- Lower-priced or higher-quality offerings do not automatically confer competitive advantage (International Business Machines, 1999).

Adrift in the Sea of "E"

Educational policymakers and information technologists may share a confusion over the growing-and undisciplined-evolution of language to describe what is known variously as e-business, e-commerce, and so forth. Indeed, although the addition of the "e" prefix to any word seems to add value in both private capital markets and advertising, higher education readers are wise to take a somewhat skeptical view. In fact, e-business has become a generic term signifying all manner of electronic operations.

In general, the term e-business refers to the application of a variety of information technologies to the delivery of an organization's mission. In particular, e-business assumes the application of Internet, extranets, intranets, and the World Wide Web to an

organization's processes and delivery systems. Increasingly e-business assumes the integration of these technologies with a variety of related technologies (data warehousing, data mining, intelligent agents, and so forth) to replace physical processes with new processes that can be accomplished over networks. Some even think of e-business as an evolutionary step that reflects a progression of capabilities from on-line catalogues and electronic payments at the earliest stages of effort, to the adoption of so-called personalization technologies and supply-chain integration at later stages. Industry analysts and pundits are advising that ultimately (and perhaps soon) this ubiquitous e-prefixing of every human activity will abate as the majority of enterprises accomplish this integration and replacement of technologies and processes and as "e-business" becomes indistinguishable from business. This mainstreaming of e-business has two important implications:

1. It is not critical, or perhaps even helpful, to master the jargon of this important trend.
2. The trend itself, and in particular its application at the enterprise (for example, college or university) level, is likely to become a matter of extraordinary importance.

Despite our reservations about this jargon, the addition of the "e" prefix is a useful and efficient shorthand for a complex variety of technologies and activities. For this reason, and due to the popularity of this convention, the chapter authors use a variety of related terms, especially e-commerce, e-business, and e-learning.

E-business is used as the generic and overarching term signifying all manner of internal and external operations and processes conducted over networks. In general, e-business also assumes the use of the World Wide Web as an infrastructure for "doing business" (for example, identifying goods or services, selecting a desired product, ordering a product, and in some cases actually delivering the product). The dominant idea of e-business is that an organization "gains an advantage by being able to serve customers wherever they happen to be—in a store, on the phone, on-line, or offline" (Alsop, 1999, p. 87).

E-commerce is used typically to describe transactions (not all economic in nature) between one individual or organization and another. It is "the marketing, sales, and payment for goods, services and experiences using electronic means" (Norris and Olson, 1999). There are a growing number of enterprise Web sites where businesses market, sell, and support products.

E-commerce companies are focused on Internet-based sales, whether business-to-business or on-line retailing to consumers. Of these, some are aggregators bringing diverse brands to market (for example, Amazon.com). Others provide an electronic market for industry buyers and sellers, such as MetalSite and ChemExchange and retail auction firms such as eBay. A third type of e-commerce company enables buyer-driven commerce such as Priceline.com (International Business Machines, 1999).

Although \$23 billion was spent in on-line merchandise in 1998, e-commerce between businesses was five times greater than the consumer market. Business-to-business e-commerce is exploding. Shifting business to the Web is straightforward and more cost-effective. Forrester Research predicts that in 2003, business-to-business e-commerce will reach \$1.08 trillion, a thirty-five-fold increase from 1998.

A substantial amount of on-line commerce already is associated with colleges and universities. The research firm Student Monitor estimates that students will spend \$700 million in on-line purchases in the year 2000. By 2002 it expects on-line spending by

college students to exceed \$14 billion. In addition, alumni and athletic fans purchase sweatshirts, caps, and other college logo products over the Web ("Wired on Campus E-Life," 1999).

E-learning is a rapidly expanding category of e-business. Defined as using the Internet for instruction in postsecondary education and training (Baer, 1999), the prospects for e-learning appear to be tremendous. Digital technologies for distance-or distributed-education have applications for children, college or university students, corporate learners, and those seeking personal enrichment. The combined effects of increased demand and enabling technologies are creating a significant market for distance education. International Data Corporation expects a compound annual growth rate of 33.1 percent over the next several years, predicting that demand will increase from 5 percent of all students in higher education institutions in 1998 to 15 percent by 2002 (Rochester, Boggs, and Lau, 1998).

Myriad new products, services, and providers are entering the e-learning "marketplace." For example, curriculum and content development is being provided by university spin-offs such as OnlineLearning.net, NYU Online, and educational publishers. Content development is linked to companies that provide software learning environments (for example, Lotus, Convenc, WebCT, Blackboard, and Eduprise.com). Teleconferencing firms are being integrated into the learning delivery systems (for example, Caliber, One-Touch). Educational management organizations (for example, UNEXT.com or University of Phoenix) are attempting to span the range of traditional university functions.

Related to e-learning, content service companies and enterprise Web sites create or provide information that can be obtained on-line (International Business Machines, 1999). These include firms that organize content created by others (for example, Yahoo) and "destination" sites that provide specialized content (for example, Weather.com). Typical business models are based on advertising revenues or related product sales, but some information is also sold directly (for example, WSJ Interactive).

The content area for higher education presents significant potential. The Gartner Group (1998) expects a dramatic increase in the content that will be delivered electronically to students. Estimates are that 60 percent of students will access content electronically by 2003.

Other terms for describing network-based transactions have also become popular, though they generally will not be used in this book.

E-procurement describes the use of network, Web, database, and related information technologies for paperless procurement.

E-procurement can range from using electronic data interchange (EDI) to digitally processed transactions to sophisticated order management and inventory control systems. Electronic payments reduce paperwork and cut costs. The Federal Reserve estimates the overall cost of check writing to the U.S. economy is \$44 billion a year in paperwork, processing, and labor (Donahue, 1998).

Using another form of e-procurement, some institutions have begun to allow authorized staff members to order goods up to a certain value (for example, \$5,000) on a purchasing card, which eliminates approximately 80 percent of traditional purchase transactions (Finlayson, 1999). An emerging benefit of e-procurement, beyond reducing paperwork, is that it allows organizations to compare prices and services more effectively. Over the

Web, the number of price comparisons can be virtually unlimited and instantaneous. For example, "shopping bots" such as RUSure and MySimon can be used to scour the Web to identify purchasing alternatives and compare prices. New companies are emerging to provide institutional and individual customers with these technical capabilities and the benefits of pooled purchasing power.

E-care is a term that some use to refer to using the Web to deliver information, support, services, and decision-making aids to individuals inside or outside an organization. In higher education, electronic student services is the most common form of e-care. For example, the New York University (NYU) Book Centers are simplifying the process of identifying, locating, and purchasing books for NYU's forty-six thousand students. An interactive Web site allows students to enter their student identification number or a particular course number from their computer to generate a complete list of the books needed for their courses. Students can also learn whether certain books are in stock as well as how many copies are available and where each is located across the four book centers.

Many e-care sites offer features designed to serve people, such as the ability to read through lists of frequently asked questions or to send a query via e-mail. Such sites capitalize on the fact that most people tend to ask the same questions over and over (the repeat rate often runs from 50 to 70 percent). Analysts estimate that a telephone inquiry costs twenty-five to thirty dollars; serving that same individual over the Web costs just two to three dollars (Clague, 1999).

E-care in higher education can also apply to employees (for example, enrolling for a health care plan). Other functionality that a human resource site can offer includes opportunities to access or update personal information; enroll for benefits, training, and deductions; review lists of internal job postings; process time cards; or access employee handbooks (Savage, 1997).

E-access refers to the sale of network connections or network management services (portals) by Internet service providers (ISPs). These business models are typically based on monthly subscription fees. Some portals, such as AOL and GeoCities, strive to build on-line communities. Access fees are predicted to drop; many companies intend to move to more sustainable models based on advertising and transaction shares (International Business Machines, 1999). This has already begun in higher education with the introduction of Campus Pipeline, MyBytes.com, Jenzabar.com, and others.

Benefits of E-Business

One of the reasons for moving to e-business is that such a move allows, or even forces, organizations to innovate. The business model behind Amazon.com is fundamentally different from that of traditional booksellers, for example. For other organizations, the rationale focuses on efficiency and effectiveness. Focusing the attention of higher education on innovation (as well as on efficiency and effectiveness) is a promising change strategy that builds on the traditional propensity of college and university faculty and staff to create and innovate.

The returns on investment (ROIs) from internal or e-business are positive. For publishing applications, the estimated ROI is 21 percent. For order management, collaboration, commerce, and customer service, the ROIs range between 40 and 50 percent. Inventory management applications exceed a 50 percent ROI. These returns, as always, will be hard to translate into higher education environments, where quality is often defined in terms of student-faculty ratios. However, an e-business infrastructure creates the early opportunity to lower the costs of delivering institutional services and over the longer

term makes it possible to extend the reach of the institution in ways that do not always add costs. Real revenue increases and cost reductions are possible.

In multiple facets of college and university operations, an effective e-business strategy can play an important role and provide valuable benefits. First, the cost of operations and services can be reduced. Applications often can be processed more efficiently on-line than manually. By saving costs, educational resources can be freed up and applied to other priority programs. Second, the quality of services can be improved. For example, course or job listings that are maintained electronically can be kept up to date more easily. Students can avoid spending time trying to register for classes that are already full or applying for jobs that are no longer available. Finally, the coordination and communication between offices can be enhanced, speeding up work flow and decision making.

Implications of E-Business

E-business only accents the reasons for institutions to continue their investments in networking. Being "wired" has become a competitive edge in today's society. Many students are selecting universities based on how wired they are. In part, this is because students are performing more functions on-line, from registering for classes and communicating with professors to ordering take-out food.

Internet commerce shifts the balance of power to the buyer. On the Net, competition is just a click away. If people have trouble finding a book at Amazon.com, they can go to barnesandnoble.com. People can easily find a wealth of price comparison information on the Net. CompareNet, for instance, offers detailed information on more than 100,000 consumer products. The Net allows consumers and corporate buyers from all over the world to band together and pool their purchasing power, leveraging volume discounts (Hof, 1999). This tendency to shift power is heralded by some as the emergence of the exchange economy. This shift presents colleges and universities with an important potential source of cost savings and poses new challenges to these institutions as they move to deliver (and price) their own services over networks.

There are a number of implications of e-business dynamics that will affect higher education as well as business and government:

- The use of the network for e-business can dramatically reduce transaction costs. In a bank, it costs roughly a dollar to do a transaction in a branch, fifty cents over the phone, twenty-five cents through an ATM, and thirteen cents over the Internet.
- The network can reduce barriers to entry. The landscape is altered significantly when a competitor can enter your market with an 87 percent reduction in distribution costs (Gerstner, 1998).
- The network enables the low-cost reproduction and distribution of information-based offerings. A value proposition based predominantly on information may be insufficient in the future. Mass customization and the addition of value may be required.
- Networks readily cross traditional departmental, industry, and national boundaries, broadening markets and increasing competition.

Among the fundamentals of e-business are rethinking goals, organizational structures, funding, technology, and collaboration. If we accept the premise that traditional rules may not translate into success in an e-business environment, applying existing institutional models to this new environment is risky.

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