Enabling e-commerce in the New E-conomy

Symbol Technologies

According to IDC projections, by 2004, purchases impacted by the Web (both business-to-business and business-to-consumer) will reach $2.5 trillion. Forrester Research, a market research firm based in Cambridge, Mass, predicts that more than 40 percent of American households will be shopping online by the end of 2003.

As companies dramatically expand their use of technology to meet the demands of B2B (business-to-business) and B2C (business-to-consumer) e-commerce, technologies such as mobile computing, wireless, and bar code scanning - for automated data access and data capture-- are clear solutions. The combination of these technologies has the potential to transform information access, as well as the shopping and buying experience. For businesses of all types, this represents a compelling opportunity for innovative customer acquisition and relationship management.

On the consumer front, as data networks migrate into the home, the growth rate of consumer-related information appliances and applications is reaching critical mass. This is why consumers and businesses are looking for solution providers who bring leadership in miniaturization, mobile computing, wireless networks and bar code laser scanning to take Web browsing and e-commerce to new levels, enabling the anywhere/anytime world of the 21st century.

The e-commerce Explosion

How important are these enabling technologies? Consumers in general, and business workers in particular, are becoming increasingly mobile, expecting or needing access to information anytime, anywhere. The Gartner Group's Bob Egan views wireless as "the growth hormone for e-business." Renowned French futurists Bressard and Distler have identified the Internet and the bar code as two emerging "mega-machines" of our time.

These technologies, integrated and embedded in millions of new devices, including general purpose and application-specific hand-held information appliances, are revolutionizing e-commerce at the retail, service, and consumer levels.

Enabling Trends

Powerful socio-economic and technological trends are converging to shape the new e-commerce order. Greater prosperity and global competition are driving the need for productivity and increased customer loyalty. Technological and cost advances with respect to miniaturization and manufacturing economies-of-scale are enabling scanners to penetrate the consumer market at a rapid pace.

Moving beyond the checkout line and back-end logistics and operations, the e-commerce ‘industry' has recognized that scanning technology in the hands of consumers provides increased sales opportunities. Convenient, affordable data communications devices, tied to the accuracy and efficiency of bar code technology, offer the ability to fulfill needs remotely and improve quality of life. Further, the maturation of imaging and two-dimensional bar code technologies allows for greater volumes of data to be scanned, stored and transmitted, opening the door for even greater productivity. This continuing technological evolution is occurring while the size and cost of consumer scanning technology is shrinking.

The Internet: Backbone of the New E-conomy

The Internet, with its inherent digital technology, is the common delivery mechanism that makes this transition possible. The widespread adoption of IP (Internet Protocol) as the standard network layer protocol for local and wide-area communications, and the adoption of standard HTML browsers, allows computers in virtually any form factor to communicate with one another, provided the appropriate middleware. The posting of products and services on a widely accessible medium like the Web opens doors to new mass markets.

Retailing + E-tailing = Synergy
Initially, traditional "brick and mortar" retailers and pure online "e-tailers" were viewed as adversarial players in the battle for consumer dollars. But in reality, online shopping is simply another modality, like catalog or TV home shopping. If executed properly, the two would complement, not compete. To stay competitive, retailers must quickly implement integrated Web-based and in-store shopping solutions that facilitate greater overall sales, instead of fearing cannibalization. Retailers must rethink how they operate, offering the benefits of physical shopping (taste, touch and smell), with the convenience of e-commerce.

In the future, new technologies such as "inference engines" and object-oriented databases will further serve to link the concepts of retailing and e-tailing. Inference engines utilize statistical algorithms to recognize trends and buying patterns, auditing items selected by the shopper and making additional recommendations. For example, when brand name bar codes are scanned, object-oriented databases send shoppers real-time messages displayed on their shopping companion devices about private-label alternatives which represent a lower price to the consumer and a higher margin to the retailer.

Clicks and Mortar
With e-tailing exploding, traditional retailers are transforming online obstacles into opportunities. An Atlanta-based shopping mall is reinventing itself by equipping teenagers with data capture devices that facilitate shopping. They are given neon-green Symbol CS2000 FastFrog devices, and then roam from store to store, scanning bar codes of the items they want. When finished, they return FastFrog to "The Pond," an Internet-connected kiosk, upload the items to a personal website, and e-mail parents and other potential gift-givers their wish list–with the built-in accuracy of bar code technology. Adults are given a Symbol Palm Computer that works over the wireless network installed in the mall. Teens and adults can place orders online with the same stores that are in the mall or come in with a printed shopping list generated from the website. This represents a tremendous advantage over the non-physical Web-based business, thus adding value to the physical property of the store and its brand.

ROAC and SOAC
Wireless Local Area Networking (WLAN) will soon move beyond the traditional vertical market applications–such as the warehouse, retail store, and the hospital–and into the office, airport, convention center, hotel room, shopping mall and home. As the WLAN infrastructure changes to a better managed and more secure facility, new technologies will drive new devices. In the future, businesses and consumers will use Radio on a Chip (ROAC) technology to wirelessly communicate at 11 Mbps and higher. In addition, Scanner-on-a-Chip (SOAC) technology will allow automatic scanning to be embedded in small devices like a pen, or into the IrDA port of a cell phone or Palmtop–without requiring an increase in size of the device's housing.

Scanner Assisted Access and Shopping
Scanner assisted access and shopping is compelling. Despite the explosive growth of Internet use and online shopping, accessing specific sections of websites and individual products is not intuitive for the typical mass-market consumer. According to studies conducted by USA Today and IntelliQuest, a majority of online shoppers say they have trouble finding the exact product they want during the holiday shopping season. In addition, the linkage between print media and Internet access is lacking. As a result, there are a number of initiatives under way to put bar code tags into print media.

Conclusion
The converging technologies and trends… the omnipresence of the bar code, the need for mobility and wireless connectivity… represent the essential building blocks for connecting and extending the critical link of the Internet to the physical world of retail merchandise, goods and people on the move. Visionary yet practical organizations understand the importance of integrating legacy systems with e-commerce solutions so they can develop into modern-day e-tailers. These companies are seeking solution providers who have the tools, experience and solutions to shift the PC-based Web browsing paradigm from one of hi-tech, business-to-business data exchange to a new, massive domain where consumer-focused e-tailing is as commonplace and effortless as window shopping.

Consumer-focused e-commerce is simply a continuation of the goal to extend information to the point of activity. But now, that point of activity literally resides in the hands and pockets of hundreds of millions of time-starved, convenience-driven baby-boom consumers, weaned on technology and entering their peak spending years. Make sure you understand the impact that these mobile devices and their savvy users have on your markets, your customers, and your organization. Then consider whether you need to take that next step in the e-commerce revolution.

About Symbol Technologies

Symbol Technologies, Inc. provides mobile data management systems and services with innovative customer solutions based on wireless local area networking for voice and data, application-specific mobile computing and bar code data capture. Symbol's wireless LAN solutions are installed at more than 60,000 customer locations, and more than seven million Symbol scanners and application-specific scanner-integrated mobile computing systems are in use worldwide. Symbol and its global network of business partners provide solutions for retailing, transportation and distribution logistics, parcel and postal delivery, healthcare, education, manufacturing and other industries. Symbol is a strategic solutions partner of Datatrend Technologies, Inc.
