Capitalize on the imminent era of explosive e-services growth.

"E-volution" to Revolution

I n the decade since the World Wide Web was introduced, the only certainty that marketing managers have faced is uncertainty. During this period, a major strategic thrust of business, government, and nonprofits has been implementing technology-based service systems. These service systems have transformed every aspect of our lives—including how we socialize, manage our money, purchase goods and services, and gather information. Yet any organization that has a stable and functioning e-service model shouldn't become too smug. The pace of change is accelerating—not slowing—as a convergence of cutting-edge technologies, millennial lifestyles, and technology-related demographic shifts is moving the world of e-services from evolution to revolution.

By Regina D. Woodall,
Charles L. Colby, and
A. Parasuraman

Reprinted with permission from *Marketing Management*, March/April 2007, published by the American Marketing Association.

EXECUTIVE briefing

Marketers must brace themselves for an e-services revolution, which information technology, changing lifestyles, and demographic shifts are fueling. The current Web-based models for e-services are part of an embryonic phase preceding an era of rapid transformation, challenge, and opportunity. To prepare for this exciting future, it is necessary to understand the varying technology land-scape and the psychosocial dynamics behind consumer adoption. Making bold decisions in how to deliver e-services and learning to partner with customers is essential.

In a few years, we might aptly view the age of the Web the same way we viewed the "steam age" in the 20th century. The e-services of today will likely appear flat, static, and immobile compared with the technology-based e-services of the next decade. To some degree, the seeds of the coming revolution are evident in Europe and Asia, where newer generations of information technology have leapfrogged North America. Marketers can benefit from knowing (1) these trends, (2) the opportunities such trends will create, and (3) the obstacles they must overcome. Consumer behavior, in the face of technological change, has implications for them.

Three concurrent trends will heavily shape the future of e-services. They consist of advances in information technology, changing lifestyles (which technology influences in many respects), and demographic shifts. Each trend in the macro-environment is experiencing significant transformation, which will profoundly affect how consumers adopt and use e-services.

Information Technology

Technology refers to cutting-edge (just-introduced) solu-tions that have the potential to add value to consumers' lives—in the form of increased efficiency, security, flexibility,

■ Exhibit 1
Factors driving an e-services revolution

or functionality. Boundless technologies are coming to market or in development. Five elements of technology progression will fundamentally transform interactions between con-sumers, e-service providers, and e-service providers' employ-ees: mobility, portability, convergence, personalization, and collaboration. (See Exhibits 1 and 2.)

Mobility. This is freeing consumers from a fixed venue (e.g., a bricks-and-mortar store, their homes or offices), to conduct transactions anywhere they choose. With up to 77% of the population owning wireless phones, it is natural to view this technology as a vehicle for meeting the mobile con-sumer's entertainment and communications needs. According to the 2006 *National Technology Readiness Survey* (*NTRS*), a joint study by Rockbridge Associates in Virginia and the Robert H. Smith School of Business in Maryland, the most desired new feature of wireless devices was global positioning system technology—which allows users to get directions or navigate to a location. Another example is Motorola's iRadio, which lets consumers record and access a wealth of audio program-ming over their mobile phones, and play back the content over their vehicles' sound systems.

However, third-generation (3G) networks' lack of penetra-tion in the United States hampers growth in mobile e-services. This is due to older infrastructure, and government and industry slowness to launch new systems and standards. These 3G networks offer the faster data-transfer speeds that are needed to enable advanced functionality, and are much further along in Europe and Asia. While the United States scrambles to catch up with 3G networks, other countries are planning to leapfrog to fourth-generation networks—which allow richer content.

Another development, still in the early stages in the United States, is Worldwide Interoperability for Microwave Access (WiMAX) networks. Currently, millions of consumers take advantage of Wi-Fi hot spots, where they log on to the Web with a wireless connection. Unlike the narrow-range and voice-oriented networks of today, WiMAX will supply broad-band access from a wider spectrum. This enables faster and richer linkage to digital information.

Portability. This refers to technology's increasing capability to be transported easily, even within a small distance—such as from the kitchen to the living room. Wireless networks, which are just starting to take off, make it possible to move freely in
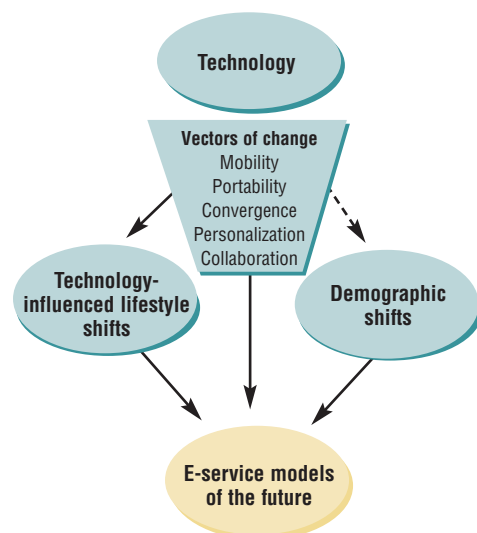
the home with a device. And Wi-Fi allows consumers to get hold of information and entertainment anywhere—from the local coffee shop to a travel depot. Bluetooth technology (which eliminates "spaghetti wiring" by providing wireless connections between devices) and greater space saving, in the form of flat panels for computers and video, further enhance portability. These technologies afford consumers additional control over their environments, including enhanced privacy to conduct research and access e-services. An example is Sony's LocationFree TV, which lets consumers watch their favorite programs anywhere in a residence, be it in the bath or at the dinner table.

Convergence. The convergence of voice, video, and data also offers enormous possibilities, particularly for more sophisticated customer service and marketing to customers. If a service provider wills it, then customers can benefit from a greater human experience—a service representative who is available online "24/7," by voice or video, and able to send and receive data to enhance the transaction. This will provide the best of both worlds for customers: They will receive the high-touch service they usually get in person, and have the convenience of an online interaction (they can be at home with their records at their fingertips). Although adoption of home videoconferencing has been slow, e-service providers are building the market from the ground up.

Broadband access allows voice, video, and data to flow efficiently in a single pipeline. With penetration rates reaching 66% of Web users this year, consumers have recognized the benefits it provides in their busy lives and are willing to pay

for it. Broadband technology keeps getting faster, with fresh options entering the market—such as fiber-optic e-services that can deliver data at accelerated speeds. Cable companies are responding by boosting their system speeds. And in Asia, e-service providers are offering consumers e-services that are available only to commercial users in the United States. With more and more consumers adopting high-speed access, and the speeds continually rising, e-service providers will be able to add new convergent capabilities to increase convenience and efficiency for consumers.

Personalization. Successful e-service models adapt transactions to the customer's needs, and successful technology-based e-services allow personalization that makes the experience more relevant and responsive. Some of the earliest e-services permitted users to customize a portal to their preferences (e.g., My Yahoo). Many consumers won't take the time to do this—but technology increasingly gives e-services the ability to adapt to their behaviors. Personalization hasn't always matched its hype. However, sophisticated data modeling and database integration lets e-service providers use customer-specific data to optimize decisions in self-service transactions. For instance: Amazon is well-known for its success in using customer information to merchandise to customers, based on stored and transactional information.

Adding to personalization of automated technologies is the "smart card." More common in Europe than in North America, it contains large amounts of personal data—which self-service devices can access electronically. Examples of applications include verifying users' identities online, storing vital medical information in a wallet, and controlling admission to different parts of a building.

Collaboration. This will affect e-services further into the future, but potentially with greater impact. Most technology-based e-services involve interactions between a consumer and a computer, or a consumer and an employee; soon, it will be increasingly possible to involve several parties in a transaction. New e-service models are bringing together groups or communities, in real-time and extended-time transactions. Many interfaces are already designed to allow collaboration: Web conferencing (to augment presentations), online education platforms and auctions, electronic gaming, and so on. For instance, online consumers share information when shopping. And a college student—living away from home and applying for student loans—can remotely involve his or her parents in the transaction, as advisers and cosigners.

Changing Lifestyles

As mentioned, technology is altering how consumers do business, access information, and interact with each other—and this has a powerful effect on e-service models. Consumers' lifestyles are changing

■ **Exhibit 2**

Elements that will influence e-service

Element	Enabling technologies	Fulfilled consumer needs	Examples of new e-service solutions
Mobility	WiMAX, 3G, and 4G	Freedom, time, and access	Finance, navigation, and location-free entertainment
Portability	Bluetooth, wireless networks, and flat panels	Freedom, comfort, and privacy	Wellness and location-free entertainment
Convergence	Broadband and videoconferencing	Human touch, organization, and efficiency	E-service representatives and complex transactions involving data sharing
Personalization	Recommendation systems, database integration, and smart cards	Efficiency and opportunity	Personalized mini-brands and high-impact merchandising
Collaboration	Instant messaging, chat, Web conferencing, and gaming/e-learning platforms	Group decision making and involvement of influencers	Web-conferenced interactions and e-learning

in many ways: through increased e-commerce activity, information gathering, mobility, and social network creation. These elements will have a strong impact on the growth and future of e-services.

E-commerce activity. This has become mainstream among U.S. consumers. For example, 73% of online adults purchased a $10-$100 item on the Web in 2006. This is up from 64% in 2004 and 47% in 2000. Consumers also see value in managing their financial lives through online banking and bill paying. In 2006, 65% of consumers checked a bank account online, compared with 51% in 2004 and 26% in 2000. Usage of banks' bill-pay e-services jumped from 30% in 2004 to 49% in 2006, per the *NTRS*. (See Exhibit 3.)

The primary obstacle to e-commerce has weakened. There appears to be heightened sensitivity to security and privacy breaches, as a result of "phishing" scams, identity theft, and terrorism concerns. Despite this, consumers are less worried now—about the security of their online personal information—than they were two years ago. (See Exhibit 4.)

Consumers feel that technology gives them the freedom to take care of business on their own schedules, and more efficiently than in person. The real-time nature of online tracking—of purchases and financial account activity—keeps consumers in touch, and offers them peace of mind. They're less likely to give up these e-commerce advantages because of privacy and security fears.

Information gathering. Technology empowers consumers to obtain the information they need to take care of themselves. This is part of a movement that writer and futurist Alvin Toffler calls "prosuming," in which consumers participate in the production of the goods and services they consume. During an appointment with the doctor, consumers no longer have to ask the right questions and rely on him or her to tell them everything they need to know; e-services such as

WebMD provide all the details. The *NTRS* shows that in 2006, 69% of consumers researched health information online.

Mobile lifestyles. Consumers don't want to limit their entertainment and communications options just because they are on the go, inside and outside of their homes. They're increasingly adopting a mobile lifestyle that takes advantage of the technologies discussed previously. In a recent eBrain Market Research study ("Connecting With Consumers"), which used a conjoint methodology to explore purchase priorities for consumer technology, the most important attribute was portability—not price, quality, or brand. Nowadays, consumers expect technology that they can easily take with

> ## Consumers no longer have to rely on the doctor to tell them everything they need to know.

them as they move around their homes and travel. Additional evidence of this: the increasing number of consumers who are unplugging their landline phones, to solely rely on wireless phones for communication (up to 10% of the population in 2006).

Social network creation. Communities on gaming, social, and e-learning Web sites are highly popular, particularly among younger consumers who maintain identities on MySpace or Facebook. Even though there's concern about diminishing human relationships, online networking has advantages. Students can send instant messages to friends for help with homework. And citizens from different countries can reach out to each other, to gain a mutual understanding. There's also a movement toward narrowly defined communities, which is possible because of a critical mass found on the Web.

Demographic Shifts

The United States is experiencing several demographic shifts that will influence e-services growth and demand, and technology is driving some of them. The affected groups include Hispanics and immigrants, older Americans, and the remote workforce.

Hispanics and immigrants. Hispanics were 12.5% of the population in 2000, up from 9% in 1990. This fast-expanding group, along with recent immigrants, requires new e-services to stay connected and interact with family and friends around the world.

Older Americans. The population is aging, with baby boomers (those ages 42-60) beginning to retire in five years. The economy will experience a decrease in productivity, and organizations will naturally look to technology to help fill

■ **Exhibit 3**

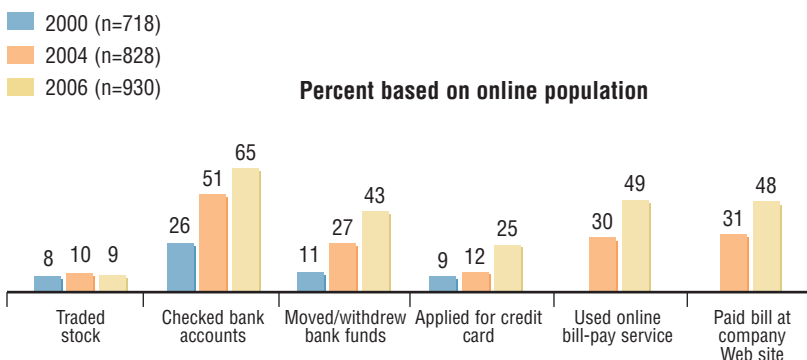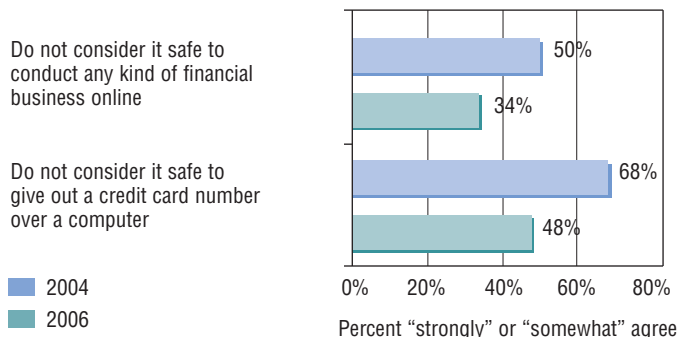Incidence of online financial transactions over a 12-month period

- 2000 (n=718)
- 2004 (n=828)
- 2006 (n=930)

Percent based on online population

	Traded stock	Checked bank accounts	Moved/withdrew bank funds	Applied for credit card	Used online bill-pay service	Paid bill at company Web site
2000	8	26	11	9		
2004	10	51	27	12	30	31
2006	9	65	43	25	49	48

Do not consider it safe to
conduct any kind of financial
business online

Do not consider it safe to
give out a credit card number
over a computer

50%

34%

68%

48%

■ 2004
■ 2006

0%   20%   40%   60%   80%

Percent "strongly" or "somewhat" agree

Source: 2006 *National Technology Readiness Survey*

the void. Organizations might also consider technology to serve the increasing number of elderly people with special needs.

The remote workforce. Geographically, there's evidence of a "rural rebound," as Americans seek additional space in the face of a growing population. And technology is playing a role, by making it easier to work from remote locations. According to the *NTRS*, 8% of the population has a residence-based business and doesn't need to commute, because of information technology. Another 11% telecommute to their jobs at least part-time. The degree to which workers are willing or able to work from home has limits, but technology contributes to a more dispersed workforce.

Revolution Response

Rapid change in these macro-environment trends poses a challenge to service organization managers—to adapt or perish. E-service models in the next decade will need to incorporate the elements of technology progression discussed previously. Strategic responses should be based on full convergence of voice, video, and data; complete mobility and portability; evolved interfaces; successful personalization; and bringing back the personal touch.

Delivering full convergence of voice, video, and data. Ultimately, consumers should have the ability to contact an organization or government agency online, see and listen to an employee if warranted, share information (e.g., invoices, statements), and conduct tasks such as entering information. Early entrants might delight their more tech-savvy customers. But there's a risk that they will be vulnerable, by offering systems that aren't fully perfected or cutting-edge.

Making services mobile and portable. More service applications will move to being portable devices, which benefit consumers anywhere. Although there's considerable buzz about recent entertainment services (e.g., the video iPod), the greatest potential might be in banking, government, and "e-tailing" services. New mobile applications will emerge—

such as sending electronic coupons over portable devices, based on the recipient's location.

Developing evolved interfaces. Consumers will expect more intuitive and flexible ways of interacting with e-service providers. This mirrors developments in industries similar to video gaming, which cater to tech-savvy customers. Interfaces based on voice recognition, eye tracking, and motion sensing are just a few.

Implementing successful personalization. Personalization is a natural element when there's pressure to build loyalty and convert visits into sales. Consider the advantage that a clothing-store salesperson has by being able to see and listen to a customer. Now translate that to a Web-based service, in which e-service providers can make recommendations using knowledge of the customer's age, body shape, and fashion taste. Again, information technology continues to advance. E-service providers can implement practical solutions, such as offering options that reflect natural benefit segments (i.e., groups with similar requirements from a service).

Bringing back the personal touch. According to the *NTRS*, 84% of consumers agree that "the human touch is very important when doing business with a company." Technology has an opportunity to come full circle, and reintroduce the human being into the transaction. For example: A first-time home buyer can complete a mortgage application at his or her residence (where there's ready access to records), while conferencing with a professional loan officer who manages expectations and provides assurances. Such a model results in costs higher than those of a fully self-service transaction, but e-service providers should weigh the costs against the increased retention and loyalty. The model also allows e-service providers to reach lower-cost labor markets.

Customer Enlistment

The greatest partner in adapting to technological change is the customer. To understand how to optimize this relationship, it is important to examine consumer behavior. Research shows that buyers in a business-to-consumer or B2B context possess varying beliefs about technology. Positive beliefs consist of a tendency to innovate and be optimistic about technology's benefits; negative beliefs consist of a general discomfort in using technology, and an insecurity regarding its safety and privacy. All of us vary in combinations of these beliefs, and it is possible to simultaneously harbor both kinds.

Customers are inclined to fall into segments suggesting unique opportunities. These include partnering, supporting, persuading, and simplifying. (See Exhibit 5 on page 34.)

Partnering. Work with your most tech-savvy customers. One out of five U.S. adults is an "explorer." This type of consumer has a strong affinity to cutting-edge technology, and few inhibitions in using it. Explorers enjoy learning and experimenting with recent technology, as well as sharing their knowledge. Marketers should study the behaviors and needs of these early adopters. Ethnographic research will reveal the
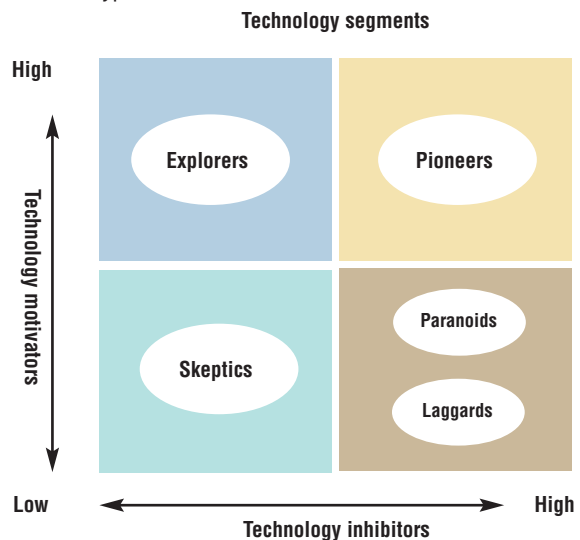
new models of behavior that they're adopting—either by creating them on their own or by turning to competitors with more state-of-the-art e-services. Explorers will willingly share their insights, in response to traditional market research.

Supporting. Help your most enthusiastic customers manage the latest service technologies. One out of four U.S. adults is a "pioneer." This type of consumer believes in and desires progressive technology, yet has a great deal of insecurity and discomfort in making it work for him or her. Marketers need to single out the enthusiastic-but-challenged pioneers and (1) offer them the latest functionality, (2) educate them on how to use the e-services, and (3) assure them that the technology is benign. Success depends on investing in customer training, documentation, and technical support—areas that frequently get cut back when introducing self-service technologies.

Persuading. Convert the "skeptics." One-fifth of the population has little emotional involvement with technology. The good news is that these consumers are uninhibited in accepting it; the challenge is showing them the benefits. Rockbridge Associates' research—on the values and psychosocial drivers behind adopting financial e-services—reveals that customers can view the same features (e.g., security and control) as

■ **Exhibit 5**
Customer types

Technology segments

High — Explorers | Pioneers
Skeptics | Paranoids / Laggards

Technology motivators (vertical axis)

Low — Technology inhibitors — High

drawbacks or advantages. The trick is crafting messages that turn the liabilities into assets. Marketers must show that innovative e-services actually enhance security and control, by offering a real-time and "24/7" connection to information.

Simplifying. Save today's technologies for customers who resist change. One-third of the population sees limited or no benefit to technology, and many obstacles to its use. As an organization aims to upgrade its technology solutions, these "paranoids" and "laggards" are excellent prospects for last-generation technology. An explorer might look for a portable device with the latest features (e.g., broadband access, music downloading, full video capability). But a laggard might desire a less-advanced model, which has voice-only service and is cheap, reliable, and easy to use.

A revolution can be an exciting time. It challenges organizations to continually learn, adapt, and perfect. Understanding the three macro-environment trends, which are transforming e-services marketing and delivery, is critical—as are partnerships. And the first ones that an organization should turn to are with its customers. ■

About the Authors
Regina D. Woodall is a vice president at Rockbridge Associates (a market research firm specializing in technology issues) in Great Falls, Va. She may be reached at gwoodall@rockresearch.com. **Charles L. Colby** is president of Rockbridge Associates, and may be reached at ccolby@rockresearch.com. **A. Parasuraman** is a professor and the James W. McLamore Chair in Marketing at the University of Miami, and may be reached at parsu@miami.edu. To join the discussion on this article, please visit www.marketingpower.com/marketing managementblog.