

Are Electronic Medical Records a Cure for Health Care? CASE STUDY

During a typical trip to the doctor, you'll often see shelves full of folders and papers devoted to the storage of medical records. Everytime you visit, your records are created or modified, and often duplicate copies are generated throughout the course of a visit to the doctor or a hospital. The majority of medical records are currently paper-based, making these records very difficult to access and share. It has been said that the U.S. health care industry is the world's most inefficient information enterprise.

Inefficiencies in medical record keeping are one reason why health care costs in the United States are the highest in the world. In 2012, health care costs reached \$2.8 trillion, representing 18 percent of the U.S. gross domestic product (GDP). Left unchecked, by 2037, health care costs will rise to 25 percent of GDP and consume approximately 40 percent of total federal spending. Since administrative costs and medical recordkeeping account for nearly 13 percent of U.S. health care spending, improving medical recordkeeping systems has been targeted as a major path to cost savings and even higher quality health care. Enter electronic medical record (EMR) systems.

An electronic medical record system contains all of a person's vital medical data, including personal information, a full medical history, test results, diagnoses, treatments, prescription medications, and the effect of those treatments. A physician would be able to immediately and directly access needed information from the EMR without having to pore through paper files. If the record holder went to the hospital, the records and results of any tests performed at that point would be immediately available online. Having a complete set of patient information at their fingertips would help physicians prevent prescription drug interactions and avoid redundant tests. By analyzing data extracted from electronic patient records, Southeast Texas Medical Associates in Beaumont, Texas, improved patient care, reduced complications, and slashed its hospital readmission rate by 22 percent in 2010.

Many experts believe that electronic records will reduce medical errors and improve care, create less paperwork, and provide quicker service, all of which will lead to dramatic savings in the future, as much as \$80 billion per year. The U.S. government's short-term goal is for all health care providers in

the United States to have EMR systems in place that meet a set of basic functional criteria by the year 2015. Its long-term goal is to have a fully functional nationwide electronic medical recordkeeping network. The consulting firm Accenture estimated that approximately 50 percent of U.S. hospitals are at risk of incurring penalties by 2015 for failing to meet federal requirements.

Evidence of EMR systems in use today suggests that these benefits are legitimate. But the challenges of setting up individual systems, let alone a nationwide system, are daunting. Many smaller medical practices are finding it difficult to afford the costs and time commitment to upgrading their record-keeping systems. In 2011, 71 percent of physicians and 90 percent of hospitals in the United States were still using paper medical records. Less than 2 percent of U.S. hospitals had electronic medical record systems that were fully functional.

It's also unlikely that the many different types of EMR systems being developed and implemented right now will be compatible with one another in 2015 and beyond, jeopardizing the goal of a national system where all health care providers can share information. No nationwide software standards for organizing and exchanging medical information have been put in place. And there are many other smaller obstacles that health providers, health IT developers, and insurance companies will need to overcome for electronic health records to catch on nationally, including patients' privacy concerns, data quality issues, and resistance from health care workers.

Economic stimulus money provided by the American Recovery and Reinvestment Act was available to health care providers in two ways. First, \$2 billion was provided up front to hospitals and physicians to help set up electronic records. Another \$17 billion was available to reward providers that successfully implement electronic records by 2015. To qualify for these rewards, providers must demonstrate "meaningful use" of electronic health record systems. The bill defines this as the successful implementation of certified e-record products, the ability to write at least 40 percent of all prescriptions electronically, and the ability to exchange and report data to government health agencies.

But in addition to stimulus payments, the federal government plans to assess penalties on practices

that fail to comply with the new electronic record-keeping standards. Providers that cannot meet the standards by 2015 will have their Medicare and Medicaid reimbursements slowly reduced by 1 percent year until 2018, with further, more stringent penalties coming beyond that time if a sufficiently low number of providers are using electronic health records.

Electronic medical recordkeeping systems typically cost around \$30,000 to \$50,000 per doctor. Although stimulus money should eventually be enough to cover that cost, only a small amount of it is available up front. This would burden many providers, especially medical practices with fewer than four doctors and hospitals with fewer than 50 beds. The expenditure of overhauling recordkeeping systems represents a significant increase in the short-term budgets and workloads of health care providers—as much as 80 percent, according to Accenture. Smaller providers are also less likely to have done any preparatory work digitizing their records compared to their larger counterparts.

Implementing an EMR system also requires physicians and other health care workers to change the way they work. Answering patient phone calls, examining patients, and writing prescriptions will need to incorporate procedures for accessing and updating electronic medical records; paper-based records will have to be converted into electronic form, most likely with codes assigned for various treatment options and data structured to fit the record's format. Training can take up to 20 hours of a doctor's time, and doctors are extremely time-pressed. In order to get the system up and running, physicians themselves may have to enter some of the data, taking away time they could be spending with their patients.

A 2009 National Research Council study found that EMR systems were often poorly designed. For example, in one of these systems, it took eight mouse clicks on a digital record to locate patient information that fit easily on a single sheet of paper. Health care professionals will resist these systems if they add steps to their work flow and compound the frustration of performing required tasks. The Obama administration has worked on standards to improve EMR usability.

Many smaller practices and hospitals have balked at the transition to EMR systems for these reasons, but the evidence of systems in action suggests that the move may be well worth the effort if the systems are well designed. The most prominent example of electronic medical records in use today is the U.S.

Veterans Affairs (VA) system of doctors and hospitals. The VA system switched to digital records years ago, and far exceeds the private sector and Medicare in quality of preventive services and chronic care. The 1,400 VA facilities use VistA, record-sharing software developed by the government that allows doctors and nurses to share patient history. A typical VistA record lists all of the patient's health problems; their weight and blood pressure since beginning treatment within the VA system; images of the patient's x-rays, lab results, and other test results; lists of medications; and reminders about upcoming appointments.

But VistA is more than a database; it also has many features that improve quality of care. For example, nurses scan tags for patients and medications to ensure that the correct dosages of medicines are going to the correct patients. This feature reduces medication errors, which is one of the most common and costly types of medical errors, and speeds up treatment as well. The system also generates automatic warnings based on specified criteria. It can notify providers if a patient's blood pressure goes over a certain level or if a patient is overdue for a regularly scheduled procedure like a flu shot or a cancer screening. Devices that measure patients' vital signs can automatically transmit their results to the VistA system, which automatically updates doctors at the first sign of trouble.

The results suggest that electronic records offer significant advantages to hospitals and patients alike. The 40,000 patients in the VA's in-home monitoring program reduced their hospital admissions by 25 percent and the length of their hospital stays by 20 percent. In addition, more patients receive necessary periodic treatments under VistA (from 27 percent to 83 percent for flu vaccines and from 34 percent to 84 percent for colon cancer screenings).

Patients also report that the process of being treated at the VA is effortless compared to paper-based providers. That's because instant processing of claims and payments are among the benefits of EMR systems. Insurance companies traditionally pay claims around two weeks after receiving them, despite quickly processing them soon after they are received; governmental regulations only require insurers to pay claims within 15 days of their receipt. Additionally, today's paper-based health care providers must assign the appropriate diagnostic codes and procedure codes to claims. Because there are thousands of these codes, the process is even slower, and most providers employ someone solely to perform this task. Electronic systems hold the promise of immediate processing, or real-time claims

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adjudication just like when you pay using a credit card, because claim data would be sent immediately and diagnostic and procedure code information are automatically entered.

VistA is far from the only option for doctors and hospitals starting the process of updating their records. Many health technology companies are eagerly awaiting the coming spike in demand for their EMR products and have developed a variety of different health record structures. Humana, Aetna, and other health insurance companies are helping to defray the cost of setting up EMR systems for some doctors and hospitals. Humana has teamed up with health IT company Athenahealth to subsidize EMR systems for approximately 100 primary care practices within Humana's network. Humana pays most of the bill and offers further rewards for practices meeting governmental performance standards. Aetna and IBM, on the other hand, have launched a cloud-based system that will pool patient records and can be licensed to doctors both inside and outside of Aetna.

There are two problems with the plethora of options available to health care providers. First, there are likely to be many issues with the sharing of medical data between different systems. While the majority of EMR systems are likely to satisfy the specified criteria of reporting data electronically to governmental agencies, they may not be able to report the same data to one another, a key requirement for a nationwide system. Many fledgling systems are designed using VistA as a guide, but many are not. Even if medical data are easily shared, it's another problem altogether for doctors to actually locate the information they need quickly and easily. Many EMR systems have no capacity to drill down for more specific data, forcing doctors to wade through large repositories of information they don't need to find the one piece of data that they do need. EMR vendors are developing search engine technology intended for use in medical records. Only after EMR systems become more widespread will the extent of the problems with data sharing and accessibility become clearer.

The second problem is that there is a potential conflict of interest for the insurance companies involved in the creation of health record systems. Insurers are often accused of seeking ways to avoid or delay paying health care claims.

While most insurers are adamant that only doctors and patients will be able to access data in these systems, many prospective patients are skeptical. A May 2012 survey conducted by Harris Interactive found that only 26 percent of U.S. adults wanted

their medical records converted from paper to electric. Most of those surveyed worried about the security of electronic records, the potential for misuse of personal information, and the inability of physicians to access patient records during a power or computer outage.

Worries about privacy and security could affect the success of EMR systems and quality of care provided. One in eight Americans have skipped doctor visits or regular tests, asked a doctor to change a test result, or paid privately for a test, motivated mostly by privacy concerns. A poorly designed EMR network would amplify these concerns. Finally, evidence is mounting that electronic health records may be contributing to rising Medicare costs by making it easier for hospitals and physicians to bill for services that were not actually provided. Some electronic health record programs allow doctors to automatically cut and paste the same examination findings for multiple patients or bill for procedures that never took place. More controls and federal oversight are required to make electronic medical record systems produce the results that were originally intended.

Sources: Nicole Lewis, "Healthcare Cost Cutting Hinges on IT," *Information Week*, August 10, 2012; Reed Abelson, Julie Creswell, and Griffin J. Palmer, "Medicare Bills Rise as Records Turn Electronic," *The New York Times*, September 21, 2012; Neil Versel, "Consumers Still Wary of Electronic Health Records," *Information Week*, August 9, 2012; Ken Terry, "Docs May Overestimate EHR Capabilities," *Information Week Health Care*, August 2012; Steve Lohr, "Seeing Promise and Peril in Digital Records," *The New York Times*, July 17, 2011; Russ Britt, "Digital Health Push Woos Tech Firms, Pains Doctors," *MarketWatch*, June 2, 2011; Marianne Kolbasuk McGee, "Better Clinical Analytics Means Better Clinical Care," *Information Week*, May 21, 2011; Eric Engleman, "More Physicians Adopting Electronic Health Records, U.S. Reports," *Bloomberg News*, April 26, 2011; Jeff Goldman, "Implementing Electronic Health Records: Six Best Practices," *CIO Insight*, March 7, 2011; Robin Lloyd, "Electronic Health Records Face Human Hurdles More than Technological Ones," *Scientific American*, April 16, 2011; Katherine Gammon, "Connecting Electronic Medical Records," *Technology Review*, August 9, 2010; Tony Fisher and Joyce Montanari, "The Current State of Data in Health Care," *InformationManagement.com*, June 15, 2010; and Jacob Goldstein, "Can Technology Cure Health Care?," *The Wall Street Journal*, April 13, 2010.

CASE STUDY QUESTIONS

1. Identify and describe the problem in this case.
2. What management, organization, and technology factors are responsible for the difficulties in building electronic medical record systems? Explain your answer.
3. What is the business, political, and social impact of not digitizing medical records (for individual physicians, hospitals, insurers, patients, and the U.S. government)?
4. What are the business and social benefits of digitizing medical recordkeeping?
5. Are electronic medical record systems a good solution to the problem of rising health care costs in the United States? Explain your answer.

Should Companies Embrace Social Business? CASE STUDY

Social networking has never been more popular, with Facebook and Twitter continuing to grow at a breakneck pace. Over half of all adults visit social networking sites at least once a month, and many of today's employees are already well versed in the basics of public social networking. But when companies have tried to harness those same technologies within the enterprise, they have had mixed results. Forrester Research's study of nearly 5,000 U.S. information workers found that only 28 percent of workers use any kind of social software at least once a month for their work, and many of those are only using a public social network such as Facebook.

A majority of business technology professionals consider their own internal social networks to be merely average or below average, and the biggest reason they cite is low adoption rates on the part of employees. According to Information Week's Social Networking the Enterprise Survey, 35 percent of the companies using internal social networking systems reported lackluster adoption as a major obstacle to success. Moreover, enterprise social networking systems were not at the core of how most of the surveyed companies collaborate.

Why do so many of these internal social networks fail to pick up steam, and do these projects really offer significant return on investment? As with many technology upgrades, companies that have tried to deploy internal social networks have found that employees are used to doing business in a certain way, and overcoming that organizational inertia can prove difficult. IT leaders hoping to switch to a more social, collaborative office culture usually find that most employees still prefer to use e-mail, for example. The employees may feel too time-pressed to learn a new software tool.

Employees who are used to collaborating and doing business in more traditional ways need an incentive to use social software. Most companies are not providing that incentive: only 22 percent of social software users believe the technology to be necessary to their jobs. You might join Facebook because all your friends are on it, but in the workplace, ease of use and increased job efficiency are more important than peer pressure in driving adoption.

A report from the consultancy Altimeter Group, which analyzed 13 technology providers, 185 end users, and 81 social network decision makers from companies with over 250 employees, found that only 34 percent of those surveyed believed that internal networks had made a "significant" impact on team and department collaboration. About half the respondents said that internal social networks had "very little impact" on employee retention, the speed of decision making, or the reduction of meetings.

IT organizations need to take charge to ensure that the internal and external social networking efforts of the company are providing value to the business. Content on the networks needs to be relevant, up to date, and easy to access; users need to be able to connect to people that have the information they need, and that would otherwise be out of reach or difficult to reach.

Many companies that launch internal social networks find themselves with a host of features that their employees never use. The most commonly used feature of most enterprise networks are profiles. Forums, blogs, and wikis are all staples of most offerings but are rarely used. The ability to integrate the network with e-mail is also a vital feature. E-mail alerts to new posts on the network, the ability to link directly from e-mails to locations on the network, and the ability to quick respond to comments on the network via e-mail are all important ways to make contribution to an internal social network easy and natural.

Lastly, companies usually lack the analytics capabilities to measure the performance and value created by their internal social networks. Just 26 percent of the Altimeter survey respondents reported improvement in specific business processes, and only 7 percent tied these networks to financial results. No respondents claimed to measure their internal social network results very well.

Despite the pitfalls associated with launching an internal social network, there are companies using these networks successfully. The entry costs for deploying these systems are extremely low compared to other IT projects. CSC, a \$16 billion information technology and consulting firm, hoped to go social to instill a more collaborative culture in its large, global organization. The company has

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a higher percentage of knowledge workers than most, and capturing that knowledge in a centralized, accessible way is an important source of value. CSC launched an initiative it called C3, short for Connect, Communicate, Collaborate, with a cutting-edge enterprise social networking product as the centerpiece. CSC quickly settled on Jive's Social Business Software solution.

Jive appealed to CSC because it is constantly innovating, with two major software releases each year, and CSC thought that Jive technology was likely to keep up with marketplace standards as a result. Jive also touted the ability of its Social Business Software to bridge internal and external communities—in other words, it allowed the company to network within the company as well as with suppliers, partners, and customers from outside the firm.

CSC launched a six-month pilot of Jive, which was available to all of the company's 92,000 employees. Within the first 20 weeks of the launch, 25,000 people began using the social business tool, with 2,100 groups tallying an average 1 million page views. The rapid adoption rate, supported by user testimonials, helped convince management to make C3 a permanent collaboration platform.

CSC had to decide whether to actively promote the technology, or let it grow virally. CSC took a passive approach, allowing users to form groups on their own. Twelve "champions" enlisted more than 100 advocates to help formulate adoption plans, seed content, and test over 200 groups prior to the pilot's launch. Group presidents and other executives set an example by blogging with the social tool. The company also used Jive to offer a "virtual water cooler" for non-work-related topics to help employees try out the tool in a more relaxed setting.

C3 had an immediate impact on CSC's revenue-generation process, which requires global team collaboration across different time zones to prepare bids and proposals for prospective clients. When a U.S.-based employee used C3 to request proposal-related information, the request generated 11 global replies and the right answer from a global colleague in 30 minutes.

Employee adoption is now at 100 percent, with significant amounts of frequently sought intellectual property generated within the network's communities and groups. One executive said of the network: "It really is how work gets done at our company."

Yum! Brands, the world's largest restaurant company with 35,000 restaurants in 100 countries and territories, chose Jive for its social networking needs as well. With franchises including KFC, Pizza

Hut, Taco Bell, and Long John Silvers, all global leaders in their respective categories, the majority of the company's revenues and profits are generated outside the United States. Yum has a culture of building, recognizing, and sharing know-how to drive innovation, and it wanted a social solution to allow its employees to collaborate effectively across geographical borders. Yum also wanted a system that would let it "bring the outside in," or to use social media to drive innovation by harnessing customer sentiment.

Like CSC, Yum liked that Jive was constantly improving and updating its Social Business Software. Yum's Jive platform, titled iCHING, was launched just like a new product in one of their restaurants, and unlike CSC, the company marketed the network to its own employees as it would with any of its products. The Jive platform was customized to allow community members to upload "badges" of achievement to individuals' profiles and to require that all contributions be tagged to increase searchability.

Though the approach was different from CSC's, the end result is expected to be the same: 100 percent adoption within the first year of the launch. Yum believes it is getting significant business value from iCHING. Managers can solicit input from other employees around the world and ask questions at no cost. The system has helped eliminate redundant resources and allows users to upload and download documents, many of which were too big for the company's e-mail system. Over 4,500 documents were uploaded and a whopping 26,000 were downloaded over the first six months of the network's launch, suggesting that people are finding the content they need to be more efficient.

Chris Laping, CIO of the 30,000-employee Red Robin hamburger restaurant chain, sees a movement away from e-mail and collaboration portals such as SharePoint toward social networking and texting. He wants to let team members collaborate in a manner that is similar to the way they work outside the office, using a tool that would let people create conversations, perform status updates, upload and share files, and set up workgroups for small project teams.

The company decided to try out Yammer and use a viral approach to drive adoption. In the first month, 20 to 25 employees started using it and invited others, with about 400 people now using the system. Yammer usage is not "overwhelming" at this point, and about 95 percent of Red Robin's information systems projects still use SharePoint. But people are experimenting, and Laping is

convinced that if the right tools are available and the information systems department provides guidance, Yammer will eventually take hold. Yammer would be considerably cheaper than SharePoint, and in Laping's opinion, closer to the way people actually collaborate.

Even smaller companies are finding internal social networks to be a good fit. Den-Mat, a 450-employee dental equipment manufacturing company, hoped to update its severely outdated information systems in 2009. It was using a 30-year-old legacy system and mostly paper processes across the business. The company selected Salesforce CRM and Salesforce Chatter as the centerpiece of its system modernization efforts, hoping for an eventual increase in productivity after the inevitable growing pains at the outset.

Those growing pains never occurred: Den-Mat actually saw increased productivity from day one. Den-Mat had staggered the rollouts of Salesforce CRM and Chatter 30 days apart, first to the marketing department, and then to customer service and sales. After the rollout, teams received online training in the Salesforce system. Chatter enabled Den-Mat to switch from an e-mail-centric update process to one using Chatter updates. When a project status changes, it's noted in Chatter feeds. Teams communicated efficiently, location became less important for Den-Mat's employees to work as

a team, and the company successfully cut expenses and slashed its turnover rate to just 7 percent. Staff used Chatter for discussions with consumer groups and third-party vendors. This had not been possible before. Because teams were collaborating so effectively using Chatter, Den-Mat was able to close an underperforming sales office in Indiana and allow some employees to work at home.

Sources: Justin Kern, "Enterprises 'Like' Social Networks, Don't 'Love' Results," *Information Management*, February 28, 2012; Kristin Burnham, "Inside an Enterprise Salesforce Chatter Rollout," *CIO*, February 2, 2011; Charlene Li, "Making The Business Case For Enterprise Social Networks" Altimeter Group; February 2012; Michael Healey, "Why Employees Don't Like Social Apps," *Information Week*, January 30, 2012; David F. Carr, "What Enterprise Social Success Stories Have in Common," *Information Week*, January 13, 2012; Michael Healey, "Rebooting the Anti-Social Network," *Information Week*, December 2011; "Yum! Brands Customer Case Study," Jive Software, accessed April 2012; "CSC Customer Case Study," Jive Software, accessed April 2012.

CASE STUDY QUESTIONS

1. Identify the management, organization, and technology factors responsible for slow adoption rates of internal corporate social networks.
2. Why have each of the companies described in this case been successful in implementing internal social networks? Explain your answer.
3. Should all companies implement internal enterprise social networks? Why or why not?

INTERACTIVE SESSION: ORGANIZATIONS

TECHNOLOGY HELPS STARBUCKS FIND NEW WAYS TO COMPETE

Starbucks is the world's largest specialty coffee retailer, with over 1,700 coffee shops in 55 countries. For years, Starbucks grew throughout the United States and internationally, opening franchises at an impressive rate. From 2002 to 2007 alone, the company tripled the number of stores it operated worldwide. Starbucks offers a unique experience: high-end specialty coffees and beverages, friendly and knowledgeable servers, and customer-friendly coffee shops. This was a winning formula for many years and enabled Starbucks to charge premium prices.

During the economic downturn beginning in 2008, profits plunged. Customers complained that the company had lost its hip, local feel and had become more like a fast-food chain. Many coffee drinkers went in search of cheaper alternatives from McDonald's and Dunkin' Donuts for their coffee fixes. Starbucks stock lost over 50 percent of its value by the end of 2008. Major changes were in order.

Starbucks seized the opportunity to overhaul its business by using several different strategies simultaneously. First, the company has revamped its in-store technology and sought to integrate its business processes with wireless technology and the mobile digital platform. Also, rather than copy the practices of competitors, Starbucks pursued a more aggressive product differentiation strategy, intended to emphasize the high quality of their drinks and efficient and helpful customer service. At the same time, however, Starbucks also focused on becoming 'lean', like many of their competitors, eliminating inefficiency wherever possible.

When Starbucks set out to improve its customer experience, it found that more than a third of its customers are active users of smartphones. The company set out to implement several features and improvements that would appeal to this segment of its customer base. First, Starbucks implemented a technology that allows customers to pay using a smartphone app. The app is integrated with the Starbucks Card system, which allows regular customers to pay with a pre-paid and rechargeable card at any Starbucks branch. When customers make a purchase using the app, a cashier scans a bar code displayed on the phone, and the resulting sale is charged to the customer's Starbucks Card

account. Customers report that paying using this app, available for all major smartphone operating systems, is much faster than traditional forms of payment. In its first 15 months of use, the Starbucks mobile payment system processed 42 million transactions.

Many of Starbucks' most loyal customers regularly spend time using the free Wi-Fi wireless network offered in each store. A majority of these customers also use mobile devices to connect to the in-store Wi-Fi networks. Recognizing this, Starbucks launched what it calls the "Starbucks Digital Network," a portal designed specifically for mobile devices as opposed to traditional Web browsers. The site is optimized for all major smartphone operating systems (iOS, Android, and BlackBerry), and responds to the multi-touch capability of devices like the iPad.

The Starbucks Digital Network site was developed in partnership with Yahoo and functions as a content portal. Starbucks customers using the site will receive free Wall Street Journal access, select free iTunes downloads, and a wide variety of other content. The site will integrate with Foursquare, a location-based social networking site for mobile devices. This arrangement will allow users to check in and receive award points using Starbucks' site. Because Starbucks has the most Foursquare check-ins of any company to date, this feature has been popular with customers.

Rather than serve ads on the site, Starbucks has opted to offer the site free of advertising, hoping that striking deals with content providers will make it a profitable venture. Even if the Starbucks Digital Network is not highly profitable, analysts suggest that the site is an effective way for Starbucks to improve its relationship with its most valuable customers and a creative use of the mobile digital platform to enhance customer satisfaction.

In addition to revamping their business to better serve the needs of their mobile users, Starbucks has made a concerted effort to become more efficient, reduce waste, and use the time saved to provide better customer service. Starbucks set out to streamline the business processes used in each of its stores so that baristas do not need to bend down to scoop coffee, cutting down on idle

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time while waiting for coffee to drain, and finding ways to reduce the amount of time each employee spends making a drink. Starbucks created a 10 person "lean team" whose job is to travel the country visiting franchises and coaching them in lean techniques made famous by automaker Toyota's production system.

Store labor costs Starbucks about \$2.5 billion, amounting to 24 percent of its annual revenue. If Starbucks is able to reduce the time each employee spends making a drink, the company can make more drinks with the same number of workers or with fewer workers. Alternatively, Starbucks could use this time savings to give baristas more time to interact with customers and hopefully improve the Starbucks experience.

Wireless technology enhanced Starbucks' business process simplification effort. Starbucks district managers use the in-store wireless networks to run store operations and to connect to the company's private corporate network and systems. Starbucks district managers were equipped with Wi-Fi enabled laptops for this purpose. Before the in-store wireless networks were implemented, a district manager who oversaw around 10 stores had to visit each store, review its operations, develop a list of items on which to follow up, and then drive to a Starbucks regional office to file reports and send e-mail. Instead of running the business from cubicles in regional headquarters, Starbucks district managers can do most of their work sitting at a table in one of the stores they oversee. The time saved from going back and forth to regional offices can be used to observe how employees are serving customers and

improve their training. Implementing Wi-Fi technology enabled Starbucks to increase the in-store presence of district managers by 25 percent without adding any extra managers.

In 2008 and 2009, the weakened economy forced Starbucks to close 900 stores, renegotiate some rents, cut prices on some of their big ticket items, and begin offering price-reduced specials, such as a breakfast sandwich and a drink for \$3.95. Cost reductions from procedural changes made it possible for Starbucks to offer these lower prices.

Major fast food chains already used these techniques. While some baristas have resisted the changes, and analysts were skeptical that the changes would take hold, Starbucks attributes much of its recent uptick in profits to its efforts to go lean. Starbucks CEO Howard Schultz said that "the majority of cost reductions we've achieved come from a new way of operating and serving our customers," and also added that the time and money saved was also allowing the company to improve its customer engagement. By 2011, Starbucks had returned to profitability and continuing growth, with plans to open 500 new stores, in large part because of the success of each these changes.

Sources: "Starbucks Corporation," *The New York Times*, January 26, 2012; Mark Raby, "Starbucks Mobile Payments Hit 42 Million," Mark Raby, "Starbucks Mobile Payments Hit 42 Million," *SlashGear*, April 9, 2012; Trefis Team, "Starbucks Brews Up Smartphone Payment Platform," *Forbes*, February 7, 2011; <http://blogs.forbes.com/greatspeculations/2011/02/17/starbucks-brews-up-smartphone-payment-platform/>; Ryan Kim, "Starbucks' New Portal Designed with Mobile in Mind," *Businessweek*, September 2, 2010; Starbucks Form 10-K for Fiscal Year ended October 2, 2011; Julie Jargon, "Latest Starbucks Buzzword: 'Lean' Japanese Techniques," *The Wall Street Journal*, August 4, 2009.

CASE STUDY QUESTIONS

1. Analyze Starbucks using the competitive forces and value chain models.
2. What is Starbucks' business strategy? Assess the role played by technology in this business strategy.
3. How much has technology helped Starbucks compete? Explain your answer.

on the Web. Profits have been dampened. Table 3.5 summarizes some of the potentially negative impacts of the Internet on business firms identified by Porter.

The Internet has nearly destroyed some industries and has severely threatened more. For instance, the printed encyclopedia industry and the travel agency industry have been nearly decimated by the availability of substitutes

INTERACTIVE SESSION: ORGANIZATIONS

WASTING TIME: THE NEW DIGITAL DIVIDE

In the early days of personal computers and the Internet, some technology analysts and sociologists worried about a "digital divide," where wealthier and more educated people were far more likely to take advantage of newer technologies than people from less-fortunate socioeconomic groups. This divide between the "haves" and "have-nots" has decreased over time as Internet access, personal computers, and smartphones have become cheaper than ever before. However, emerging technology usage patterns among different social groups suggest that there is a new divide: technology users from poorer and less-educated backgrounds are using technology to reinforce rather than eliminate socioeconomic disparities.

Improvements to technology have allowed computer and smartphone users to access media all day, every day. The amount of time that young people spend with entertainment media has risen dramatically across the board, but the largest increases are among minority youth. A Kaiser Foundation study performed in 2010 found that, on average, 8- to 18-year-olds devote seven hours and 38 minutes per day to entertainment media. Much of that time is spent multitasking, which allows users to cram three extra hours of media content into those seven and one-half hours. These figures represent increases of one hour and 17 minutes for time spent on media per day and of two hours for total media content consumed.

This increase in media consumption has been driven by the proliferation and improved functionality of mobile phones and smartphones. In the past five years, cell phones and iPods have become ubiquitous, as 66 percent of 8- to 18-year-olds now own cell phones and 76 percent own MP3 players. During that same period, the mobile phone has become the primary multimedia device. In fact, young people now spend more time consuming media on their phones than they do talking on them.

As access to these devices has spread, the children of poor families are spending a great deal more time than children from more well-off families using computers, phones, and television to consume media, play games, and use social networking sites like Facebook. The concern about the "digital divide" turns out to have been misplaced—more important than access to technology is parental guidance and oversight of the usage of the technology. The Kaiser Foundation study determined that the vast majority of young people

have no rules about how much time they can spend using electronic devices. However, children whose parents do have rules about technology usage spend far less time consuming media each day.

Minority children were found to spend much more time with media than white children. Black and Hispanic children consume approximately 13 hours of media per day, compared to eight hours and 36 minutes for white children. The majority of the difference comes from television viewership. The racial disparity in media usage, and television viewership in particular, has grown drastically from 2005 to 2010. The gap was two hours and 12 minutes then, and is four hours and 23 minutes today. All other forms of media consumption have also increased, except for movies and print media. Music, TV, computers, video games, and social networking have all markedly increased across all socioeconomic groups, but again, most markedly among minority youth.

In response to these alarming trends, the Federal Communications Commission (FCC) has launched an effort to instruct parents, students, and job seekers how to use these technologies productively and how parents can monitor technology usage of children. Also, the FCC plans to send digital literacy trainers to organizations like the Boys and Girls Club, The League of United Latin American Citizens, and the National Association for the Advancement of Colored People. These efforts, in tandem with private and state efforts, are intended to give parents and students the skills to use technology responsibly. Still, the FCC will also continue its efforts to improve the availability of computing devices for all Americans. The gap between whites and minorities in technology ownership is still significant. Sixty-five percent of all Americans have broadband access, but the numbers are much lower for Hispanics and African Americans.

The Kaiser study did not establish a cause-and-effect relationship between media consumption and academic performance, but there are significant differences between the grades of heavy and light media users. Half of heavy media users say they get fair or poor grades, compared to only a quarter of light media users. "Heavy" media use was considered to be more than 16 hours of media consumed per day, taking into account multitasking; light users, on the other hand, consume less than 3 hours of media per day.

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Not only is it difficult for parents to monitor and control the technology usage patterns of their children, but research also suggests that these technologies are fundamentally changing the way we think. Some studies have suggested that digital technology has damaged our ability to think clearly and focus. The Internet, smartphones, and other modern technologies feature the ability to multitask, and involve interruptions and constant updates with up-to-the-minute information. These factors, along with the increased emphasis on visual processing ability rather than critical thinking and information retention are affecting our cognitive patterns. The constant distractions inherent in online life prevent us from creating the neural connections that constitute full understanding of a topic. Traditional print media, on the contrary, is easier to engage with fully and with complete concentration.

Studies conducted at Stanford found that multitaskers are more easily distracted as well

as less productive than normal task performers. The scientists postulated that the Internet, smartphones, television, video games, and other media are providing distractions that are “massively remodeling” our brains. Another study showed that TV viewers retain more information about shows without a news crawl at the bottom than shows with one. And many companies report that their efforts to go social have offered employees new ways to waste time at work rather than to improve efficiency. Few people would argue that advances in various forms of technology have been a bad thing, but technology companies, state and federal government, and parents and children will need to be more vigilant than ever about the risks of too much technology.

Sources: Matt Richtel “Wasting Time is New Divide In Digital Era”, *The New York Times*, May 29, 2012; and Kaiser and Family Foundation, “Daily Media Use Among Children and Teens Up Dramatically from Five Years,” January 20, 2010.

CASE STUDY QUESTIONS

1. How does information technology affect socioeconomic disparities? Explain your answer.
2. Why is access to technology insufficient to eliminate the digital divide?
3. How serious a problem is the “new” digital divide? Explain your answer.
4. Why is the digital divide problem an ethical dilemma?

often with high-impact loads (such as tennis) or tens of thousands of repetitions under low-impact loads (such as working at a computer keyboard).

The single largest source of RSI is computer keyboards. The most common kind of computer-related RSI is **carpal tunnel syndrome (CTS)**, in which pressure on the median nerve through the wrist's bony structure, called a carpal tunnel, produces pain. The pressure is caused by constant repetition of keystrokes: in a single shift, a word processor may perform 23,000 keystrokes. Symptoms of carpal tunnel syndrome include numbness, shooting pain, inability to grasp objects, and tingling. Millions of workers have been diagnosed with carpal tunnel syndrome.

RSI is avoidable. Designing workstations for a neutral wrist position (using a wrist rest to support the wrist), proper monitor stands, and footrests all contribute to proper posture and reduced RSI. Ergonomically correct keyboards are also an option. These measures should be supported by frequent rest breaks and rotation of employees to different jobs.

RSI is not the only occupational illness computers cause. Back and neck pain, leg stress, and foot pain also result from poor ergonomic designs of workstations. **Computer vision syndrome (CVS)** refers to any eyestrain condition related to display screen use in desktop computers, laptops, e-readers, smartphones, and handheld video games. CVS affects about 90 percent of people who spend three