



# Book Business @ the Speed of Thought

## Using a Digital Nervous System

Bill Gates  
Business Plus, 1999

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## Recommendation

"Words are like leaves; and where they most abound / much fruit of sense beneath is rarely found," wrote Alexander Pope, hundreds of years before critics said roughly the same thing about Bill Gates's *Business @ the Speed of Thought*. But when the words in question come from the pen of Microsoft's chairman, businesspeople and technophiles the world over rush to read them in search of whatever enlightening morsels might be hidden within. Indeed, the strength of this book, which sometimes reads like a Windows operating manual, is not in the grace of its prose. Rather, its value lies in the glimpse it gives of the world through the eyes of one of its richest and most influential men. As Gates sees it, the migration of data to the electronic state from paper was the seminal event of our age, and his book gives his take on its implications - hardly an irrelevant picture coming from the head of the world's dominant software company. *BooksInShort* recommends this book to any executive charged with developing a digital strategy.

## Take-Aways

- Use computers more - and use more computers.
- Digital information is easier to collect, faster to distribute, and more productive to use than paperwork.
- Most companies don't know how to use information. The first ones to find out will beat their competitors.
- Information is a verb, not a noun.
- Bad news is sometimes good news.
- Technology isn't just for techies.
- People are adopting computer/Internet technology faster than they adopted telephones, electricity and television.
- The lifestyle of the future will be the 'Web Lifestyle'.
- Businesses, governments, schools, armies, hospitals - everybody must adapt to the Web Lifestyle.
- Out with the old, in with the new - and buy Microsoft.

# Summary

## Tools for Knowledge Workers

Computers are really important. They have changed business by making it possible to work faster than ever before. But this is only the beginning of what they can do. Most companies merely use computers to speed up things they used to do manually, but do them faster. They don't recognize that computers are powerful tools that knowledge workers can use to analyze and work with information. Most business problems are in fact information problems, but few people now use information well. The potential of computers will only begin to be realized when businesses use computers to do new things with information.

“A number on a piece of paper is a dead end. A number in digital form is the start of meaningful thought and action.”

The Internet is really important too. It has changed business by creating a shared space where knowledge workers can exchange information and ideas. Companies are only beginning to tap the potential of the Internet. Internet technology allows companies to create a “digital nervous system” analogous to the human physiological nervous system. When new information stimulates the digital nervous system the organization reacts fast as a reflex.

## The Digital Nervous System

Companies can only build digital nervous systems if they use computers to collect, store and distribute information digitally. Thanks to inexpensive personal computers and standard software, all companies can. Companies can and should gather information electronically, use computer software to analyze it, and use e-mail to get insights and opinions from employees. They should use digital technology to reorganize production work, improving quality and efficiency and turning mindless labor into knowledge work. They should use a digital nervous system to maintain direct contact with customers and suppliers, eliminating middlemen and improving communications. Of course, digital technology can bring customer complaints directly to the people responsible for addressing them - but easy access to digital information can do more, by making it possible for customers to solve their own problems. These are the kinds of things that companies should do.

## Information

Most work in any business is information work. Information is human thought applied to data to solve a problem. Making more data available to more people makes businesses more productive. Two symptoms of poor information management are: unproductive meetings and middle managers with less data than they need. When people have more information, they can do more.

“Ultimately, the most important speed issue for companies is cultural.”

For example, information can transform sales people from deal-closers into business managers. Better information flows also allow top managers to get more creativity and insight out of their people, thereby raising business discussions from the operating stage to the strategic level.

Digital information flow allows companies to do new things with information, things that aren't possible with an old-fashioned, paper-based information flow. Among other things, it makes it possible for a “self-service” approach to training, expense reimbursements, benefit management and other human resource functions, thereby reducing errors and cutting down on administrative overhead costs.

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However in order to deliver on this promise, the tools available to manage digital information must be easy to use. Microsoft uses the “soft-boiled egg” rule: a user must be able to get in and out of most administrative tools within three minutes.

# Internet

The Internet will cause three fundamental shifts in business:

1. Self-service, online transactions will be the norm.
2. Customer service will be the main value driver.
3. Companies will use the digital nervous system internally.

“If we go out of business, it won’t be because we’re not focused on the Internet, it’ll be because we’re too focused on the Internet.”

The Internet will increase pressure on middlemen by making it easier for customers to get information about price, quality, alternative suppliers, etc. But middlemen can also use the Internet. E\*Trade Securities and Merrill Lynch both use the Internet. So does Dell Computers. Today’s Internet customers are the technologically savvy, but the Internet is rapidly becoming mainstream.

## Web Lifestyle

Computers are becoming cheaper and more common. As more people buy and use them, a Web Lifestyle will take shape. People will log on to get the daily news, to keep in touch with friends and family by e-mail and chats, to pay their bills, manage their finances, or conduct business.

“The U.S. astronauts, like the monkeys before them, were just along for the ride.”

They’ll probably carry small, wireless devices to stay connected wherever they happen to be. People are adopting computer and Internet technology faster than they adopted telephones, radio, television, or other major new technologies. The social and commercial implications will be enormous.

## Bad News is Good News

Internet technology allows companies to have complete information about every customer and every asset in their business. Thus, it allows bad news to get to the people who need to see it fast. Bad news is good news because it allows companies to respond to problems immediately.

## Thinking Work: Knowledge Management

Software can take over many of the routine chores of data analysis where the “human touch” adds nothing, and free up employees for problem-solving assignments where the “human touch” makes a difference. Companies should move to automate data collection and analysis. Knowledge management is about getting the right information to the people who need it so that they can act on the information quickly.

“Why should a plumber stand in line for two hours at a government office and lose two hours of pay, when by using the Internet he could get his license or pay his fees in a few minutes and be at work on time?”

The Corporate IQ measures how broadly information is disseminated in a company. A high Corporate IQ means that information is shared widely, increasing the probability of creative problem solving by empowered, highly motivated teams. Knowledge management is most effective in planning, customer service, training and project collaboration. Collaboration among smart people makes for an energetic, stimulating workplace - the kind of environment apt to attract more smart people. Thus, knowledge management can help recruitment and boost the overall quality of human resources in a company.

## Big Wins, Big Risks

Winning big can sometimes require taking big risks - looking at where the market is, predicting where it will go, and steering the company in that direction. People scoffed at Microsoft when it was trying to become the first minicomputer software firm - this strategy was a big risk! But risk taking is easier thanks to digital information technology. If information does not reduce risk, it at least

makes risk easier to measure and monitor.

“Legislatures in several U.S. states are using electronic systems to manage the process for drafting laws ... Software can also help schedule people for trials.”

Digital information also makes it easier to re-engineer corporations. Redesigning processes to optimize information flow can solve important business problems. By reducing the number of people involved in processes, technology minimizes “hand-offs” and reduces the risk that someone will drop the ball. A good process wastes no time - and allows technology to speed up the real work.

## **Special Needs**

Computers can help improve patient care by reducing paperwork, making more information available to patients, and opening another channel for communications between doctors and patients. But so far, medical technology has focused on stand-alone diagnostic systems rather than on knowledge management. Despite the fact that health care units could share data, health care systems aren’t designed to work together. The Microsoft Healthcare Users Group is working to create medical applications of standard Windows technology that will allow “plug and play” compatibility.

“A few years ago a new Microsoft employee was called back to his home state because his mother had suffered a mild stroke ... ‘During periods of mom’s acute care, paper piled up at a rate of exactly one inch per month,’ her son said.”

Technology can also improve the administration of government. Government employees should communicate by e-mail and all information used in government administration should be digital. Technology companies should be given incentives to develop electronic commerce or, better, be involved in cooperative projects with government. Telecommunications should be deregulated and major investments in the sector encouraged. Technology should be the cornerstone of education and training programs.

“I strongly believe that if companies empower their employees to solve problems and give them potent tools to do this with, they will always be amazed at how much creativity and initiative will blossom forth.”

In many schools, computers sit unused in their own “computer labs.” Instead, computers should be integrated with the whole process of education. PowerPoint and similar software can make lectures livelier and more colorful by giving teachers the tools to illustrate their presentations with photos and other illustrations. Computers are not a subject but a tool. However, making education digital will require leadership from the community and the school board.

“By embracing the digital age, we can accelerate the positive effects and mitigate the challenges such as privacy and have-vs.-have-not.”

Then there’s war - what a software opportunity! During the 1991 Gulf War, high-tech aircraft worked wonders - but ground support and mission planning relied on primitive, non-digital tools. Now, instead of paper maps and colored pencils, pilots can rely on FalconView, a PC-based system developed at the Georgia Institute of Technology. FalconView has reduced mission-planning time from over seven hours to less than twenty minutes through the use of digital data and aeronautical mapping tools. FalconView works with the Windows CE operating system to help grunts on the ground, too. Marines are testing hand-held computers that link the field infantry with both command and control and air support in a battlefield intranet. In the future, such computers may be wearable - as standard-issue and disposable as a pair of boots.

## **Examples**

Dell Computers saw its online business grow from \$1 million per week in 1995 to \$5 million per day in 1999. Dell’s site emphasizes self-service. Customers can collect data, browse options and fill in order forms without involving a sales person. Corporate users can visit the Premier Page to order computers that meet specifications or constraints established by their firms. Thus, Dell’s sales people have time to provide expert advice on knottier problems.

“Building an information economy will make all the companies in the country more competitive.”

Merrill Lynch saw its business model threatened first by discount brokers, then by online trading. It struck back by using digital

technology to make its financial advisors more efficient and more helpful to clients. This required an \$825 million investment in knowledge management and technological retooling. Because financial consultants have more information and analytical tools available on their desktops, they don't have to spend much time looking up data. Instead, they can spend more time building and maintaining customer relationships. But one of the biggest benefits for customers of Merrill Lynch is information itself. Customers of Merrill Lynch OnLine can e-mail their financial consultants, get stock quotes and mutual fund prices, view research reports, pay their bills and transfer money among their accounts. The Internet has gone from threat to opportunity for the firm.

“Learn about the Internet today.”

Marriott International opened a lead over its competitors by using the Web to empower its customers. Guests, agents and business travel or conference organizers can access Marriott's site to search for hotels by location, facilities, amenities or recreational opportunities. There are links to nearby shops, restaurants and other attractions, a mapping feature to provide directions, and an interface for self-service reservations. Marriott got over \$2 million in revenue through this site in 1997 - but the information benefits were arguably more impressive. At launch, Marriott posted an online survey that brought 7,000 responses in a single month. Business travelers said they wanted to save time online; leisure travelers wanted to spend more time online. A site redesign made it possible for business travelers to get in and out more quickly, and added some benefits that leisure travelers requested. Marriott now runs the survey annually - and between surveys gets ongoing information from approximately 1,000 customer e-mails daily.

## About the Author

**Bill Gates**, a college dropout, is the chairman of Microsoft Corp. and has more money than anyone else in the world (over \$100 billion). His previous book was *The Road Ahead*. He lives with his wife and daughter in Seattle, WA. The U.S. Justice Department plans to take a wrecking ball to his company, but he'll still have more money than anyone else in the world.

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