

## **Business at the Speed of Thought** **By Bill Gates**

### **PART I -- INFORMATION FLOW IS YOUR LIFE BLOOD**

#### **Chapter 1 - Manage with the Force of Facts**

##### **Business Lessons**

Information flow is the primary differentiator for business in the digital age. Most work in every business is “information work,” a term coined by Michael Dertouzos to describe human thought applied to data to solve a puzzle.

Middle managers need as much business data as senior executives but often have less. Unproductive meetings, or meetings that largely involve status updates, are signs of poor information flow.

##### **Diagnosing Your Digital Nervous System**

Do you have the information flow that enables you to answer the hard questions about what your customers and partners think about your products and services, what markets you are losing and why, and what your real competitive edge is?

Do your information systems simply crunch numbers in the back room or help to directly solve customer problems?

##### **Key Quotes**

“How you gather, manage, and use information will determine whether you win or lose.”

“Key Questions You Should be Able to Answer:

What do customers think about your products?

What problems do they want you to fix?

What new features do they want you to add?

What problems are your distributors and resellers running into as they sell your products or work with you?

Where are your competitors winning business away from you and why?

Will changing customer demands force you to develop new capabilities?

What new markets are emerging that you should enter?”

“The important idea here is that a company should not take its position in the market for granted. A company should constantly reevaluate.”

“Sloan made a big deal out of fact-finding trips. He outfitted a private railroad car as an office and traveled all over the country, visiting dealers. He often saw between five and ten dealers a day.”

“To address these needs, Sloan set up a standardized accounting system across the GM organization and all dealerships. The important word is *standardized*.”

“Manufacturers will differentiate themselves from one another by the sum of how well they design their products, how intelligently they use customer feedback to improve their products and services, how quickly they can improve their production processes, how cleverly they market their products, and how efficiently they manage distribution and their inventories. All these information-rich processes benefit from digital processes.”

“It’s just basic common sense to make all of your company’s data – everything from the latest sales numbers to details of the 401(k) plan – just a few clicks away from everyone who can use it.”

“A company’s middle managers and line employees, not just its high-level executives, need to see business data.”

“There’s incredible value in letting everybody involved with a product, even the most junior team member, understand the history, the pricing, and how the sales break down around the world and by customer segment.”

“Meetings shouldn’t be used primarily to present information. It’s more efficient to use e-mail so that people can analyze data beforehand and come into a meeting prepared to make recommendations and engage in meaningful debate.”

## **Chapter 2 – Can Your Digital Nervous System Do This?**

### **Business Lessons**

Businesspeople need to shake loose of the notion that information is hard to get.

Better information can expand the role of sales managers from being the closers of big deals to being business mangers.

Bringing together the right information with the right people will dramatically improve a company’s ability to develop and act on strategic business opportunities.

Integrating sales data with partners not only streamlines reporting processes, but also raises the business discussions to a more strategic level.

## Diagnosing Your Digital Nervous System

Is important data culled only for special onetime use, or can employees get access to it on a daily basis?

Make a list of the most actionable questions about your business. Does your information system provide the data to answer them?

Do your digital systems enable you to pinpoint sales areas that offer the most opportunities or that need the most attention?

## Key Quotes

“A digital nervous system serves two primary purposes in the development of business understanding. It extends the individual’s analytical abilities the way machines extend physical capabilities, and it combines the abilities of individuals to create an institutional intelligence and unified ability to act. To put it all together in the right context: A digital nervous system seeks to create corporate excellence out of individual excellence on behalf of the customer.”

“Too often, important customer and sales information is pulled together on a one-time-only basis when consultants arrive. You should have that information available on an ongoing basis for regular business staff.”

“MS Sales enables us to drill into data in every imaginable – by region, country, customer size, product area, salesperson, even postal codes. Every business needs information systems that can quickly provide this granularity of detail.”

“To begin creating a digital nervous system, you should first develop an ideal picture of the information you need to run your business and to understand your markets and your competitors .... Then demand that your information systems provide those answers. If your current system won’t, you need to develop one that will – one or more of your competitors will.”

## Chapter 3 – Creating a Paperless Office

### Business Lessons

Digital information enables process breakthroughs that are impossible with paper systems.

Tally all your paper forms. Starting with forms-intensive areas such as procurement and human resources, develop programs to replace them with digital forms.

A self-service approach can handle 90 percent of employee administrative needs.

## **Diagnosing Your Digital Nervous System**

Do you have electronic forms for you major internal business applications?

Do you have people moving information around, or do your computers handle routine process flow while people handle exceptions and value-added issues?

As you add applications, do you get more synergy or more complexity?

## **Key Quotes**

“His theme was that they needed to listen to customers more and needed to find out what customers really wanted, to learn precisely how they used our software every day.”

“While the move from paper to electronic forms is a vital stem in the evolution of a modern organizations nervous system, you should use the change to improve the important processes central to your business rather than just streamline what you have.”

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## **PART II -- COMMERCE: THE INTERNET CHANGES EVERYTHING**

### **Chapter 4 – Ride the Inflection Rocket**

#### **Business Lessons**

Most transactions will become self-service digital transactions, and intermediaries will evolve to add value or perish.

Customer service will become the primary value-added function in every business.

The pace of change and the need for more personalized attention to customers will drive companies to adopt digital processes internally.

#### **Diagnosing Your Digital Nervous System**

Has your management team familiarized itself with the Internet and taken time to prepare a vision of how it will change your business in the next decade? Are you working with your IT team to implement that vision technically?

#### **Key Quotes**

- “1. Most transactions between business and consumers, business and business, and consumers and government will become self-service digital transactions. Intermediaries will evolve to add value or perish.
2. Customer service will become the primary value-added function in every business. Human involvement in service will shift from routine, low-value tasks to a high-value, personal consultancy on important issues – problems or desires – for the customer.
3. The pace of transactions and the need for ore personalized attention to customers will drive companies to adopt digital processes internally if they have not yet adopted them for efficiency reasons. Companies will use a digital nervous system to regularly transform their internal business processes to adapt to an environment that constantly changes because of customer needs and competition”

“Practice hands on useage”

### **Chapter 5 – The Middleman Must Add Value**

#### **Business Lessons**

The Internet will help achieve ‘friction-free capitalism’ by putting buyer and seller in direct contact and providing more information to both about each other

As the Internet drives down the cost of transactions, the middleman will disappear or evolve to add new value.

Only a few businesses will succeed by having the lowest price, so most will need a strategy that includes customer service.

If you take a service approach, arm your knowledge workers with digital information tools to connect with customers and manage those relationships.

## **Diagnosing Your Digital Nervous System**

Does your IT system enable your knowledge workers to spend most of their time analyzing information instead of collecting it?

Are you using PC servers to integrate applications from multiple sources, particularly those from older, inflexible systems?

Do you have a single infrastructure to support applications for your internal knowledge workers and your customers?

## **Chapter 6 – Touch Your Customers**

### **Business Lessons**

A successful Web site requires the creation of a new customer experience that takes advantage of the unique capabilities of the Internet.

Success on the Web requires high-level corporate understanding of the Internet's capabilities and support of early test-and-invest projects.

The majority of your interactions with customers on the Internet will involve support rather than sales and the word-of-mouth nature of the Internet means it's very costly if customers have a poor experience on your site.

A good Web site can help turn salespeople into consultants.

### **Diagnosing Your Digital Nervous System**

Do your digital systems enable you to provide a personalized experience for customers who come to your Web site?

Do your digital systems allow you to trade physical assets for information?

Will your Web infrastructure enable you to easily incorporate video and phone support in the future?

## Key Quotes

“One of Dell’s unique approaches to customer support was to create more than 5,000 specially designed Premier pages tailored to the needs of its major customers. About 65 percent of Dell’s online business right now is from consumers and small businesses, and the Premier pages are one way Dell is growing its corporate business.”

“Dell’s latest big internal development project for support tools came just as the Internet was reaching critical mass. The company used the tools internally for several months, made a few changes, and then ‘turned them over to customers’.”

“Marriott personalizes its Web site service for each and every visitor.”

## Chapter 7 – Adopt the Web Lifestyle

### Business Lessons

As PCs continue to drop in price and more households are connected, the Web lifestyle will move most consumer transactions online.

The Web lifestyle changes the way businesses relate to customers and governments relate to citizens. Ultimately the Web lifestyle puts the consumer-citizen in charge of the relationship.

### Diagnosing Your Digital Nervous System

Have you started interacting with your customers over the Internet?

Have you considered what digital systems and tools you’ll need when a majority of your customers prefer to conduct their business via the Web instead of via traditional methods?

## Key Quotes

“It’s easy to speculate that the Web lifestyle, with everyone off in his or her own little world, will cause society to fly apart. I believe that the opposite is actually true.”

“In reality, the ability to use the Internet to move or redefine boundaries in our communities is strengthening personal and cultural connections.”

## Chapter 8 – Change the Boundaries of the Business

### Business Lessons

The Web redefines the boundaries between organizations and between people and organizations; it allows a company to structure itself to be more efficient.

The Web workstyle makes it possible for employees to telecommute and to collaborate with employees and partners at other locations.

The Web enables big companies to appear to be smaller and more flexible and smaller companies to become effectively much bigger than they are.

### Diagnosing Your Digital Nervous System

Do your digital systems allow you to work seamlessly with professionals such as lawyers and accountants who are ‘outside’ the corporate walls?

Do your digital systems help you focus on your core competencies and outsource everything else?

Do your digital systems help you load-balance work more efficiently?

## Chapter 9 – Get to Market First

### Business Lessons

Time to market is shrinking for every business, whether it sells physical or information products. Using digital information to be first to market can radically improve your competitive position.

The most important “speed” issue is often not technical but cultural. It’s convincing everyone that the company’s survival depends on everyone moving as fast as possible.

Moving to an ERP package will help you instill the rigor and standardization you need in your financial data.

### Diagnosing Your Digital Nervous System

Do you use digital data flow to achieve faster turnaround, higher quality, and lower prices?



Do you have electronic links among manufacturers, suppliers, sales, and other functions so that planning cycles are compressed?

Do you have digital systems that enable you to react to production changes within the same eight-hour work shift?

### **Key Quotes**

“Publish-and-subscribe technology is another critical component for Compaq’s future. It’s the bridge between ERP and the planning systems. Publish-and-subscribe enables the company to extract data in a way that is reliable and near real time. As soon as changes are confirmed to order or inventory position, the data system publishes the changes to a network server, which then pushes the information automatically to the PCs of the businesspeople who have signed up for notification. The technology gives Compaq the ability to replicate information to the people who need it while avoiding big loads on the central database.”

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**PART III -- MANAGE KNOWLEDGE TO IMPROVE STRATEGIC THOUGHT****Chapter 10 – Bad News Must Travel Fast****Business Lessons**

A company's ability to respond to unplanned vents, good or bad is a prime indicator of its ability to compete.

Strategically a major function of the CEO is to look for bad news and encourage the organization to respond to it. Employees must be encouraged to share bad news as much as good news.

The flatter the corporate hierarchy, the more likely it is that employees will communicate bad news and act upon it.

Personal initiative and responsibility thrive in an environment that fosters discussion.

Reward worthy failure – experimentation.

**Diagnosing Your Digital Nervous System**

Does your digital system enable you to learn about bad news anywhere in the company and communicate it quickly?

Do your digital systems enable you to assemble the necessary data and get teams working on solutions quickly?

Can you put together virtual teams from separate departments and geographies?

**Key Quotes**

“I have a natural instinct for hunting down grim news. If it's out there, I want to know about it.”

“Their story exemplifies our policy, from Day One, that smart people anywhere in the company should have the power to drive an initiative.”

“These independent explorations led to dozens and dozens of great ideas. Quickly, over e-mail, people offered their opinions, fleshed out the issues, considered the options. The amount of e-mail was just fantastic. E-mail discussions led to many small group meetings – often loud, informal ones in the hallways – to hammer out recommendations.”

“I was engaged in lengthy e-mail exchanges with dozens of people involving everything from our business strategy for online services to our technical approach to hyperlinking.”

“Once the e-mail chains got long enough and we had enough issues and recommendations to consider, we’d go off on retreats to produce the final decisions.”

“His manager had told him the Internet would never be part of their group’s business. By the time of the meeting, the small team had already converted thousands of files containing product information into HTML...”

“Electronic collaboration is not a substitute for face-to-face meetings. It’s a way to ensure that more work gets done ahead of time so that meetings in person will be more productive.”

“In the book Andy (Grove) talks about how important it is for a company’s middle managers, ‘often the first to realize that what worked before doesn’t work anymore,’ to confront senior management with bad news. Otherwise, he says, ‘senior management in a company is sometimes late to realize that the world is changing on them – an the leader is often the last of all to know’.”

“A change in corporate attitude, encouraging and listening to bad news, has to come from the top.”

“Today Ford is still a world leader in automobile production and quality, but it has never regained its pre-1927 position in the industry. Somebody at Ford saw the changes coming in the 1920s. An engineer who came up with a new design was fired for his temerity.”

## **Chapter 11 – Convert Bad News to Good**

### **Business Lessons**

Embrace bad news to learn where you need the most improvement.

Your most unhappy customers are your greatest source of learning.

Implement policy and business structures that tie complaints directly to fast solution.

### **Diagnosing Your Digital Nervous System**

Can you capture and analyze customer feedback electronically to find out how customers want you to improve you product or service?

Do your digital systems enable you to quickly deliver customer feedback to the employees who can fix the problem?

Can you respond to electronic customer feedback promptly?

Can you drive simple customer queries to your Web site and reserve your phone support for difficult customer questions?

## Key Quotes

“Learning from mistakes and constantly improving products is a key in all successful companies. Listening to customers is a big part of that effort. You have to study what customers say about their problems with your products and stay tuned in to what they want, extrapolating from leading-edge buyers to predict future requirements.”

“I recommend the following approach to integrating customer complaints and wish lists into product and service development:

1. Focus on your most unhappy customers.
2. Use technology to gather rich information on their unhappy experiences with your product and to find out what they want you to put into the product.
3. Use technology to drive the news to the right people in a hurry.”

## Chapter 12 – Know Your Numbers

### Business Lessons

Knowing your numbers is more than balancing your books each month. It’s being able to use data for marketing and sales as well as for financial purposes.

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

Quick, accurate numbers make it possible for customer actions to drive an immediate response for customer actions to drive an immediate response by you and your partners.

### Diagnosing Your Digital Nervous System

Do your digital systems capture your business’s data at the point of origin and in every interaction with your customers and partners?

Can you integrate your partners’ numbers with yours?

Do you have a complete customer database that you can take full advantage of?

## **Chapter 13 – Shift People into Thinking Work**

### **Business Lessons**

Analytical software enables you to shift human resources from rote data collection to value-added customer service and support where the human touch makes a profound difference.

Apply software analysis first to those aspects of your business where you are most able to act on the results.

Consider how the move from mass advertising to targeted advertising will change your marketing approach.

### **Diagnosing Your Digital Nervous System**

Can you do sophisticated analysis of customer buying patterns and use the results for either trend analysis or individualized service?

Can you determine which customer groups are most profitable and most unprofitable for you – by income, age group, geography, or other demographics?

Do your digital systems enable people to shift from dealing with the routine to dealing with the exceptions?

Do your employees have easy, digital access to numbers? Can they go from summaries to detailed data? Can they see numbers in different dimensions and pivot across those dimensions?

### **Key Quotes**

“The inevitable consequence of better computer systems is a smarter use of people’s time.”

## **Chapter 14 – Raise Your Corporate IQ**

### **Business Lessons**

Foster knowledge sharing through policies, rewards, and specific projects that establish a knowledge-sharing culture.

Teams should be able to act with the same unity of purpose and focus as a well-motivated individual.

Every new project should directly build on the learning from any similar project undertaken anywhere else in the world.

Training should be available at the employee's desk as well as in the classroom. All training resources should be online, including systems to provide feedback on the training.

## Diagnosing Your Digital Nervous System

Do you have a digital repository where you preserve and augment your organizations accumulated knowledge?

Do your digital systems allow numerical and non-numerical data to be accessed together?

Can employees, partners and suppliers get access to appropriate corporate knowledge with a few simple commands?

Do your information systems ensure that the proper reviews happen as products mover through development?

## Key Quotes

“Knowledge management doesn't even start with technology. It starts with business objectives and processes and a recognition of the need to share information.”

“I read all the e-mail that employees send me, and I pass items on to people for action.”

“A new planning system contains 150 questions to be answered in all brand plans and organizes the information according to repeating processes.... A planner in Zimbabwe who wants to figure out the best way to launch Sprite in his country might discover a Coke marketer in Thailand launched the same product six months ago.”

“Today Journey (Nabisco's product development management software) provides firm, quantitative, go/no-go hurdles that every team must negotiate before proceeding to the next step. Exceptions are possible. Nabisco might decide to green-light a project that will be low-volume overall but strong in certain regions, for instance.”

“To recruit and retain smart people, you need to make it easy for them to collaborate with other smart people. That makes for a stimulating, energized workplace. A collaborative

culture, reinforced by information flow, makes it possible for smart people all over a company to be in touch with each other. When you get a critical mass of high-IQ people working in concert, the energy level shoots way up. Cross-stimulation brings on new ideas – and less experienced employees are pulled along to a higher level. The company as a whole works smarter.”

## **Chapter 15 – Big Wins Require Big Risks**

### **Business Lessons**

To win big, you sometimes have to take big risks.

Risk supported by digital information flow may be the single biggest way to create product and market breakthroughs.

With manufacturing, you trade information for inventory. With industries involved in intellectual property, you trade information for risk.

### **Diagnosing Your Digital Nervous System**

Are you going digital all the way or only part of the way? Can you digitally link your knowledge management, business operations, and commerce systems to create a seamless digital environment?

Does your digital system enable you to take product testing to wherever in the world is most appropriate while retaining proper review and control?

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## **PART IV -- BRING INSIGHT TO BUSINESS OPERATIONS**

### **Chapter 16 – Develop Processes that Empower People**

#### **Business Lessons**

The more line workers understand the inner workings of production systems, the more intelligently they can run those systems.

Real-time data on production systems enables you to schedule maintenance before something breaks.

Tying compensation to improved quality will work only with real-time feedback of quality problems.

Task workers will go away. Their jobs will be automated or combined into bigger tasks requiring knowledge work.

Look into how portable devices and wireless networks can extend your information systems into the factory, warehouse, and other areas.

#### **Diagnosing Your Digital Nervous System**

Can line workers get real-time access to data so they can improve the quality of the product?

Can you integrate your manufacturing systems with the other systems in your company – for example, to extract data from production processes to drive inventory control or coordinate production with sales.

### **Chapter 17 – Information Technology Enables Reengineering**

#### **Business Lessons**

Attack process problems from a variety of perspectives and use technology to create streamlined processes that were never possible before. Reevaluate all processes periodically.

Redesign processes to deliver optimal information flow and you'll solve your important business problems.

Process problems boil down to simplification: having the least number of employees engaged in the least number of handoffs.



Business leaders, not IT alone must own decisions about processes involving technology.

A lousy process will consume ten times as many hours as the work itself requires. A good process will eliminate the wasted time; technology will speed up the remaining real work.

Complexity is the death of all reengineering projects, especially those that involve technology.

## **Diagnosing Your Digital Nervous System**

Do your digital systems enable quick deployment of an initial solution and other improvements staged in over time? Do they make it easy for every employee to track status? Do they make it easy to see trends that call for management action?

Can you build a large process from several independent smaller processes and link these to create an efficient system?

Are you using digital information flow to simplify an entire process from beginning to end?

Do you avoid long development cycles by creating smaller, modular solutions that are designed from the start to exchange digital data?

## **Key Quotes**

“The manager asked one question – a common question at Microsoft I like to ask – ‘Why are there so many people in this room?’ In any meeting I want only the essential decision makers. Everybody else should be off solving other problems. If you find more than three or four decision makers in the room, you can be sure that the sheer number of people involved is a major part of the problem.”

“Incomplete understanding of the objective is a major concern in every technology project, which is why you’re usually better off tackling smaller processes and building on them.”

“Projects of only three to four months’ duration are going to have much lower failure rates. With short projects you’re forced to make important trade-offs that will drive you to simplicity and focus.”

“Ralph Larsen, CEO of Johnson & Johnson, said that the most frequent cause of ‘spectacular failures’ is that businesspeople simply turn over big projects to their IT departments or outside consultants ‘and then run because it’s such hard work’.”

“(Ralph Larson says) Never use new information technology simply to replace old business processes or even legacy IT systems”

## Chapter 18 – Treat IT as a Strategic Resource

### Business Lessons

The CEO must understand IT as well as he or she understands any other business function. The responsibility for strategic use of IT can’t be delegated to the CIO.

The CEO must regard information technology as a strategic resource to help the company generate revenue.

The CIO has to be an integral part of the development of business strategy and must be able to articulate in plain language what IT can do to help execute that strategy.

Treat training costs as part of your basic infrastructure costs.

### Diagnosing Your Digital Nervous System

Each year do you spend a smaller percentage of resources on keeping systems running and a greater percentage on new business solutions?

Do you have several best-in-class business applications?

How expensive is it to add new solutions to your current infrastructure?

### Key Quotes

“First, the CEO must be sure to regard information technology as a strategic resource to help the business get more out of its people. IT should not be regarded as just a cost center. Second, the CEO needs to learn enough about technology to be able to ask good, hard questions of the CIO and to be able to tell whether good answers are coming back.”

“I know some executives who have had consultants come in every week and teach them the things they need to know about technology.”

“John is charge with using our large IT environment as a real-world lab. We call this approach ‘eating your own dogfood’.”

“The CEO has to make sure that all senior executives agree on the top five to eight IT priorities each year and understand the trade-offs on other projects in order to carry out the top ones.”

“...outsourcing works very well when the outside vendor brings a set of best practices that are outside of your company’s expertise or outside of your primary development focus.”

**PART V --SPECIAL ENTERPRISES**

Chapter 19 – No Health Care System is an Island

Business Lessons

Diagnosing Your Digital Nervous System

Key Quotes

Chapter 20 – Taking Government to the People

Business Lessons

Diagnosing Your Digital Nervous System

Key Quotes

Chapter 21 – When Reflex is a Matter of Life and Death

Business Lessons

Diagnosing Your Digital Nervous System

Key Quotes

Chapter 22 – Create Connected Learning Communities

Business Lessons

Diagnosing Your Digital Nervous System

Key Quotes

**Part VI -- Expect the Unexpected****Chapter 23 – Prepare for the Digital Future****Key Quotes**

“Business leaders who succeed will take advantage of a new way of doing business, a way based on the increasing velocity of information. The new way is not to apply technology for its own sake, but to use it to reshape how companies act. To get the full benefit of technology, business leaders will streamline and modernize their processes and their organization. The goal is to make business reflex nearly instantaneous and to make strategic thought an ongoing, iterative process – not something done every twelve to eighteen months, separate from the daily flow of business.”

“Though we try to keep the number of organizational levels down and the lines of communication short, Microsoft has a fairly traditional organizational chart. I think an open-door policy is more critical than a nonhierarchical structure. Digital tools are the best way to open the door and add flexibility.”