A New Century Requires New Types of Leaders

New times demand new kinds of leaders. The global world of the twenty-first century will require new, worldclass leaders: leaders with a unique combination of attributes and personal characteristics. In a technological workplace that may be more virtual than physical, where information bytes and cyberspace need to be managed more than people, leaders will have to be able to function amid high chaos and continuous change. Organizations surely will not be "organized." Corporations will be collaborating and competing at the same time.

Leadership styles and skills that may have worked in stable, predictable environments will be inadequate in an era of radical uncertainty, at a time when organizations "can't even define the problem, much less engineer a solution." The pattern for success in the old paradigm might in fact be a recipe for failure in the new paradigm of the twenty-first century.

To be a leader of emerging organizations in these turbulent times will require one to have capabilities and skills far different from the skills of those who were deemed successful in the twentieth century. The new leaders for the new global environment will have the ability to continuously change themselves without changing their values and virtues. To be an effective leader in the twenty-first century one will need to possess eight key attributes: (1) an ability to develop and convey a shared vision; (2) a service/servant orientation; (3) commitment to risk-taking and continuous innovation; (4) a global mindset; (5) comfort and confidence with technology; (6) competence in systems thinking; (7) recognition of the importance of ethics and spirituality in the workplace; and (8) a model for lifelong learning.

These attributes have become essential because of eight fundamental shifts that have occurred in the work world and in our society as we complete the twentieth century. In this chapter, we will examine emerging transformations of the workplace. In chapter 2, we will identify and describe the leadership capacities needed to respond to these paradigm shifts.

Eight Major Transformations in the World of Work

The eight forces (see Table 1.1) that will dominate the business world of the twenty-first century are: (a) globalization, (b) technology, (c) radical restructuring and reengineering of the world of work, (d) increased customer power and demands, (e) emergence of knowledge and learning as an organization's most valuable assets, (f) changing roles and expectations of workers, (g) biotechnology, and (h) ever more rapid change and chaos. Let's briefly explore the powerful impact of each of these forces.

Table 1.1

Major Transformations of the Twentieth Century Workplace

1. Globalization and the global economy

2. Computer technology

3. Radical transformation of world of work

4. Increased power and demands of the customer

5. Emergence of knowledge and learning as a company's and country's greatest assets

6. New roles and expectations of workers

7. Biotechnology

8. Speed of change—moving from a Newtonian world to a quantum world of chaos

1. Globalization and the Global Economy

We have entered the Global Age. We are a more global people, we share many global values and practices, we are more and more working for global orga-

nizations. Globalization has caused a converging of economic and social forces, of interests and commitments, of values and tastes, of challenges and opportunities. We can easily communicate with people 10,000 miles away because we share a global language (English) and a global medium for communications (computers and the Internet).

The signs of the global marketplace are all around us:

— U.S. corporations have invested $1 trillion abroad and employ over 100 million overseas workers; over 100,000 U.S. firms are engaged in global ventures valued at over $2 trillion. Over one-third of U.S. economic growth has been due to exports, providing jobs for over 11 million Americans.

— 10% of U.S. manufacturing is foreign owned and employs four million Americans; Mitsubishi USA is America's fourth largest exporter and Toyota has displaced Chrysler as the third largest in U.S. auto sales. Foreign investment in the United States has now surpassed the $3 trillion mark.

— McDonald's operates more than 12,500 restaurants in 70 countries and is adding 600 new restaurants per year.

— Many Gulf countries have more foreign-born workers than native population. More than 70% of the employees of Canon work outside Japan.

— Financial markets are open twenty-four hours a day around the world.

— Over half of the PhDs in engineering, mathematics, and economics awarded by American universities in 1997 went to non–U.S. citizens.

— Global standards and regulations for trade and commerce, finance, products, and services have emerged.

— More and more companies—InterContinental, Xerox, Motorola, Honda, Samsung, Pentax—are manufacturing and selling chiefly outside their country of origin. We hardly know whether a company is French, Japanese, Swedish, or American.

— Coca-Cola earns more money in Japan than in the United States

— Over 70% of profits for the $20 billion U.S. music industry is from outside the United States. Most big-budget movies depend on global viewers for big profits.

Four main forces have quickly brought us to this global age—technology, travel, trade, and television. These four T's have laid the groundwork for a more collective experience for people everywhere. More and more of us share common tastes in foods (hamburgers, pizza, tacos), fashion (denim

jeans), and fun (Disney, rock music, television). Nearly 2 billion passengers fly the world's airways each year. People are watching the same movies, reading the same magazines, and dancing the same dances from Boston to Bangkok to Buenos Aires.

Ever more of us speak a common language. English is now spoken by more than 1 billion people in over 100 countries where it is either the first or second language. English has become the global language of media, computers, and business, and like all languages, it carries cultural and social values with it.

The global economy has in turn forced the creation of global organizations, companies that operate as if the entire world were a single entity. They are fully integrated so that their activities link, leverage, and compete on a worldwide scale. Global firms emphasize global operations over national or multinational operations. They use global sourcing of human resources, capital, technology, facilities, resources, and raw materials. They deem cultural sensitivity to employees, customers, and patterns to be critical to the success of the organization. An organization is globalized when the organization has developed a global corporate culture, strategy, and structure, as well as global operations and global people (Marquardt, 1999).

The single global marketplace/workplace has been created by 10 factors, or global drivers:

— Global technology and telecommunications (enhanced by fiberoptics, satellites, and computer technology).

— Competitiveness of global corporations.

— Converging of global lifestyles and values, accelerated by global language.

— Emergence of global market drivers.

— Lowering of costs of doing business globally.

— Globalization of financial markets, resources and services.

— Emergence of the knowledge economy and era.

— Privatization and globalization of government services.

— Emergence of open and unrestricted free trade.

Although certain industries globalized earlier than others (especially telecommunications, electronics and computers, finance and banking, transportation, automotive, pharmaceutical, petroleum, and biotechnology), every industry

now has global players, and success now depends upon the organization's ability to compete globally for every industry and sector throughout the world. Even the largest companies in the biggest markets will not be able to survive based on their domestic markets alone. More and more companies, whether small or large, young or old, recognize that their choice is between becoming global or becoming extinct.

Thinking and operating globally will be ever more critical to organizational survival and growth in the twenty-first century. Thus twenty-first century leaders will need to understand the global marketplace and develop a global mindset.

2. Computer Technology

Welcome to the new technological workplace with tele-training, info-structures, and ubiquitous computers! Alvin Toffler writes how the advanced global economy and workplace cannot run for 30 seconds without the technology of computers. Yet today's best computers and CAD/CAM systems will be "stoneage" primitive within a few years (Toffler, 1990). The workplace will demand and require ever more technological advancements and innovations.

Already we have technologies such as optoelectronics, DVDs (digital videodiscs), information highways, LANs (local area networks) and WANs (wide area networks), groupware, virtual reality, and electronic classrooms. The power of workplace computer technology has progressed from mainframe to desktop to briefcase portable to the user's hand. More and more of a company's operations require computer-generated automation and customization.

These technologies have become necessary to manage the "data deluge" so that we can learn faster in rapidly changing, turbocharged organizations. Working in a global economy in which "being informed, being in touch, and being there first" can make all the difference between success and second-best, technology provides a big advantage indeed!

Technology will increasingly require that managers manage knowledge rather than people. Technology will alter how and why workers learn. Employees will need to train themselves. And workplace learning will no longer be in a fixed time and location with a group of people for just-in-case purposes; instead, it will be implemented on a just-what's-needed, just-in-time, and just-where-needed basis. The technological forces that have already restructured work will force those who are responsible for employee development to "create ever more flexible and responsive learning and performance solutions" (Bassi, Chenny, and van Buren, 1997).

To better prepare us for how technology will transform work, workers, and the workplace, it is important for us to grasp some of the emerging ideas and applications of technologies. This understanding can help us redirect that technology and thereby accelerate learning and better manage knowledge in the workplace.

We are living in a world where virtual reality and interactive multimedia technologies are becoming commonplace. Personalized intelligent agents will soon be available as built-in, on-line experts looking over one's shoulders. Artificial intelligence technologies (expert/knowledge-based systems, user interfaces that understand speech and natural language, and sensory perception) will be commonly available. Intelligent tutoring systems will allow learner-based, self-paced instruction. Personalized digitized assistants, telecommunications and network advances, desktop videoconferencing, and groupware (also known as collaborative software or group systems technology) will be widely prevalent in the next five years.

And the speed and impact of technology continues to accelerate! Trying to figure out the capabilities and future directions of this rapidly changing technology is impossible. Let's look at just a few of the already existing powers of technology:

— Superconducting transmission lines can transmit data up to 100 times faster than today's fiber-optical networks. One line can carry 1 trillion bits of information per second, enough to send the complete contents of the Library of Congress in two minutes.

— Neural networks are changing how computers "think": today's computers process preprogrammed commands sequentially; a neural network uses associative "reasoning" to store information in patterned connections, allowing it to process complex questions through its own logic.

— Expert systems, a subset of artificial intelligence, are beginning to solve problems in much the same way as human experts.

— Telephones are being made small enough to wear as earrings.

— Highly-reliable connectivity is becoming available that works regardless of time or place and is easy and affordable around the world.

— Cellular phones can now respond to e-mail.

One of the most amazing and transforming technological additions to our lives is the Internet. The use of the Internet is one of the fastest-growing

phenomena the business world has ever seen—building from a base of fewer than 1,000 connected computers in the early 1980s, to over 100 million host computers today.

Intranets (in-company Internets) are rapidly catching up. The implementation of Intranets is growing three times faster than that of electronic commercial applications, with over 70% of major corporations currently having or planning Intranet applications. As the evolution of Intranet sites continues, more and more features will emerge. For example, real-time training that combines a live mediator, on-line information and several remote attendees is already possible. By the end of 1997, nearly 90% of all businesses had recognized that it was critical to develop comprehensive strategies for using both Intranets and the Internet.

The new high-tech learning machines have been called the most powerful learning tool since the invention of the book. With virtual reality, the mind is cut off from outside distractions and one's attention becomes focused on the powerful sensory stimulation (light-sound matrix) that bombards the imagination. It becomes possible for ideas and mental images to float in and out of a person's consciousness.

Technology is becoming more and more a part of all products and the total GNP, including aerospace, advanced industrial systems, and automotive. Already, nearly 20% of an automobile's value is the electronics within it. The computer service and computer software market has grown to over $420 billion, an increase of 50% in the last four years! Information technology is expected to form the basis of many of the most important products, services, and processes of the future.

In addition, an array of technological developments have recently emerged for use in the home as well as the office, including:

— Integration of television, telecommunications, and computers through digitization and compression techniques.

— Reduced costs and more flexible use and application of telecommunications through developments such as ISDN, fiber optics, and cellular radio.

— Miniaturization (tiny cameras, microphones, and small, high-resolution display screens).

— Increased portability through the use of radio communications and miniaturization.

— Expanded processing power through new microchip development and advanced software.

— More powerful and user-friendly command and software tools, making it much easier for users to create and communicate their own materials (Bates, 1995).

The commoditization of ultra-high technology opens spellbinding opportunities for new knowledge-exchange products. British Telecom, for example, believes that future generations of portable phones could be installed right in your ear. While talking, the user could also glimpse images or data that are pulled invisibly off the Internet and projected onto a magnifying mirror positioned beside one eye.

The technology of the future will respond to our voices and extend our senses. It will stimulate complex phenomena—weather patterns, stock market crashes, environmental hazards—solving problems and predicting outcomes at a price anyone can afford. Computers—or networks of them—will become ubiquitous as they are invisibly imbedded in other things. These machines will reconfigure themselves when new applications are required. A whole new metaphor for computing is taking shape, patterned on the natural resilience and elegance of biological organisms. They will learn to diagnose, repair, and even replicate themselves (Gross, 1997).

The impact of technology on organizations, on management, and on the community is mind-boggling. And it has only begun. The emerging power and applicability of technology will turn the world of work on its head. Organizations will become more virtual rather than physical because of technology. People will be more linked to customers in Kuala Lumpur than to co-workers across the hall because of technology. Thus, the twenty-first century leader will need to appreciate and understand the power and purposes of technology.

3. Radical Transformation of World of Work

The world of work and the workplace is being dramatically transformed. Workers no longer work in an office. Corporations collaborate and compete with one another at the same time. Customers provide supervision as well as dictate services. Fellow employees work closely with each other while never having met one another. Companies have temporary, part-time CEOs and permanent full-time janitors. Corporate headquarters staff may consist of less than 1% of a company's workforce, if there is a headquarters.

Organizations have moved from the quality efforts of the 1980s, through the reengineering processes of the 1990s to the radical transformation of the workplace itself as we enter the twenty-first century. They have moved from

focusing on reducing of defects and streamlining business processes to totally new forms that enable organizations to manage continuous, white-water change. They now work to create "high performance work organizations" in which work is reorganized, redesigned, or reengineered to improve performance.

Decades of breaking work into ever-smaller tasks are coming to an end. Instead, teams of employees will be responsible for key business processes from beginning to end. Impatience with the rate of change will cause many organizations to reengineer (start from scratch) their key processes.

Companies will focus on and organize around what they do best. Therefore, they will structure according to core competencies instead of according to product or market. The organizational architecture of companies will evolve around autonomous work teams and strategic alliances. In such companies, "noncore" work will be outsourced or done by temporary and contract workers as needed.

Advances in information technology described above are providing faster transmission of data and expanded storage capacity as well as clearer, more complex links among users and greater computer power. Such innovation will permit greater control of more decentralized organization, while permitting the information flow needed to give local managers substantive decision-making authority.

Because of this technology, corporations will become cluster organizations or "ad-hoc-racies"; groups of geographically dispersed people—typically working at home—that come together electronically for a particular project and then disband, having completed their work. More organizations will comprise a minimal core of permanent employees supported by independently contracted professionals.

As more companies realize that the key resource of business is not capital, personnel, or facilities but rather knowledge, information, and ideas, many new ways of viewing the organization begin to emerge. Everywhere companies are restructuring, creating integrated organizations, global networks, and leaner corporate centers. Organizations are becoming more fluid, ever shifting in size, shape, and arrangements.

Organizations are also becoming more and more virtual. A virtual organization is a temporary network of independent companies, suppliers, customers, and even rivals linked by information technology to share skills, costs, and access to one another's markets. In its purest form, a company decides to focus on the thing it does best. Then it links with other companies, each bringing to the combination its own special ability. It will mix and match what it does best with the best of the other companies. For example, a manufacturer will manufacture while relying on a product-design outfit to sell the output.

The virtual corporation will have neither central office nor organization chart, and no hierarchy or vertical integration. Teams of people in different companies will routinely work together. After the business is done, the virtual organization disbands.

Technology allows for new strategic opportunities for organizations to reassess their missions and operations. It enables organizations to *automate* (which lessens the cost of production), to *informate* (which provides information that can be used to get a job done, generates new information as a byproduct, and develops new information), and to *transform*. Morton (1991) calls this a stage characterized "by leadership, vision and a sustained process of organization empowerment." Twenty-first century leaders will need to understand how to restructure, to connect, and to think in a new paradigm characterized more by interdependent systems than by independent entities.

4. Increased Power and Demands of the Customer

Global communications and marketing have increased consumers' awareness about possible products and services. Global competition has offered customers a more varied and higher quality of choices. What has been created is a "convergence of consumer needs and preferences." Consumers are now able to choose the products and services they want based on the best:

1. Cost—What is the least expensive, most economical choice?

2. Quality—No defects; meeting and exceeding the customer's expectations.

3. Time—Available as quickly as possible.

4. Service—Pleasant, courteous, and available; products are reparable or replaceable.

5. Innovation—New, something not yet envisioned by the customer (e.g., Sony Walkman).

6. Customization—Tailored to very specific needs.

Jorma Ollila, CEO of Nokia, adds that twenty-first century customers will be much more accustomed to information, technologically more connected, more culturally conscious, and more international by nature.

Customers will more and more determine how organizations set strategies and carry out operations. Customers, rather than workers, will become the

focus of leadership-attention organizational priorities. How to better serve customers through continuous innovations will become a prime focus of twenty-first century leaders.

5. Emergence of Knowledge and Learning as a Company's and Country's Greatest Assets

Technology and globalization has led to a global economy based on knowledge. Knowledge workers now outnumber industrial workers by 3 to 1. The workforce has moved from manufacturing (working with the hands) to mentofacturing (working with the mind). Continuous learning and knowledge production provides the key raw material for wealth creation and has become the fountain of organizational and personal power.

The wealth of nations will depend increasingly on knowledge-based, high-tech industries, in areas such as biotechnology, health, environmental products and services, tourism and hospitality, telecommunications, computer software and software applications, financial services, and entertainment (film, television, games). These are all highly competitive global industries. Keeping even a few months ahead of the competition, in terms of innovation and knowledge, is critical to survival.

Information—processed by human brainwork into knowledge, integrated and intuited into wisdom—has quite suddenly become the world's most important resource. Knowledge will be playing the prime role in world history that physical labor, minerals, and energy once played.

Brainpower is becoming a company's most valuable asset and is what conveys a competitive edge in the marketplace. Stewart (1997, p. 44) asserts, "Brainpower . . . has never before been so important for business. Every company depends increasingly on knowledge—patents, process, management skills, technologies, information about customers and suppliers, and oldfashioned experience. . . . This knowledge that exists in an organization can be used to create differential advantage. In other words, it's the sum of everything everybody in your company knows that gives you a competitive edge in the marketplace."

Increasingly, work and learning are becoming the same thing. Zuboff (1988) sees "learning as the new form of labor." Because the new global economy is based on knowledge work and innovation, there is a convergence between work and learning. While you perform knowledge work, you learn. And you must learn minute by minute to perform knowledge work effectively. Learning is becoming a lifelong challenge as well as a lifelong process. Most

knowledge has a shelf life of three years or less, and knowledge continues to double every 18 months!

Simply put, knowledge has become more important for organizations than financial resources, market position, technology, or any other company asset. Knowledge is seen as the main resource used in performing work in an organization. The organization's traditions, culture, technology, operations, systems, and procedures are all based on knowledge and expertise. Knowledge is needed to increase the abilities of employees to improve products and services—thereby providing quality service to clients and consumers. Knowledge is necessary to update products and services, change systems, and structures, and communicate solutions to problems.

In the new knowledge economy, individuals at every level and in all kinds of companies will be challenged to develop new knowledge, to take responsibility for their new ideas, and to pursue them as far as they can go. Leaders themselves will need to learn continuously as well as to create an environment that allows workers to increase knowledge.

6. New Roles and Expectations of Workers

Need for knowledge and higher-order cognitive skills

As society moves from the industrial era to the knowledge era, job requirements are changing. Employees are moving from needing repetitive skills to knowing how to deal with surprises and exceptions, from depending on memory and facts to being spontaneous and creative, from risk avoidance to risk taking, from focusing on policies and procedures to collaborating with people. Work will require higher-order cognitive skills—the ability to analyze problems and find the right resources for solving them, often with both limited and conflicting information.

The workforce is rapidly changing. As of the year 2000, over 80% of all jobs in the United States are in knowledge and service industries. Many of the new jobs require a much higher level of technical skill than the jobs they replaced, especially in manufacturing and resource-based industries. People retain existing jobs only if they were retrained to higher standards.

Twenty-first century workers, according to Drucker (1992), will be composed more and more of knowledge workers. A fascinating aspect about knowledge workers is that they do, in fact, own the means of production, and they can take it out of the door with them at any moment. Therefore, managers have to attract and motivate; reward, recognize, and retain; train, educate, and improve; and, in the

most remarkable reversal of all, serve and satisfy knowledge workers. Organizations must provide a structure in which knowledge workers can apply their knowledge.

Growing importance of emotional intelligence

Emotional intelligence, according to Goleman (1997), involves both social competencies (empathy and social skills) and personal competencies (self-awareness, self-regulation, and motivation). It includes areas such as self-confidence, the need to get results, constant improvement, influence, service orientation, conflict management, drive for achievement, optimism, initiative, and teamwork.

   Only recently have managers begun to realize how important emotional intelligence is to a worker's success. But as research by Goleman (1998) has shown, emotional intelligence-based competencies affect performance for jobs of all kinds, being twice as important as cognitive and technical expertise combined; and the higher one goes in an organization, the more critical are these skills. A work world engulfed with competition, technology, and speed requires workers with ever increasing social and personal competencies.

Increase in temporary workers

Another new element of today's and tomorrow's work environment is the presence of temporary and part-time workers. More and more companies are depending heavily on temporary help, and their employment is rising annually at 17% and over $50 billion in revenue. Businesses have made "temp" help an integral part of the hiring process as well as overall human resources policy. The hiring of temporary workers allows organizations to be more flexible, but at the expense of worker loyalty and knowledge retention.

Telecommuting workers

Telecommuting, thanks to digital phone lines, affordable desktop videoconferencing, and wide ranging cellular networks, is out of the experimental stage. By means of local phone companies offering Integrated Services Digital Network (ISDN) lines that can transmit voice, data, and video simultaneously, telecommuting has become easy and highly productive.

   The over 15 million telecommuters in the United States represent the fastest growing portion of workers. The entire 240-member core sales staff at American Express Travel Related Services are telecommuters. Ernst & Young has implemented "hoteling," in which up to 10 people share a single desk in a fully equipped office on an as-needed basis. Employees must reserve space and equipment in advance. Over the past three years, the accounting firm has

slashed its office space requirements by about 2 million square feet, saving roughly $25 million per year.

In addition to reducing air pollution and cutting down on office space and equipment purchases, telecommuting enables corporations to hire otherwise unavailable key talent. For example, Northern Telecom in Memphis was able to hire someone from Philadelphia who did not want to move to Tennessee.

How to attract and retain knowledge workers, to build the emotional intelligence of staff, and to motivate temporary and telecommuting employees will be a critical skill of the twenty-first century leader, one that will require the ability to be a "servant" as well as a leader.

7. Biotechnology

Just as information technology undergirds today's booming economy, biology may drive tomorrow's. In fact, biology could transform information technology through such developments as DNA-based computers and software that repairs flaws as nature does.

The twenty-first century will "start the century of biology," says J. Craig Venter, president of the Institute for Genomic Research and pioneering gene finder (Carey, 1998). Corn yields could double and science could eventually find ways to stave off heart disease and cancer. Already, research centers such as Venter's have read the entire DNA codes for the bugs that cause cholera and tuberculosis, opening the door to better treatments and vaccines, leading to possibly finally winning the war against bacteria.

Biotechnology is widely forecast as being the dominant factor of the twenty-first century. Bioengineered products—the products of biomanufacturing—will fuel the new bioeconomy. Major advances in the genetics of DNA will lead to much longer, more productive lives. People will soon be walking around with chips in their bodies that will monitor and assist activities.

New research technologies are vastly accelerating the pace of discovery in biology, driving forward not only medicine but also industry, environmental cleanup, and agriculture. Scientists are unlocking biochemical pathways in cancer, clogged arteries, and Alzheimer's disease. Not only are they understanding life, they're manipulating it. They are slipping new genes into people to treat disease and genetically engineering plants and animals to boost yields or transform them into bio-factories of plastics and drugs.

Some of the new possibilities on the horizon include a so-called retinal display that "paints" pictures directly on the eye by modulating a stream of photons from light-emitting diodes and scanning them across the retina. The

mind perceives these scans as vibrant color pictures. British Telecom's "homo cyberneticus" shows off its artificial retina and a pacemaker that sends warning signals to the doctor, as well as a vest that turns body heat to electricity (Carey, 1998).

Advances in genetics and other areas of biology are bringing an unprecedented wave of innovation. Here's what's already being developed in the fields of agriculture, medicine, and industry:

Agriculture

— Salmon and trout engineered to grow twice as fast as normal.

— Soybeans, cotton, corn and other crops engineered to resist pests and withstand bad weather, as well as to produce increased nutritional value.

— Cows, pigs, sheep, and goats that make drugs in their milk.

Medicine

— Bacteria genetically engineered to lap up underground spills of toxic chemicals.

— Natural hormones that stimulate growth of new blood vessels, bypassing clogged vessel.

— Capacities to make people healthier and to live much longer.

Industry

— Plants that produce biodegradable plastics.

— Computers that harness the information storage capacity of DNA.

— Enzymes that reduce the need for environmentally harmful chorine in papermaking.

The powerful developments in the field of biotechnology expand the power of organizations but raise significant ethical issues for leaders.

8. Speed of Change—Moving from a Newtonian to a Quantum World of Chaos

For nearly three centuries the world and the workplace have been built upon Newtonian physics—the physics of cause and effect, of predictability and certainty, of distinct wholes and parts, of reality being what is seen. Newtonian

physics is a science of quantifiable determinism, of linear thinking, and of controllable futures, in sum, a world that does not change too fast or in unexpected ways.

In the Newtonian mindset, people engage in complex planning for a world that they believe is predictable. They continually search for better methods of objectively perceiving the world. This mechanistic and reductionist way of thinking and acting dominates life even though it was disproved over 70 years ago by Albert Einstein and others who introduced the scientific community to quantum physics in the 1920s. Margaret Wheatley (1992), author of *Leadership and the New Science,* rightly notes, however, that in today's world this old, disproved mindset is "unempowering and disabling for all of us."

Quantum physics, on the other hand, deals with the world at the subatomic level, examining the intricate patterns out of which seeming discrete events arise. Quantum physics recognizes that the universe and every object in it are, in reality, vast empty spaces filled with fields and movements that are the basic substance of the universe. Thus, relationships between objects and between observers and objects are what determine reality. The quantum universe is composed of an environment rich in relationships; it is a world of chaos and process, not just of objects and things. Quantum physics deals with waves and holograms, with surprises rather than predictions.

In understanding quantum physics, organizations realize that they cannot predict with certainty, that chaos is part and parcel of reality. It forces us to change the way we think, the way we attempt to solve problems, the way we deal with order versus change, autonomy versus control, structure versus flexibility, and planning versus flowing. Leaders will need new ways of seeing the world, new visions for leading their people.

New Forces Demand New Leaders

In this chapter, we have explored the eight most significant factors that have emerged in the world of work factors that will totally transform the relationships and dynamics that leaders must exhibit both internally and externally to the organizations they manage. Each of these eight factors forces leaders to have responding attributes in order to successfully navigate in the twenty-first century. In chapter 2 we will explore these eight attributes.

Attributes and Competencies of the Twenty-First Century Global Leader

New times demand new kinds of leaders with new attributes and competencies. As we noted in chapter 1, eight significant forces have transformed the world of work as we conclude the twentieth century, namely, (a) globalization, (b) technology, (c) radical restructuring and reengineering of the world of work, (d) increased customer power and demands, (e) the emergence of knowledge and learning as the organization's must valuable assets, (f) changing roles and expectations of workers, (g) biotechnology, and (h) ever more rapid change and chaos. Leaders must now operate in a dramatically transformed world with new kinds of workers and customers, within new global marketplaces and highly technologized environments.

As Table 2.1 displays, each of the transforming forces creates the need for a special competency or attribute for the twenty-first century leader.

Table 2.1

**Leadership Competencies Necessitated
by Workplace Transformations**

WORLD OF WORK TRANSFORMATIONS	NEW GLOBAL LEADERSHIP ATTRIBUTES
Globalization	Global mindset and competencies
Knowledge era	Teacher, coach, mentor, and model learner
Changing workers	Servant and steward
Organizational restructuring and chaos	Systems thinker and polychronic coordination

Leadership Competencies Necessitated
by Workplace Transformations (continued)

World of Work Transformations	New Global Leadership Attributes
Biotechnology, environment	Spirituality and concern for ethics
Technology	Technologist
Customer expectations	Innovator and risk-taker
Future speed of change	Visionary and vision-builder

The successful twenty-first century leader will need to develop each of these competencies or attributes. Let's now explore in greater detail what are the essential elements of these attributes and why they are so important.

1. Global Mindset and Competencies

A key leadership attribute of twenty-first century leaders will be the ability to see the world and the workplace with a global mindset. A global mindset is defined as "a predisposition to see the world in a particular way that sets boundaries and provides explanations for why things are the way they are, while at the same time establishing guidance for ways in which they should behave" (Rhinesmith, 1993). Mindset is a filter through which we look at the world. Rhinesmith compares domestic and global mindsets as shown in Table 2.2.

Table 2.2

Comparison of Domestic and Global Mindsets

Domestic Mindset	Global Mindset
Functional expertise	Bigger, broader picture
Prioritization	Balance of contradictions
Structure	Process
Individual responsibility	Teamwork and diversity
No surprises	Change as an opportunity
Trained against surprises	Openness to surprises

Global mindsets are not exclusive, but inclusive. People with global mindsets seek to continually expand their knowledge, have a highly developed capacity to conceptualize the complexity of global organizations, are extremely flexible, strive to be sensitive to cultural diversity, are able to intuit decisions with inadequate information, and have a strong capacity for reflection. A global mindset thinks and sees the world globally, is open to exchanging ideas and concepts across borders, and is able to break down one's provincial ways of thinking. Emphasis is placed on balancing global and local needs, and on being able to operate cross-functionally, cross-divisionally, and cross-culturally around the world.

Key global competencies for twenty-first century leaders will include the abilities:

— to describe clearly the forces behind the globalization of business.

— to recognize and connect global market trends, technological innovation, and business strategy.

— to outline issues essential to effective strategic alliances.

— to frame day-to-day management issues, problems, and goals in a global context.

— to think and plan beyond historical, cultural, and political boundaries, structures, systems and processes.

— to create and effectively lead worldwide business teams.

— to help the company adopt a functional global organizational structure.

The key to globalizing an organization, according to David Whitwam, CEO of Whirlpool, is for the leaders to get everyone in the organization to think globally, not just a few. "You must create an organization where people are adept at exchanging ideas, processes, and systems across borders" (Maruca, 1994, p. 137) To do this Whitwam believes that the leadership must build upon a unifying global vision and philosophy to help create a global mindset—and unless leaders can globalize their organizations, their organizations will die.

2. Teacher, Coach, Mentor, and Model Learner

Jacques (1989) asserts that leaders must have the "learning how to learn" skill, the opportunity to learn, and the capacity to learn. Marsick (1987) notes that top executives seldom take the opportunity to learn through organized learning programs, yet must continually learn to remain successful in their positions.

Self-learning is critical to executive success. Dechant (1990) discovered in her research that the ability to learn might be the "most salient" competency for leadership. And no task is more important for the new leader than encouraging and inspiring learning!

Cohen and Tichey (1998) note "the scarcest resource in the world today is leadership talent capable of continuously transforming organizations to win in tomorrow's world." Thus, for companies to survive in the future, they must become not only learning organizations, but also teaching organizations. Everyone, especially leaders, must pass his or her learning on to others. In teaching organizations, leaders see it as their responsibility to teach, coach, and mentor so that people throughout the organization are developed to efficiently and effectively apply knowledge to the business of the organization. Since learning is critical for the success of the business, leaders find ways for their people to do it every day.

Leaders can help others learn through a variety of approaches—as a teacher, coach, and mentor. The choice among these roles will depend on the focus of help, timespan, approach, and activities, as shown in Table 2.3.

Table 2.3

Leader as Teacher, Coach, and Mentor

DIMENSION	TEACHER	COACH	MENTOR
Focus of help	Task	Person's job	Development
Timespan	A day or two	A month or year	Career or lifetime
Approach to helping	Show and tell; give supervised practice and set up opportunities to try out new skills	Explore problem together	Act as friend; listen and question to enlarge awareness
Associated activities	Analyze task; give clear instruction; supervise practice and give feedback on results at once	Jointly identify the problem; create development opportunities and review	Link work with parts of life; clarify broad and long-term aims and purpose in life

Great leaders are great teachers and co-learners. Institutions that succeed over the long term do so because they continuously regenerate leadership at