



2008 ANNUAL ESSAYS

# Workforce Readiness



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Unlearning, and Relearning

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Each year, The Conference Board includes essays in the Annual Report that offer timely and informative commentary on a pressing business issue. Workforce readiness – this year’s theme – has become a significant concern for both business and society. In the United States, recent studies highlighting the academic performance gap between American children and their counterparts in other countries have raised awareness about the need for increased education and training. There is also a demographic element to workforce readiness that transcends borders. As the baby boom generation approaches retirement, businesses in the United States, Canada, and a number of European nations face a loss of experience and knowledge on an unprecedented scale.

To give the widest possible overview of this topic, we present three essays that address workforce readiness from a variety of perspectives, ranging from how to ensure lifelong learning to the importance of partnerships between companies and governments and educational institutions to a consideration of the questions that need to be asked today about the workplaces of tomorrow.





# Accelerating the Pace of Innovation Requires a Lifelong Cycle of Learning, Unlearning, and Relearning

by Jim McNerney Chairman, President, and CEO, The Boeing Company

In a world where technology holds the key to addressing problems as global as renewable energy and climate change – and as local as maintaining an auto’s engine health – the most successful businesses, industries, and nations are those whose policies and people fuel innovation. As both the pace of innovation and the need for problem solving accelerate globally, the United States faces a competitive gap that we can close only if we change the ecosystem of education. We must place greater emphasis on equipping our workforce through lifelong learning – a process that starts at birth, continues throughout employees’ working lives, and extends into their senior years.

This new paradigm will require us to revise our assumption that education is received for 12 to 16 years in formal, lecture-type settings. The new educational model will instead reflect how people – not only in their youth, but throughout their entire lives – will learn, unlearn, and relearn to succeed in a constantly evolving world. This will require a broadening of the responsibility for “education” to public-private, academic, and business partnerships. Government, academia, and industry all face critical and imminent shortages of teachers, scientists, engineers, and technicians.

This is a global circumstance; no single nation can produce enough creativity, talent, or knowledge to meet today’s challenges alone. But the problem is growing acute in the United States. The many seasoned and skilled workers of the baby boom generation are (or are becoming) eligible to retire, and insufficient numbers of capable workers are being prepared to replace them. (I emphasize “capable” because we face a skills shortage, not a labor shortage.)

Most jobs today require at least some level of technical savvy, creativity, analytic aptitude, an ability to communicate and work with others, a global perspective, and the capacity and desire to learn new ways of thinking and doing. Technology-based companies like Boeing have an even greater need for employees with these attributes.

To produce this new knowledge worker, broad-based formal and informal education reform will be needed. It will require unprecedented cooperation and commitment from citizens, educators,

parents, governments, civic organizations, nongovernmental advocacy groups, and businesses to ensure that:

**People** acquire new knowledge, skills, and talents (and are flexible and open-minded enough to unlearn old ways) to enhance their employability, problem-solving abilities, and productivity.

**Educators, governments, and others** enable, integrate, and encourage the process – not impede it to protect the status quo.

**Companies** provide large-scale systems-integration expertise; disseminate business, technology, and market knowledge; and establish links between formal and informal education.

I cite Boeing’s actions in these areas as examples of some first steps.

## Early Childhood

Science has demonstrated that early experiences shape foundational cognitive, emotional, and social capacities. Studies have shown that children who lack high-quality learning environments in the first five years of life can lag one to three years behind their peers when they enter kindergarten and tend to fall further behind unless they are given direct access to special resources. Studies also indicate that once children who have had access to quality early-learning environments grow up, they tend to exhibit better cognitive and social skills, creativity, and emotional resilience (all of which are critical to success in the workforce); have steadier employment and more stable families; earn higher wages; require

less remediation; and have lower rates of incarceration, teen pregnancy, and substance abuse. Boeing is beginning to focus additional attention and resources on efforts to increase the number of children who enter kindergarten ready to progress through the educational system.

### Primary and Secondary School

Boeing supports systemic, continuous improvement in primary and secondary school systems around the world. Each year, for example, Boeing sends nearly 100 teachers to Space Camp, and the teachers return to their classrooms with the latest science expertise and renewed enthusiasm. In the United States, Boeing engineers serve as volunteer mentors to student teams that build competitive robots – a program that helps develop and nurture math, science, and engineering interests and skills. Boeing also helps link universities and professors with high schools, junior colleges, and teachers to strengthen understanding of the foundational experiences students need if they pursue a college degree. For example, one Boeing project engages high school students in the same virtual-reality engineering and manufacturing scenarios that our company helped a university create for its own students.

### Vocational Training

The diminishment of vocational training in the United States has added to the skills gap. Today, about one-third of the four million children born each year in the United States will not graduate from high school – in many cases, simply because they don't plan to attend college. While significant numbers of U.S. jobs don't require a degree, many go unfilled because they require some level of practical math or computer skills and technical aptitude. A robust approach to vocational education can provide students who are not bound for university with greater chances for employability. In one partnership, Boeing works with community and technical colleges in the Seattle area to train both our own employees and other students to work with composites and other materials and technologies.

### Higher Education

Boeing advocates the creation of connections between business and educators. Through an annual fellowship program, we bring competitively selected professors from a variety of disciplines into the company for eight weeks to not only improve their understanding of the practical applications of their knowledge,

but also to help us identify areas for possible improvement. Boeing partners on research and development with key universities in the United States and around the world. By doing so, we provide real aerospace-industry experiences to students and faculty; we also learn from and apply their technologies and expertise to our own business.

### Career and Work Life

Boeing offers employees mentoring, training, rotational assignments, communities of practice, and collaboration tools that help them learn from one another. We also invest more than \$110 million annually in tuition assistance for employees' higher-education coursework, as well as stock-equivalent grants for degrees completed at accredited institutions. (In 2008, nearly 15 percent of employees continued their education through this program.) In addition, current and aspiring leaders may attend classes through the Boeing Leadership Center, where participants team up to tackle actual business issues.

### Retirement

A 2004 publication by the National Center for Educational Statistics found that 68.5 percent of U.S. middle school students are taught by math educators who have no major or certification in math. For general science, 57.2 percent of teachers did not have a major or certification in that field. As a result, in part, of two Boeing pilot projects, the Aerospace Industries Association has recommended that retirees consider mentoring or obtaining certification and teaching (paid or volunteer, full or part time) at the primary and secondary school levels – both to provide qualified math and science education and influence the career aspirations of students.

### Conclusion

Changing the ecosystem of education is critical to the future of the United States and its competitiveness as a nation. The process of change must start with a wide-ranging discussion about the most effective strategies to adopt – partnerships between industry and academia, improved teaching methods that develop the critical attributes students need, and economic investments. With a focus

on integrated, active, and ongoing learning, we can improve our educational system, accelerate the novice-to-expert timeline, and equip future workers to solve the many problems we don't yet know exist.



**Jim McNerney** is chairman of the board, president, and chief executive officer of The Boeing Company. He has served as a member of the company's board since 2001. With more than 159,000 employees, Boeing is the largest manufacturer of commercial jetliners and military aircraft, with capabilities in rotorcraft, electronic and defense systems, missiles, satellites and advanced information, and communications systems. McNerney was previously chairman of the board and CEO of 3M, and president and CEO of GE Aircraft Engines. Prior to joining GE, he worked at Procter & Gamble and McKinsey & Co., Inc.



# Workforce Readiness Ensuring the Employability of Today's and Tomorrow's Employees

by Gerard J. Kleisterlee President and CEO, Royal Philips Electronics

For business to thrive, companies must be able to employ people with the right skills, ambition, and mindset. Without the steady inflow of new talent and the continuous development of existing talent, sustainable growth will remain elusive. At Philips, we know this very well. As a global health and well-being company active in the areas of healthcare, lifestyle, and lighting, our business revolves around people: not only patients and doctors, architects and designers, and consumers and end-users, but also our more than 115,000 employees.

We are living through difficult economic times, but it would be a great mistake to neglect the issue of workforce readiness because other challenges may seem more pressing. In the current economic climate, workforce readiness is more, not less, important. This holds true for each individual, but also for companies and countries that seek to increase their competitiveness. If the qualification level of your current and future employees deteriorates, you are bound to lose out in today's recession and tomorrow's recovery.

Workforce readiness is not only about increasing the skills of new entrants to the labor market. We also need to ensure that our existing employees make constant efforts to improve their employability. As the "job for life" era has come to an end, we need to foster "employability for life." Regarding new entrants to the labor market, it is in the enlightened self-interest of business to partner with governments and educational institutions to increase the workforce readiness of today's students and the unemployed. At Philips, we are working to achieve this all over the world.

**China** During the last few years, hundreds of students at Fudan University in Shanghai have increased their practical knowledge of intellectual property (IP) at the Philips IP Academy. Experts from Philips teach these students essential skills in the areas of patents, copyright, trademark, and design. Similar IP Academies are up and running at Renmin and Tsinghua Universities in Beijing and Shenzhen, respectively.

**United States** Philips sponsors a group project at the Boston University School for Management for students who specialize in healthcare. Teams of students are presented with real-life case studies and asked to identify solutions and build business cases. These programs allow them to develop a good feel for what will be required of them in a business setting.

**The Netherlands** In the country where Philips was founded well over a century ago, we have developed a successful program to increase the basic qualification level of unemployed school leavers and adults. Since 1983, over 12,000 people in the Netherlands have benefited from training and work experience offered through the Philips Employment Scheme. This program's success is borne out by the fact that 76 percent of the participants in 2007 found a paid job. We are also working hard to rekindle the interest of youth in such science subjects as mathematics, physics, and chemistry. While the number of local undergraduates studying these subjects in many Western countries has dropped to an alarmingly low level, Philips is helping turn the tide in the Netherlands through cooperative agreements with schools that have achieved encouraging results.

These are just a few examples of the many practical initiatives Philips is directing across the world. But it is just as important to ensure that today's employees maintain a high level of employability. In a business environment that changes faster every day, our employees have to update their skills and be willing to explore new professional avenues and challenges. This need for constant learning and exploring is especially pressing in aging societies, where people may well be expected and/or willing to continue their working life beyond the current retirement age.

New markets develop at a breathtaking pace, and companies sometimes transform themselves beyond recognition in a matter of years. Philips, for example, has transformed itself from a vertically integrated industrial electronics company to a people-centered, customer- and market-driven company focused on health and well-being. In this dynamic environment, a company's employees, managers, and leaders must be able to adapt, and they must possess the basic skills needed to acquire new skills.

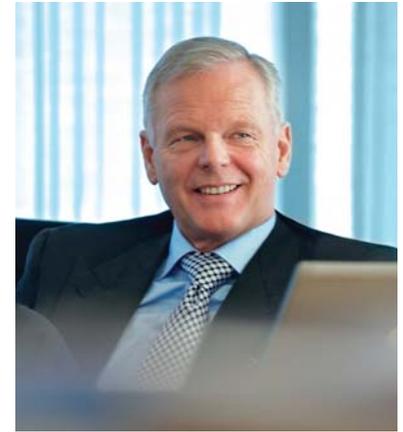
As a company operating worldwide, we must also adapt our global employability strategy to the local needs and customs of new regions and countries. Philips makes a strong effort to improve the language skills of our employees, including opportunities to improve their English, which is our company language.

By improving their social and language skills, our employees can feel at ease and perform effectively when they meet colleagues and partners from all corners of the world. The employees at Philips's headquarters in Amsterdam alone represent 33 different nationalities. In such an environment, intercultural and communication skills are vital.

At Philips, efforts to increase employability are a partnership between the company and the employees. As a company, we provide the means and encouragement, while the employees take clear responsibility for their own efforts. A new initiative in Europe offers a clear illustration. We recently introduced "e-miles" (employability miles) into our collective wage agreements in the Netherlands. Employees can use their e-miles to "buy" access to workshops, questionnaires, or interviews that allow them to better understand their own aspirations and skills. This is a first step toward ensuring that employees remain in the driver's seat of their own careers and are able to find suitable, challenging jobs – whether inside or outside of Philips.

When it comes to workforce readiness, companies should be active, open, and willing to form coalitions. Obviously, it is not always easy for governments, educational systems, trade unions, and businesses to work together. But we all must make an effort. Businesses, for example, should be more assertive in defining the skills they expect from students or the unemployed who (re)enter the labor market. We should also foster exchanges between business and the educational system at all levels – from company employees teaching at universities to work placements for students.

In this day and age, we can hardly overestimate the importance of workforce readiness. What is at stake is our economic well-being and our social cohesion, two essential cornerstones of a sustainable society. Workforce readiness is well worth a strong effort.



**Gerard J. Kleisterlee** has been president/CEO and chairman of the board of management of Philips since 2001. In 1974, he joined Philips's medical systems division, where he held a number of positions in manufacturing management. He became managing director of Philips Display Components worldwide in 1994 and president of Philips Taiwan in 1996. In 1997, he became responsible for all activities of Philips in China. He returned to Europe in 1999 as CEO of Philips's components division, and he was appointed a member of the group management committee that same year. He has been a member of Philips's board of management since 2000.



# Imagining the Workplaces of Tomorrow

by **Nandan M. Nilekani** Co-Chairman, Infosys Technologies Limited

The last 100 years have seen a rapid change in the pace of innovation that has driven economic and social growth. If someone from 1909 were to arrive in 2009, he or she would be baffled by the state of technology, business, and social behavior. The skills required for doing research, business, manufacturing, and services jobs would appear drastically different. Cut to 2100: Do we have any inkling of how people will interact socially and economically? Of the technological breakthroughs that will have taken place in energy, medical sciences, communication, transportation, and leisure activities? What kind of geopolitical framework will manage the affairs of the world? What trends in automation will have made many of today's activities redundant? Most important, what social and corporate behaviors will be in place due to environmental changes and climatic shifts?

Even the next 30–50 years will witness some amazing shifts. As the world becomes more connected, nations will compete aggressively to leverage their strengths. Over the past two decades, a nouveau middle class in the emerging markets has created a market that behaves outside the accepted norms. The members of this class are investing in education and human capital based on the current context. What does it mean if a large chunk of the global population is equipping itself for today's jobs when they do not know what tomorrow's workplace will demand?

Driven by changing demographics, skill gaps, worker mobility, market forces, globalization, and technical advances, the workplace environment is already changing rapidly. Communities, governments, businesses, and educational systems will need to take this transformation into account. Competencies and skills will have to be leveraged globally. Tomorrow's workplaces will combine physical and virtual spaces, and they will require shifts in skills and work culture to deliver results. This will, in turn, require new business, sourcing, and HR models. How are today's businesses planning for this shift?

As a popular video on YouTube entitled "Shift Happens" notes, universities haven't even started teaching the skills required for the jobs that will exist 15–20 years from now. By 2050, there will be a global workforce of 5–5.5 billion. About half of these individuals will work in sectors that address the needs of the world population – agriculture, manufacturing, and basic services – and the other half will have to engage themselves in value-added services. But we don't yet know what this future will look like or what skills workers will need to possess. Early movers will set the pace for the transformation and define the rules of engagement, just as Google and Facebook did during the last decade. This vanguard will also set the trend in new skills and the way these skills will be leveraged.

The skills gap will persist, however, because of the lag between the way businesses and educational systems evolve. At Infosys, we invest heavily in addressing this gap and in retraining as technologies evolve. Just as automation made many jobs in agriculture and manufacturing redundant in the last century, it is likely that there will be automation in services requiring intellectual capital. We are cognizant of these kinds of evolutionary models and continuously innovate to add value to our clients.

For any corporation, and especially one in the services sector, people costs account for the largest chunk of the expense side of the balance sheet. Hence, there is a continuous effort to increase value and workforce utilization. New sunrise sectors will absorb talent, leaving traditional sectors struggling for resources. India's IT sector is a classic example of how an industry can absorb both talent emerging from the system and experienced resources from other sectors. This forced other sectors to reexamine their business models and workforce policies. In the cycle of change, today's emerging sectors will become tomorrow's legacy players. As jobs evolve, many of today's low-skill and repetitive jobs will turn into complex and mature services requiring advanced skills. In the last 100 years, for example, traditional jobs in banks have changed from ledger management and the oversight of simple deposit and lending services to a consulting role that involves advising clients on various products and offerings.

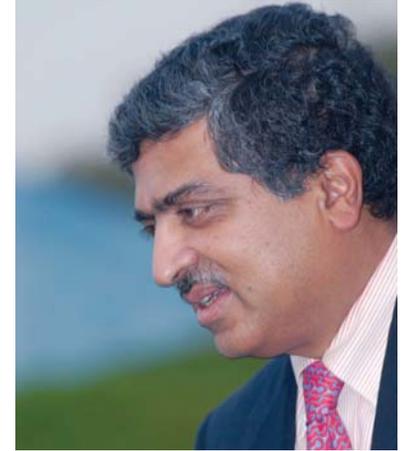
As economies advance, the skills gap between supply and demand will force businesses to evolve new models to make their workforces more mobile, fungible, and agile. Workforces will be smaller (or will operate as smaller groups within large organizations), more balanced in terms of gender, more culturally and ethnically diverse, and less loyal (meaning employees will be more willing to move on and explore new opportunities). Also, as people live and work longer, issues of generational diversity will become more visible. How will businesses adapt to this changing mix of employees? How will they respond to increased employee expectations about workplace environments and rules?

Zen master Suzuki Roshi says, "In the beginner's mind there are many possibilities, but in the expert's mind there are few." In many ways, this quote captures the challenge that faces the new and the traditional players. Tomorrow's workplace will need to capture this essence. While individuals must be allowed to be more creative, they must also become more aware of their company's business objectives and more responsible for the outcomes based on those goals.

Will the Internet be the site of the workplace for tomorrow? Maybe. Connectivity and bandwidth issues are increasingly being resolved, and biometric security is making remote computing even more secure. These technical improvements will continue to bring online interactions closer to real-life experiences. Any need to travel or meet can be accomplished through these new platforms, and video-conferencing systems like Telepresence and Halo are already making physical proximity irrelevant. What role will a workplace's physical infrastructure play in creating the identity of the organization? How will a company define its culture when people know each other only through a virtual presence?

Finally, climate change and other environmental issues represent the biggest unknown influence on the workplace of the future. Will we find alternative energy that is cheap and clean before we run out of oil? Will CO<sub>2</sub> emissions be controlled before we reach (however it is defined) the "point of no return"? Do these scenarios mean the end for some businesses? What will new businesses look like? Will they operate differently? What kind of skills and expertise will they require? How will people grow in these organizations?

These are only some of the many questions that need to be considered by companies keen on building workplaces that will develop their future employees and support their future businesses. It is better we know the questions before we seek the answers.



**Nandan M. Nilekani** is the co-chairman of the board of directors of Infosys Technologies Limited. From March 2002 to June 22, 2007, he served as the company's chief executive officer and managing director, and he previously held the posts of president and chief operating officer. He is one of the founders of Infosys and has served as a director on the company's board since its inception in 1981. Infosys, a world leader in consulting and information technology services, partners with Global 2000 companies to provide business consulting, systems integration, application development, and product engineering services.

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# www.conference-board.org

**The Conference Board, Inc.**

845 Third Avenue  
New York, NY 10022-6600  
United States  
Tel +1 212 759 0900  
Fax +1 212 980 7014  
[www.conference-board.org](http://www.conference-board.org)

**The Conference Board Asia-Pacific**

22/F, Shun Ho Tower  
24-30 Ice House Street, Central  
Hong Kong SAR  
Tel + 852 2804 1000  
Fax + 852 2869 1403  
[www.conference-board.org/ap.htm](http://www.conference-board.org/ap.htm)

**The Conference Board China**

Beijing Representative Office  
7-2-72 Qijiayuan, 9 Jianwai Street  
Beijing 100600 P.R. China  
Tel +86 10 8532 4688  
Fax +86 10 8532 5332  
[www.conference-board.cn](http://www.conference-board.cn) (Chinese)  
[www.conference-board.org](http://www.conference-board.org) (English)

**The Conference Board India**

Regional Representative  
6/F, Vaswani Mansions  
120 Dinshaw Varha Rd.  
Churchgate  
400020 Mumbai, India  
Tel +91 022 6746 4217  
Fax +91 022 6746 4001  
[www.conference-board.org/india.htm](http://www.conference-board.org/india.htm)

**The Conference Board Europe**

Chaussée de La Hulpe 130, box 11  
B-1000 Brussels  
Belgium  
Tel + 32 2 675 54 05  
Fax + 32 2 675 03 95  
[www.conference-board.org/europe.htm](http://www.conference-board.org/europe.htm)

**The Conference Board Canada**

255 Smyth Road  
Ottawa ON K1H 8M7  
Canada  
Tel +1 613 526 3280  
Fax +1 613 526 4857  
[www.conferenceboard.ca](http://www.conferenceboard.ca)