Re-Think:
A Path to the Future

By Samuel J. Palmisano

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Testimonials

"The rapid technological advances of the 21st century have altered our civilization in almost every way possible: None more so than the global integration of businesses and economies around the world. In *Re-Think: A Path to the Future*, Sam and the Center for Global Enterprise highlight the need for businesses to collaborate and innovate with new partners in order to fully take advantage of and shape the change that is all around us."

Condoleezza Rice, Professor, Graduate School of Business, Stanford University, Former U.S. Secretary of State

"Sam Palmisano's firsthand look at the new global economy offers compelling insights into what it means for the world of business, along with practical advice on how to navigate the trends that are redefining today's markets and creating tomorrow's possibilities."

Kenneth Chenault, Chairman and CEO, American Express Company

"It is obvious that mega trends present many opportunities and challenges for companies; it is less obvious why and how companies are able to handle them successfully. This marvelous book offers a deep and well documented insight into how IBM implemented one of the most remarkable transformation processes of the last decades. But *Re-Think* offers far more: Sam Palmisano looks ahead and shows us how companies can tackle the challenges and seize the opportunities of the future by defining an agenda and a platform for action."

Jan Oosterveld, Chancellor, The International Academy of Management

"Sam Palmisano has written a book that is genuinely wise. It is informed by his extraordinary experiences at IBM, but also by a deep knowledge of history and economics. He describes the process of global integration in real time, as he saw it develop at one of the world's most global companies. Reading this book, one learns a lot about the new global system we are living in -- and the qualities it takes to navigate it."

Fareed Zakaria, Host, CNN's, Fareed Zakaria GPS, Author & Journalist

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After a life time of family, friends and colleagues providing support, it is impossible to list them all without risking the acknowledgement section being longer than the book. It clearly shows how much help was actually needed.

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Lastly, the thousands of men and women, fellow IBMers, who made creating the modern Globally Integrated Enterprise a success. Without them, the principle would have remained only a theory.

Preface

In 2011, as IBM was planning to commemorate its 100th anniversary, it struck me that there were dramatic parallels between the company's transformation over 10 decades and the way in which the global economy had been transformed over the same period. Both had benefited from an expansion of economic growth, and an increase in living standards, that was without precedent in human history. This progress had been greatly enabled by the integration of global society and through the power and prevalence of information technology.

Today, global economic integration presents enormous opportunity for the future of business and society. And while many point to the risks of this integration, the more pressing and more pragmatic questions to me are the following: How do we deal with the future? Do we embrace it? Or do we cling to the past?

I felt the best way to advance this conversation would be through the eyes of business. Why? Because businesses are not hypothetical – they are living, breathing entities that face new challenges every day. And they must meet these challenges pragmatically if they are going to survive.

My aim is to offer a personal perspective on an important moment – the emergence of the first truly global economy and society. I begin by describing how countries throughout the world have achieved deeper levels of integration over the past two decades, creating the first truly global era in human history. This integration presents opportunities and challenges for companies everywhere. The fundamental issue is not whether to compete globally, but rather *how* to compete globally.

The introduction presents the globally integrated enterprise and describes why it's ideally suited to help companies navigate this global era and realize the maximum benefits from it.

Chapter 2 traces the evolution of the corporation from the mid-nineteenth century emergence of the international corporation to the post-1914 development of the multinational corporation. It goes on to focus on the past decade – the rise of the globally integrated enterprise.

Chapter 3 recounts how I saw the evolution of the globally integrated enterprise and my role in this evolution. I talk about my journey with IBM, from the time I joined the company straight out of Johns Hopkins University, and I highlight key inflection points along the way that illuminate my understanding of – and appreciation for – global integration, such as my time working for IBM in Japan.

Chapter 4 tells the story of IBM's transformation from a multinational company, with operations throughout the world, into a globally integrated enterprise. As one of the earliest explorers of what it means to be a truly global enterprise, IBM offers valuable lessons about how to build, manage and transform institutions.

Chapter 5 shows how IBM deepened its focus on countries we referred to as "growth markets" (often referred to as "emerging markets") during my time as CEO. The chapter showcases our investment in India, as well as internal initiatives designed to develop leaders with global experience and a global mindset.

Chapter 6 features specific companies that have embraced key principles of the globally integrated enterprise. The companies – Cemex of Mexico, Bharti Airtel of India, and Geely of China – are using the unprecedented opportunity to collaborate and innovate as part of their arsenal of global tools to drive growth and improve productivity.

Chapter 7 presents a number of the key issues that I believe will shape the future direction of globally integrated enterprises and enable them to thrive in an environment marked by rapid innovation and global competition. It also describes the transformations underway in manufacturing and the world's cities, which are ideal testing grounds for GIEs to demonstrate their value proposition.

I conclude by summarizing some guiding principles of the globally integrated enterprise. I also offer some suggestions about how to be prepared for – and make the most of – the global era.

I hope this book will in some small way help you prepare for the dynamic future that awaits us.

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Introduction
A New Enterprise for a New Era

The events of June 6, 2006 were among the most inspiring I experienced during my 39-year career at IBM. They also symbolized the way in which IBM was being transformed into a new kind of company: a globally integrated enterprise.

The setting was Bangalore – a city of more than eight million people often referred to as the Silicon Valley of India. IBM had a large presence in Bangalore – about 10,000 employees – and I was there to make a major announcement about our plans for India and, by extension, our plans for IBM's new organizational structure.

We had rented out the grounds of Bangalore Palace, which covered more than 450 acres, and we erected a tent to accommodate the 11,000 people scheduled to attend (10,000 of them being IBM's Bangalore-based employees). Also in attendance was India's President, A.J.P. Kalam, equity research analysts from New York and other financial capitals throughout the world.

When I arrived at the venue and walked through the crowd before the proceedings began, people rushed toward me, and in the few seconds we had together many of them described how IBM had dramatically changed their lives for the better. The *New York Times*, to my surprise, reported that it was as if I were a rock star. It was certainly a humbling experience, and a powerful reminder that just as IBM was transforming itself, it was also transforming the lives of others.

At 10:15 a.m., the event emcee (Bollywood actress Dia Mirza) introduced me, President Kalam, and Sunil Mittal, who was the founder of a company, Bharti Enterprises, which was a major partner of IBM in India. We were met with enthusiastic applause as we took the stage, and we started the proceedings with a ceremonial Indian lamp lighting ceremony.

I told the crowd, "Your career options within I.B.M. are limitless, whether working in research laboratories or with clients, or working in different geographies." And I announced that over the next three years, IBM would be tripling its investment in India – rising from $2 billion to nearly $6 billion. "That investment will ensure that we make the most of the opportunities to grow this marketplace, while it also enables IBM to fulfill its vision to become a globally integrated company."

As part of the announcement, IBM was creating and establishing a number of entities that would be based in India but serve a global function. These entities would be staffed largely by Indians. During IBM's time as an investor in India, we had always been overwhelmed by the huge pool

of highly-skilled, English-speaking talent that brought a potent mix of persistence, ambition, creativity, and flexibility.

All of this was perfectly aligned with our vision for the globally integrated enterprise (GIE), and so going forward, India would be a centerpiece of our GIE strategy.

The experience in India was emblematic of the way in which a new stage in human history has been unfolding – one in which the essence of business and business institutions is changing. We are in the midst of the first truly global era in human history. It is an era in which the volume of people, products, services and – perhaps most important – *ideas* being circulated around the world is greater than ever before. The whirlwind of activity has been sparked by a number of forces:

- Movement of socialist countries into the global economy
- Free trade agreements put into place over the past two decades
- The shift toward services and technology-driven economies
- The ease of moving capital across borders
- The emergence of highly skilled workforces in the world's largest nations
- And a globally networked infrastructure

Facilitating much of this progress has been the rise of the countries known as "emerging markets." These countries have accounted for approximately half of the world's economic output in recent years – up from 30 percent in 1980 – and their share of the global economy is projected to keep rising. Their growth has added about a billion consumers to the global marketplace, creating massive new demand for a range of goods and services. But perhaps more important, the maturation of the emerging markets has created a marketplace that's bigger and more global than ever before. Business journalist Michael Malone points out that it took 8,000 years to get to a point where there were one billion consumers in the global marketplace ("consumers" defined as those earning the equivalent of at least $10 per day). While that threshold was reached in 1980, it only took about three decades to get to two billion. And by 2020, there are projected to be 3.2 billion global consumers.[i]

This growth in the global consumer marketplace creates extraordinary opportunities for companies serving a global customer base. But not only are people in emerging markets buying as never before, they are also starting companies – many of them small, but some of them growing to become global leaders in their respective industries, challenging (and sometimes even acquiring) iconic developed-market companies. There has also been a flowering of innovation, as the creative minds in these countries are given opportunities not only to solve problems but also to create products that serve untapped niches. In an unprecedented development, China led the world in filings for four types of intellectual property (patents, utility models, trademarks, and utility designs) in 2012, according to the World Intellectual Property Organization.[ii]

This new era is full of potential for companies, but maximizing this potential (or exceeding it) means overcoming an array of challenges – not the least of which is competing with companies throughout the world. As the CEO of Mumbai's Mahindra & Mahindra told the authors of the book *Globality,* "You are not safe at home unless you can compete abroad."[iii]

Global competition has intensified in tandem with the world becoming more connected. Businesses, workflows, transactions and billions of individuals are becoming linked together in countless ways, unleashing new insights about the way the world works.

In 2008, the number of "things" (physical objects – whether an iPhone or an icebox) containing sensors connected to the Internet surpassed the number of people on earth (about 6.7 billion). The number has increased dramatically since then, and today information consumed by Internet traffic every hour would fill seven million DVDs. It's projected that there will be more than 22 billion web-connected devices by 2020, which will generate more than 2.5 quintillion bytes of new data every day.[iv]

While we're still grappling with what to do with all of this information, we know that when everything and everyone is connected, labor flows to the places where work can be carried out efficiently, while still delivering high-quality goods and services.

Thus the fundamental question for companies – particularly those in developed markets – is not whether to compete globally, but rather *how* to compete globally. In earlier eras (pre-1992, for example), companies might have simply shifted production to low-wage countries. But it's unlikely their investment in these countries would have been focused on developing local talent or producing goods that could be sold to local populations.

Today, the evolving model – and the focus of this book – is the globally integrated enterprise, which refers to companies that are truly "global" (as opposed to "multinational") in their management and their operations. In this model, work is organized in fundamentally different ways. It calls for different skills and behaviors, more collaboration, greater focus on a multiplicity of cultural differences, and less hierarchy.

As an example, decisions about where to locate operations are based on how to maximize value for customers, employees, and business partners. In the succinct observation of one of my former colleagues, Michael Cannon-Brookes, IBM's vice president of global strategy for growth markets, "Instead of taking people to where the work is, you take work to where the people are."[v] Thus rather than maintaining separate supply chains in different markets, there is one supply chain, and it's global, not just for products, but also services, capital, ideas, and intellectual property.

Similarly, human capital is thought of not in terms of countries and regions and business units, but rather how to manage and deploy it as one global asset. And the GIE is nimble – possessing the ability to quickly enter new markets and seize new business opportunities wherever they arise.

In short, the GIE operates seamlessly as a single organic entity by integrating internal operations horizontally and globally, collaborating with external partners, and operating at the best location in the world, to maximize value creation from a global point of view.

The globally integrated enterprise has been enabled by evolutions in technology, operations, and work patterns. Shared business and technology standards that let businesses plug into truly global systems of production are unlocking efficiencies throughout companies. Collaborative approaches to work are fostering innovation. And new skills and new governance systems are changing how people work and how they are managed. These dynamic forces are coming together to transform corporations and unleash progress.

I will discuss examples of companies from many different industries that are undergoing this transformation. One such company that will feature prominently in the narrative is IBM, where I worked for 39 years and where I served as chairman, president, and CEO from the start of 2003 until the end of 2011, and chairman of the Board from January-September of 2012.

During my time leading IBM, and in the years leading up to it, my colleagues and I recognized the dramatic change unfolding across the global business landscape. And we knew that while we could *respond* to these changes, the bigger long-term opportunity was in *driving* change and setting a standard that would become a baseline for companies throughout the world. Given our size, we knew that implementing such transformative change would not be easy. Indeed, it would be highly disruptive within the company, and there was no guarantee the changes would succeed. But we also knew that "business as usual" wasn't an option and if we didn't undergo a transformation and do more to distinguish ourselves from our competitors, we would not be positioned for success in the future.

We decided to compete on the basis of expertise and openness, and we moved from a multinational to a globally integrated model as fast as we could. This wasn't easy. At IBM, as at other companies, people develop an emotional attachment to the sources of their prior successes – businesses and ways of doing business that are well established and very profitable. Proposing to overhaul these businesses – perhaps even sell them off – generates resistance, from colleagues, from shareholders, and from the chattering classes. But if companies want to differentiate themselves and compete in this globally integrated environment, they have to be willing to reinvent themselves. Indeed, that has been true as long as there have been businesses – as IBM's

history vividly attests. And they have to be willing to tolerate the critics who tell them they're making a big mistake.

In the chapters that follow I'll tell the story of what we did right – and what we didn't do right. But the story I'm going to tell is much larger than any one company – or any one country. It is a story about a new era in business history – albeit one that is just beginning.

Today's potent cocktail of technological and economic progress promises to build momentum in support of the global era, but we should remember that nothing is inevitable. And there's no guarantee this era will continue.

Like any disruptive process, the changes unfolding today can result in segmented dislocation and even trigger a backlash. A century ago, conventional wisdom held that armed conflict was a relic of a bygone era. *The Economist* observed in June 1913 that the *entente cordiale* Britain and France signed in 1904 was "the expression of tendencies which are slowly but surely making war between the civilised communities of the world an impossibility."[vi] Many other opinion leaders expressed similar sentiments. Yet by August 1914, war had broken out between the "civilised communities" of Europe.

The fond hopes of past eras are a powerful reminder of the need to foster public understanding about the global present. With so many more people gaining equal access to the production process and the marketplace, we see heightened trade and competition. Although this will create wealth and opportunity, it will also bring disruption and fear, both of which could threaten global integration. Legitimate concerns about job loss and skill shortages must be addressed in realistic and constructive ways.

Some (indeed, many) will inevitably ask, "What will the global era *do* to me?" A more useful framework for the global era – both for business growth and for societal health – is to ask, "How can I get work, investment and opportunity to *flow* to me?"

To answer that, it's important to understand the three forces that cause work to flow across the global network and economy.

Three principles of the global era

The first force is simple economics. A key determinant of where and how work will flow is cost and profit potential. While low-cost labor was the initial reason so much work moved to places like India, China and Latin America, there are now a number of other factors driving investment decisions.

Why did Rolls-Royce decide to have its jet engine parts, which are used for assembly in Europe and Asia, manufactured in Virginia? Why is Airbus building a $600 million assembly plant in Alabama? Why did foreign investment in U.S. manufacturing increase from $270 billion in 2007 to $493 billion in 2012?

In all of these cases, the decisions are not based solely or primarily on cost. This isn't a "race to the bottom" – it's a race for differentiation.

That speaks to the second principle of the global era: the growing value of expertise. In a world where the means of production and distribution are increasingly available to anyone, the only true differentiator is to have a unique value proposition. This goes for individuals, institutions, and entire countries. The key is to possess ideas, skills, talents, or resources that are distinctive. If this distinctiveness can be deployed in a way that results in low-cost goods and services, all the better – but costs are not the number one driver.

As important as it is to achieve a unique value proposition, it's just as important to keep refining it, because what's distinctive today likely won't be tomorrow. In an era when it's easier than ever to replicate innovations, it's essential to keep adapting, reinventing, and transforming. As the *New York Times Magazine'*s annual "Innovations" issue has put it,

> A generation ago, it would have taken an enormous corporate infrastructure to research, develop, manufacture and distribute nearly anything. Given such costs and headaches, companies were reluctant to finance all but the most certain-to-succeed innovations. Today the Internet allows someone at their kitchen table to communicate easily with a factory in Guangzhou; containerized shipping makes it trivially cheap to import manufactured goods; and the ever-growing media landscape offers vast opportunities for easy marketing.[vii]

This reality underscores that innovation and global integration are really two sides of the same coin. Global integration is the new playing field – and innovation is the way to win the game. And this is true whether you're talking about creating profits or jobs or a vibrant society – whether you're a nation, a region, a company or an individual.

The third principle of global integration is openness. By openness I don't just mean open technology standards, as important as those are. I mean open trade, balanced approaches to intellectual property regulation, governmental policies that encourage the broadest participation in the economy and society, the rule of law, modern education systems that teach the skills of the future, and physical infrastructure that enables everyone to take part. I also mean a culture in business that is hungry for new ideas and new ways to work.

Open approaches can be delayed, but they will win out in the end. They provide a level playing field, which stimulates competition, innovation, and the free flow of goods and ideas. Importantly, systems that are open nurture collaboration – the co-creation of value, such as the Linux operating system, which is developed by countless programmers collaborating on the Internet.

Age of discovery

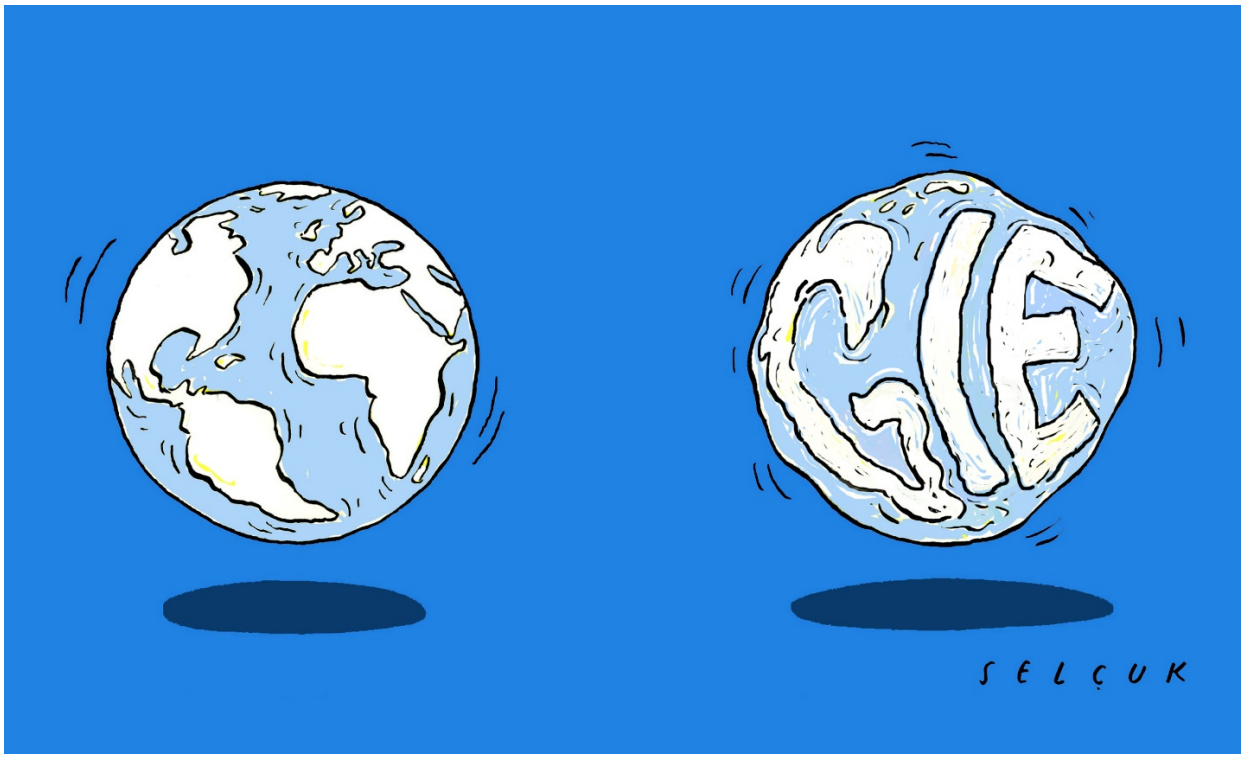
As I've reflected on the current era, I've come to view it as an age of discovery. During college, I studied other moments of discovery, related to new lands, new scientific paradigms, or something else altogether. The common denominator in these discoveries was that while something big and new was emerging, the prevailing beliefs about the "natural order of things" were being severely disrupted.

A related insight came years later while I was at IBM. I attended a meeting where there was a discussion of why luminaries like Sigmund Freud, Karl Marx, and Albert Einstein thought differently than others. It turned out that all three had grown up in unstructured environments and had not studied in traditional school systems. As a result, they could pursue the ideas they found most compelling rather than be restricted to those ideas that educators found most compelling.

Disruptive ideas and beliefs create inflection points that are different in every situation, but they boil down to the same basic issue: Will the disruptions be accepted (if not embraced) as a measure of progress? Or will they be resisted in the name of trying to preserve the status quo?

These questions are not purely academic. We are at an inflection point, with people throughout the world seeing institutions (both public and private) being disrupted through global integration. IBM's India event in 2006 was an inflection point for me - a theme I'll return to later in the book.

But when a historic shift is underway, though not fully understood, there's a need to explore the implications, identify the pressure points, and map out a path forward. That's the reason I've written *Re-Think* and it's a major purpose of the Center for Global Enterprise, which I launched last year. *Re-Think* is intended to explain the age in which we are living, while also documenting how we arrived in it, how to navigate it, and how to realize the maximum benefit from it. After reading this book, I'm hopeful that the leaders of today and tomorrow will be better prepared for this truly global era; this new age of discovery.



Chapter 2
A New Global Stage and a New Global Actor

Corporations began as creatures of the state. They were chartered and sanctioned by governments to perform specific duties on behalf of the nation and its rulers. In 1606, King James I chartered the Virginia Company for the purpose of establishing colonies in the United States. To finance the voyages, the Virginia Company was a joint-stock company and sold shares to the public, analogous to the publicly-traded companies of today. While the first settlement, in Jamestown, Virginia, proved a financial failure and was dissolved by 1624, future state-chartered corporations would prove much more enduring and successful.

A few years before the launch of the Virginia Company, Queen Elizabeth I granted a 15-year charter to a group of 218 men for the purposes of trade with the East Indies, as well as the countries and ports of Asia and Africa. This entity became known as the East India Company, and maintained its government monopoly on trade for more than two centuries. In the process, it established its own military and was a leading actor in Britain's imperial history. It purchased the land that would become Singapore and it was a driving force behind Britain's colonization of

India. Its monopoly on the tea trade contributed to the Boston Tea Party that led into the American Revolution.

Coinciding with the creation of the East India Company was the Dutch government chartering the Dutch East India Company and granting it a 21-year monopoly on trade in the Far East. The Dutch East India Company also had imperial ambitions and frequently tangled with English merchants. One set of conflicts culminated with the Dutch relinquishing control over a parcel of land known as "New Amsterdam" – better known today as "Manhattan" – in exchange for the small Asian island of Run that was rich in spices. That misguided trade notwithstanding, the Dutch East India Company was the first company with a global profile, and it helped pioneer or popularize a number of business practices, such as issuing stock to investors and operating as a limited liability company.

While these state chartered companies eventually dissolved, one continues to operate today. In 1670, an English royal charter granted a trading monopoly for an area covering 40 percent of what is modern-day Canada. That company – later renamed the Hudson's Bay Company – lost its charter long ago (the company was acquired by a New York private equity firm in 2008), but it still operates Canada's largest department store chain and proudly bears the slogan, "Canada's Merchants Since 1670."[viii]

The state-chartered model evolved during the nineteenth century when the United Kingdom, the United States, and other countries granted company owners limited liability, and corporations gained a more liberated status as independent "legal persons." During the mid-nineteenth century, international corporations emerged as entrepreneurial joint-stock companies. Organized in simple hub-and-spoke networks, they established and controlled international trade routes, often relying on their home state's armed forces for protection. In some industries, corporations used these routes to import raw materials (diamonds, rubber, tea, and oil) and export finished products (chocolate, soap, margarine, and other manufactured consumer goods). The basic structure of home-country manufacture and international distribution – the hub and the spokes – applied across almost every industry. Driven to a significant degree by these entities, the economy rapidly globalized, with the international corporation serving as a highly effective conduit for advances in technology and transportation.

As company structures were evolving, business was being transformed by new technologies, such as steam power, and new products, such as the telegraph, the telephone, steamships, railroads, and the automobile (This period saw the founding of the Tabulating Machine Company, which later merged with two other small companies to become IBM). The goods quickly found a large number of buyers, both because of their transformative power and the ability to transport them in accelerated fashion. In America, these new goods sparked heightened interest in understanding business, leading to the founding of the country's first business school,

at the University of Pennsylvania, in 1881 (The world's first business school, ESCP, had opened in France more than 60 years earlier).

The proliferation of new products contributed to the spread of protective tariffs. In response, businesses began to be transformed into what is today recognized as the multinational corporation. Under their hybrid structure, multinational corporations adapted to trade barriers by building local production, which helped them deliver products faster and adapt them to local preferences.

A new phase in the corporation's life began in 1914, with the conflagration of World War I and the subsequent collapse of economies in the United States and Europe. International corporations found their trade-based networks blocked. Protectionism became more prevalent in the 1920s and 1930s, embodied by the Smoot-Hawley Tariff Act signed by U.S. President Herbert Hoover in 1930. Such measures, coupled with the impact of the Depression, triggered a dramatic reduction in trade. From 1929 to 1932, U.S. imports from Europe declined from $1.33 billion to just $390 million, while U.S. exports to Europe fell from $2.34 billion to $784 million. The total volume of world trade declined by about two-thirds between 1929 and 1934.[ix]

World War II deepened the obstacles to international trade networks, but a post-war determination to undo the errors of the past contributed to the creation of the General Agreement on Tariffs and Trade and heightened cross-border economic activity. In 1960, American companies accounted for nearly half of the global total of foreign direct investment. Their investment in Europe surged in the post-war period, rising from $1.7 billion in 1950 to $24.5 billion in 1970.[x]

Some global companies and global products emerged from this milieu, such as Coca-Cola, while others avoided tariffs by acquiring their foreign competitors (General Motors bought Britain's Vauxhall and German's Opel).[xi] But even with tariffs falling, corporations continued to organize production market by market within the traditional boundaries of the nation-state.

IBM grew extensively during this period and emerged as an emblem of the multinational corporation. The company's slogan became, "World Peace Through World Trade."

The corporation enters a new era

During the last three decades of the century, however, some important changes unfolded across the global economy that created opportunities for companies to upend traditional organizational structures and become more unified in their outlook and more integrated in their operations.

First, economic nationalism abated – trade and investment barriers receded and capital controls were liberalized. The result was a boom in trade and investment. The value of the world's merchandise exports increased from $59 billion in 1948, to $579 billion in 1973, to $1.8 trillion

in 1983 to more than $17.8 trillion in 2011.[xii] There was also a globalization of capital, with cross-border flows increasing from $500 billion in 1980 to $11.8 trillion in 2007 (though plunging in the aftermath of the financial crisis).[xiii] The liberalization of trade and investment flows changed companies' perceptions of where they could sell and where they could operate.

Second, starting in the early 1970s, the revolution in information technology dramatically improved the quality and reduced the cost of global communications and business operations. By the mid-1990s, the mix of widespread access to computers, coupled with connectivity via the World Wide Web, opened up extraordinary new opportunities for existing business, while also dramatically reducing barriers to entry for new businesses. Suddenly, businesses could "go global" without needing to open foreign offices, as a website (ideally one that could be found through a search engine) provided the kind of global presence that would have been unthinkable just a few years earlier.

Third, standardized technologies and business operations emerged all over the world. By interlinking and facilitating work both within and among companies, standards fostered efficiency and liberated companies to focus in areas that would drive lasting growth and renewal, such as innovation. Similarly, by creating common platforms, standards were a great enabler of scale.

These three elements combined to fundamentally transform the opportunities for globalization and help give rise to the globally integrated enterprise. With fewer obstacles to selling and operating around the world, companies could shift their focus from products to production – with greater emphasis on *how* to manufacture goods and *how* to deliver services. These elements also positioned companies to become less hierarchical, with decision-making more distributed as information and key data became widely accessible, and core processes and functions that were once managed regionally could be managed globally.

IBM, Standards, Open Architecture, and Open Source

By virtue of its innovative thinking and its size, IBM played a critical role in helping to standardize technologies and standards, and lay the groundwork for the globally integrated enterprise. But even while we were a pioneer in helping to create a global business environment, we were also representative of many large, multinational companies in maintaining an organizational structure that was far from integrated for much of its history.

My predecessor as CEO, Lou Gerstner, wrote in his memoir about what he encountered soon after arriving at the company in 1993:

> We were bloated. We were inefficient. We had piled redundancy on top of redundancy. We were running inventory systems, accounting systems, fulfillment systems, and

> distribution systems that were all, to a greater or less degree, the mutant offspring of systems built in the early mainframe days and then adapted and patched together to fit the needs of one of twenty-four independent business units…. Back then we had, by actual count, 128 people with CIO in their titles – all of them managing their own local systems architectures and funding home-grown applications. The result was the business equivalent of railroad systems of the nineteenth century – different tracks, different gauges, different specifications for the rolling stock.[xiv]

IBM, like countless other multinational companies, gradually implemented wholesale reforms that led it to a more standardized, and efficient corporate structure. But these reforms were not enough. A move to greater integration was still missing. Companies began to change because they recognized, as we did at IBM, that they were structured in a way that drove up costs and frequently stifled productivity and innovation.

There were also a number of catalysts for the move to a more integrated, standardized way of operating. One of the early breakthroughs was IBM's introduction of a mass-market PC, the 5150, in 1981. While it initially had a disintegrating effect as a patchwork of systems popped up to foster networking, IBM's decision during development to employ open architecture would prove critical. When the 5150 sold much better than anyone expected (exceeding the five-year sales forecast by a factor of 12) and emerged as the industry benchmark, our use of open standards made it possible for non-IBMers to provide valuable add-ons, from software to components. "The result was nothing less than exhilarating," wrote James W. Cortada, a fellow IBMer, in *A World Transformed by Information.*

> This step was taken to encourage software writers to offer applications, which in turn would stimulate sales of IBM's machines (not to ward off anti-trust risks). It not only accomplished this, but it also emboldened dozens (then hundreds) of vendors to offer look-alike machines and add-on parts and supplies (such as additional memory) to compete against IBM machines.[xv]

This open architecture became the platform for client server computing – which ultimately led to a *de facto* marketplace standard that everybody referred to and used, which was "IBM compatible." And in the same way that standards helped drive the growth of other nascent industries (from railroads to the telegraph), the emergence of a standard for PCs helped to unleash incredible efficiencies that other companies could leverage, which in turn enabled the PC industry to achieve scale. The emergence of a standard also fostered integration, as companies suddenly had a common platform that fostered communication and cooperation. The next major breakthrough for IBM – and for the broader world of business – was the emergence of the Internet. While it had existed for decades, it did not become a pervasively accessible standard until about 1995, with the commercialization of the World Wide Web. It created the opportunity for companies to collaborate and compete as never before – particularly across borders. While

global collaboration was a radical concept for many companies, the concept was somewhat elementary to IBM. We had been a multinational company for decades and while we were far from integrated, there was already a tradition of working with people spread across the globe – whether clients or colleagues.

That said, the Internet did spark a massive transformation at IBM, as it created a new culture of openness within the company. The proprietary worldview had begun to crumble with the open architecture that underpinned the 5150, but the prevailing mindset was still inward-looking. The Internet changed that. Irving Wladawsky-Berger, who was the first general manager of IBM's Internet division, later wrote that,

> The essence of IBM's e-business message was that the Internet marked the beginning of a profound revolution with the potential to alter the shape of businesses, industries and economies over time. But it was a *transformative*, not a rip-and-replace, revolution. Any product that embraced the new open standards of the Internet would be able to integrate seamlessly into the fast growing Internet and Web infrastructures. Any business and institution would benefit from embracing the Internet, not just the start-ups. The brand reputation, customer base and IT infrastructure that businesses had built over the years were even greater assets when properly combined with the universal reach and connectivity now offered by the Internet.[xvi]

Indeed, the Internet quickly emerged as a global platform and it unleashed the first set of standards at the networking level. And it helped persuade IBM that in order to be successful and innovative, the company would need to become even more collaborative – both with colleagues and non-IBMers. The company's ability to make the shift, and do so faster than I think anyone could have predicted, was a key contributor to our success in the years that followed.

I began making the case both internally and externally for open standards. Creating accessibility would expand the IT industry into spaces it had not been before and would generate more demand for IT products. Proprietary products, such as Windows, would constrain innovation by limiting the number of people who would be participating. I spoke out, saying it was time for the IT industry to grow up and become mature like other industries that had adopted common standards.

The issue of standards arose again in the late '90s, in the area of servers. Solaris was the dominant operating system, but it was proprietary. We had our own proprietary system, AIX, but applications were primarily written for Solaris. We needed to create an alternative so we would have access to the applications at the same time as our competitors (such as Sun Microsystems). We began looking for an open standard where applications could be written. While some misunderstood us and claimed we were supporting another operating system, in reality we were

simply trying to create standards that would foster portability and sharing of applications. We wanted an alternative to the proprietary model, as we feared such a model would inhibit innovation.

The open source movement was becoming more popular, and by the summer of 1999 we were drawn to Linux, a high-quality operating system developed by a global community of independent programmers. With Linux gaining traction in areas such as Internet infrastructure and supercomputing, I established two internal task forces to look at how it could be used with supercomputers and as a high-volume platform for Internet applications. The task forces endorsed having IBM embrace Linux across our product lines, and recommended that we partner with the Linux community.

At the time, Linux was used largely by hobbyists and academics – it had not been widely adopted on the "enterprise side." We knew that one way – and maybe the best way – to popularize Linux would be for IBM to adopt it and to help make it more robust. But instead of developing the missing functions ourselves, which we would have done in the past, we worked with the open source community to fill in the necessary components.

We chose the Linux World Expo of January 2000 as the venue to announce that we were adopting Linux and would support it with IBM servers, software and services. We were also committed to becoming a major supporter of Linux, contributing broad resources to the community to help make Linux better – more specifically, good enough for enterprise-level business – and provide Linux credibility within the IT industry and with customers. The total investment was $1 billion.[xvii]

In embracing Linux, we emphasized that it represented more than just another operating system. We viewed it, and the open source principles underpinning it, as fundamental to maximizing the opportunities connected to the Internet while also helping to foster collaborative innovation.

This move was a break from IBM tradition. We had traditionally relied on proprietary technology (we were a global leader in patent creation) but we saw the value in Linux for ourselves and our clients. We believed that it was only a matter of time before the open approach underpinning it won a significantly larger audience.

That's not to say it was an easy sell. Open source was still a new concept and many people in technology were mystified by it since a fundamental part of open source involved people working on projects for no pay. They were even more mystified that a company like IBM would embrace an open source product like Linux, which meant we needed to invest considerable time spelling out how Linux would facilitate the move toward open standards.

We also encountered internal resistance, particularly on the technical side of the company, where we had labs and organizations dedicated to the proprietary alternatives. And our hardware business was suspicious, since Linux was being driven by the software division. But our decision to embed Linux in hardware, and put Irving Wladawsky-Berger in charge, underscored the seriousness with which we treated the broader initiative.

Even with the resistance, our embrace of open source was the right thing to do. It helped to change our culture – making us a more open company and more supportive of collaborative innovation – while also positioning us to evolve into a globally integrated enterprise.

Just as our support for Linux benefited IBM internally, the support was a big boost for Linux and, more broadly, open source and the spirit of collaboration that went along with it. We knew that our clients would benefit if Linux and open source could achieve the "critical mass" necessary for it to become an accepted standard, and we believed we should take a leadership position in helping it grow. Our commitment to Linux grabbed the attention of CEOs and CIOs around the globe, and helped it become accepted by the business world. It gradually emerged as a benchmark operating system for many servers and by November 2010, some version of its operating system was being used by 459 of the world's 500 fastest computers.[xviii] It's also been embraced by the U.S. military, with the U.S. Army declaring in 2007 that it was the single largest install base for Red Hat Linux.[xix] Reflecting the success of Linux, IBM announced in September 2013 (after I had left the company) that it was making another $1 billion commitment to Linux, for investments in new Linux and open source technologies.[xx]

Summing up the importance of standards, Jamie Zawinski, a co-founder of Mozilla (creator of the open source Firefox browser) has said, "all of the software I write runs on Linux; that's the beauty of standards, and of cross-platform code. I don't have to run your OS, and you don't have to run mine, and we can use the same applications anyway!"[xxi]

Perhaps most importantly, standards also enable scale. Social media achieved its extraordinary growth thanks to the open standards underpinning it. Unlike in the "proprietary" era, no one had to develop entirely new resources. Because everyone could access the same systems, there were no artificial constraints on growth. And that greatly accelerated the network effects of the digital age, fostering a level of global integration that was without precedent.

One of the lessons I learned about network effects is that they happen faster than anyone ever expects. As a result, there is a management need to understand their implications for a corporation's structure and operating cadence.

Common standards, which created platforms and ensured compatibility between products, were among the most important tools needed for companies to pursue the globally integrated

enterprise. They helped pave the way for new thinking about the goods and services companies could offer and where they could be offered. Companies also discovered they had new options for where to locate employees and who could serve as partners for functions ranging from customer service to innovation. Equally important, standards meant that companies did not have to build new systems or platforms – which reduced costs and freed up capital. As such, these standards were a fundamental enabler of globalization and the globally integrated enterprise.

Emerging Markets

While the changes I've just described helped to foster global economic integration, another fundamental driver of this integration has been a reordering of the global economy since the late 1980s. The widespread embrace of responsible, market-oriented public policy (much of it centered on support for open trade), complemented by the digital network revolution, opened the door of economic opportunity for billions of people, enabling them to realize the benefits of technological progress that in earlier eras proved elusive. While the progress has been uneven, and not without challenges, it's yielded (in the words of *The Economist*) "the biggest economic transformation in modern history."[xxii]

Emerging markets, which account for approximately 82 percent of the world's population, spread across 150 countries, were once seen as little more than locations to produce low-cost goods. Now they are large markets for a range of goods and services, as well as large pools of highly skilled talent that can deliver first-rate innovation and implementation. Illustrating the multi-dimensional opportunities was IBM's announcement in 2006 that we were going to invest $6 billion in India over the following three years. The resources we were allocating would be dedicated to projects beyond the Indian, or even the Asian, market. India was to be the epicenter for some of IBM's most important *global* initiatives.

This approach to emerging markets represented a fundamental change from earlier eras. Today, individuals and institutions in emerging markets play a critical role as not just buyers or producers, but trusted *partners* of companies headquartered in advanced economies. They carry out key functions, such as innovation, that previously would have been concentrated at a company's headquarters or localized. As such, these partners have given new meaning to "globalization" and enabled the idea of globally integrated enterprises to become an everyday reality.

Consider a few data points that illustrate the expanding role of emerging markets in the global economy:

- In 2013, the total gross domestic product of emerging and developing economies was slated by the IMF to be $44.4 trillion. Among the developed economies, the comparable figure was $42.8 trillion.[xxiii] This was the first time in recorded history that the combined

GDP of developed economies had been exceeded by the combined GDP of emerging and developing economies.[xxiv]

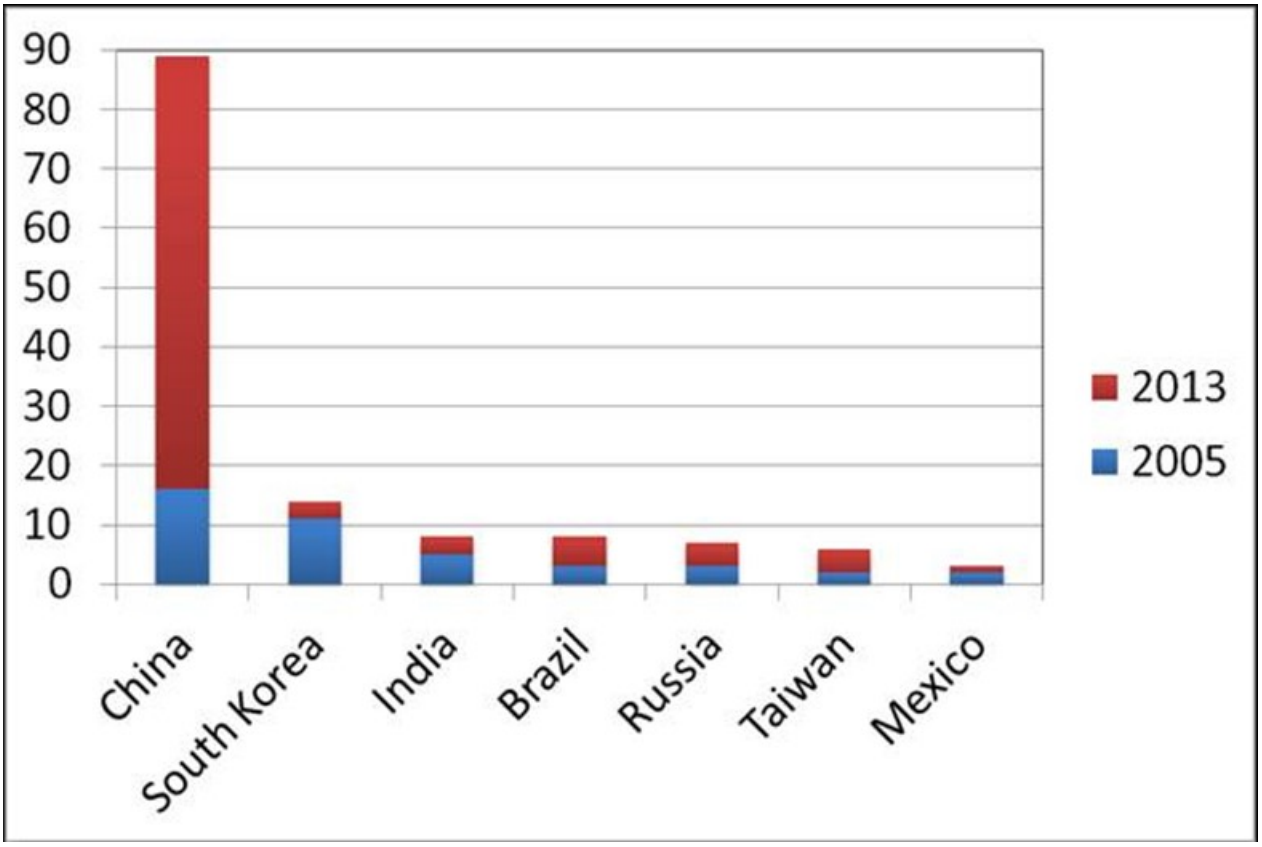
- In 2012, companies invested more in emerging markets than they did in the United States, Europe, and Japan – an unprecedented development.[xxv]

- In 2011, the United States accounted for just 8.3 of the world's exports (down from 21.7 percent in 1948). The U.S. decline has largely represented a shift to Asia, which accounted for 14 percent of global merchandise exports in 1948, but today accounts for more than 31 percent.[xxvi] (Europe's share has fluctuated during this period – rising from 35 percent in 1948 to nearly 51 percent in 1973, but today settling at 37 percent.)

- In 2011, emerging markets accounted for 32 percent of world trade – up from 16 percent in 1991. And for the first time, developing countries exported more to each other than to advanced economies.

Emerging markets are also home to many world-class companies that compete with companies headquartered in developed markets, from JBS in Brazil (the largest animal protein processor in the world) to Lenovo in China (the world's largest provider of PCs) to PKN Orlen in Poland (a refiner of crude oil). Each of these is a member of the Fortune Global 500 – a list that has become infused with companies from emerging markets.[xxvii]

Fortune 500 Companies in Select Countries



The expanding opportunities in emerging markets, coupled with the attractive investment conditions and modern technology, have enabled companies to locate more of their operations throughout the world. Companies can draw on and nurture local talent while being closer to potential customers.

Emerging markets, by definition, still have room to develop and they face challenges moving forward. Economic growth has slowed in the BRIC countries (Brazil, Russia, India, and China), and it's an open question as to whether growth rates will ever return to what they were in the boom years (a potent reminder that Act II of globalization is a lot more challenging than Act I). While struggling to revive growth, these countries cannot lose sight of their long-term value proposition, which is offering a large supply of well-educated workers who possess marketable skills, such as the ability to innovate.

The leaders of these countries, and the municipalities within them, need to ask some basic questions: Why would a company want to invest here, rather than somewhere else? Why would

someone want to live here? What unique value do we bring to a globally connected economic world?

The answer in the recent past was low-cost labor, manufacturing, and software development. But because cost advantages dissipate over time, countries need to ensure they develop and maintain strong schools, trusted legal systems, open markets, openness to immigration, and a modern infrastructure. They also need to create flexible labor markets that foster innovation and entrepreneurship. Particularly important is to accept, and support, collaboration in work, because in the open source ecosystem individuals and institutions collaborate with others throughout the world.

The Corporation Evolves in the Digital Age

The changes in standards, data, and living conditions in recent decades have triggered wholesale changes in daily life for billions of people. On a more prosaic level, the changes have also contributed to a transformation in the way corporations are structured and how they view themselves – with new approaches to basic responsibilities such as partnering, hiring, sourcing, and selling. Corporations are no longer simply collections of country-based subsidiaries, business units, or product lines. Instead, many corporations have become an array of specialized components: procurement, manufacturing, research, sales, distribution, and so on. For each of these components, the global integration of operations is forcing companies to choose where they want the work to be performed and whether they want it performed in-house or externally.

Some leading companies have opened their innovation and other key functions to outside partners. The outside specialists are often entities such as TopCoder, which bills itself as "the world's largest open innovation community of digital creators, with more than a half million members representing algorithmists, software developers and creative artists globally."[xxviii] Companies can submit projects to TopCoder, which then breaks the project into individual pieces and opens them up to the specialists in their network.[xxix] Common standards, built on top of the Internet platform, make initiatives like these possible. Companies increasingly recognize that rather than tackling projects internally there's a global community of experts who can complete these projects faster and cheaper.

Procter & Gamble, for example, relies on outside specialists in nearly all areas of its business. Consider the way in which it pursues innovation. In the past, it had a dedicated research and development team that did nothing but focus on tinkering with existing products and producing new ones. While there may have been a few external consultants, the innovation team was primarily composed of full-time P&G employees.[xxx] The logic was simple: only people on the P&G payroll could be trusted not to steal the intellectual property supporting the company's next-generation products.

That model was flipped on its head by A.G. Lafley during his first stint as CEO (2000-09). He set a goal of having half the company's new products generated externally, through acquisitions, joint ventures, or collaborations.[xxxi] "Innovation and discovery are likely to come from anywhere," he said in 2003.

> What P&G is really good at is developing innovations and commercializing them. So what I said is, "We need an open marketplace." We're probably as good as the next guy at inventing. But we are not absolutely and positively better than everybody else at inventing. . . . Our core capability is to develop and commercialize. Branding is a core capability. Customer business development is a core capability. We concluded in a lot of areas that manufacturing isn't. Therefore, I let the businesses go do more outsourcing. We concluded that running a back room wasn't a core capability. You do what you do best and can do world-class.[xxxii]

This "open" innovation framework is alive and well a decade later. Here's how P&G describes its "Connect + Develop" program today:

> It's our version of open innovation: the practice of tapping externally developed intellectual property to accelerate internal innovation and sharing our internally developed assets and know-how to help others outside the Company.
>
> Historically, P&G relied on internal capabilities and those of a network of trusted suppliers to invent, develop and deliver new products and services to the market. We did not actively seek to connect with potential external partners. Similarly, the P&G products, technologies and know-how we developed were used almost solely for the manufacture and sale of P&G's own products. Beyond this, we seldom licensed them to other companies.
>
> Times have changed, and the world is more connected. In the areas in which we do business, there are millions of scientists, engineers and other companies globally. Why not collaborate with them? We now embrace open innovation, and we call our approach "Connect + Develop." Today, open innovation at P&G works both ways — inbound and outbound — and encompasses everything from trademarks to packaging, marketing models to engineering, and business services to design. It's so much more than technology.[xxxiii]

Among the products to have emerged from P&G's open innovation platform are Crest White Strips, the Oral-B pulsating toothbrush, and Tide laundry pods, which racked up $500 million in sales in their first year.[xxxiv]

These "open" approaches to innovation can be traced back to key principles of the open source movement, which emphasized collaboration and working beyond the confines of one's company. While the collaboration has evolved, and outside specialists can be compensated for their innovations, the basic principle remains the same. This principle has been – and will continue to be – a key contributor to the globally integrated enterprise. The "open" mindset, coupled with new technology and business models, has given companies the confidence to treat their different functions and operations as component pieces. Companies can pull those pieces apart and put them back together again in new combinations, based on strategic judgments about which operations the company wants to prioritize and which operations it thinks are best suited for its partners.

Big Data/Data Analytics

Just as emerging markets opened up entirely new opportunities for global integration, there's another emerging phenomenon that has the potential to upend how and where companies operate: the ability to draw insights from the billions of gigabytes of data being generated every day.[xxxv] And "emerging" is the key word – the data and analytics story is only just beginning.

I began to see the transformational potential of Big Data during my time at IBM, as I observed how advanced computation and analytics could translate this data into meaningful conclusions in real time. IBM and other companies were using advanced analytics techniques such as text analytics, machine learning, predictive analytics, data mining, statistics, and natural language processing to analyze previously untapped data sources. The ability to detect patterns and spot correlations was giving rise to new insights about the past, the present, and the future and an ability to make better and faster decisions.

What changed during my final years at IBM was the ability of IT to make sense of different kinds of data. Initially, we were limited to analyzing so-called "structured" data, which was, in its simplest form, a series of numbers. Gradually, advances in IT made it possible to collect "unstructured" data – text, videos, audio, social media postings and the impulses from hundreds of billions of sensors that were being embedded in the packages, vehicles, infrastructure and even natural systems of the world. These new systems were beginning to be able to analyze all that and draw conclusions from it, in something like real time.

Given the explosion in unstructured data, we saw how this enhanced computing power had the potential to transform business operations as well as the core functions of society. And this idea underpinned what became our Smarter Planet agenda. Announced in November 2008, it revolved around how the digital and physical infrastructures of the world were converging. With computational power being put into things we wouldn't recognize as computers, we saw how almost anything – any person, any object, any process or any service, for any organization, large or small – could become digitally aware and networked. Smarter Planet became the overarching

framework for IBM's growth strategy, and it prompted forward-thinking leaders and citizens around the world to consider innovative ideas such as traveler-centric transportation, consumer-centric electric power, and intelligent systems for managing healthcare, water, public safety and food.

In April 2009, we announced the creation of a new organization within IBM, Business Analytics and Optimization Services, which was tasked with drawing on our expertise in data and analytics to help clients improve the speed and quality of business decisions while better understanding the consequences and business outcomes of those decisions.[xxxvi] The organization reflected my belief that the analytics derived from Big Data were destined to become orders of magnitude bigger than many earlier innovations that were supposed to be breakthroughs, such as enterprise resource planning (ERP). While ERP led to new efficiencies in areas such inventory, accounting, and payroll, it didn't spark fundamental changes. By contrast, Big Data and analytics are much more than a planning tool, and are not limited to back-office functions. They go straight to the core functions of a company: how products are designed and marketed, how decisions are made, and what actions are taken. They also go straight to the core functions of a society: how people are transported, educated, protected, served and governed.

Data, for example, can influence leadership, talent management, IT, decision making, and organizational culture. Erik Brynjolfsson and Andrew McAfee, both of the Massachusetts Institute of Technology, have written about how data make it possible to "measure and therefore manage more precisely than ever before," which they say "can lead to better predictions and smarter decisions. We can target more-effective interventions, and can do so in areas that so far have been dominated by gut and intuition rather than by data and rigor."[xxxvii]

They conducted a comprehensive study to see if data-focused companies outperformed their counterparts that were less focused on data. They found that companies in the top third of their industry in the use of data-driven decision making were, on average, five percent more productive and six percent more profitable than their competitors. "Data-driven decisions tend to be better decisions. Leaders will either embrace this fact or be replaced by others who do. In sector after sector, companies that figure out how to combine domain expertise with data science will pull away from their rivals."[xxxviii]

The Big Data tool I know the most about is Watson, which is an advanced cognitive system that we developed to analyze and extract knowledge from vast amounts of largely unstructured data – all with unparalleled speed and results. Watson is best known for its appearance on the television quiz show *Jeopardy!* in 2011, where it prevailed against the show's two all-time champions.

But *Jeopardy!* was just a proof of concept. Since then, Watson has been "going to medical school," because cognitive systems – of which Watson is a pioneer – are not programmed. They

are trained. They learn – from the vast bodies of heterogeneous data they ingest, from the outcomes of their own judgments, and from their interactions with humans.

Here's an example, from IBM, of how Watson is being used in the medical field:

> It could take as much as 160 hours a week to read all the knowledge published in a given medical field. That's why healthcare benefits provider WellPoint and oncologists at Memorial Sloan-Kettering Cancer Center are putting Watson to work amidst an explosion of genetic research. MSK physicians are training Watson to quickly synthesize large volumes of medical data to help physicians anywhere make more-informed decisions about patient care. With better access to more information, oncologists may have better insight into care practices implementing specialized, evidence-based treatment. For doctors and researchers, the benefits of greater precision are clear; for patients, they may be immeasurable.[xxxix]

This is but one example of the way in which cognitive systems – whether Watson or something else – may transform how organizations think, act, and operate in the future. By learning through interactions, these systems hold the promise to advance knowledge of the trends underlying the complex systems by which our planet runs. Along the way, they will also be invaluable to the emerging organizational forms that seek to create economic and societal value out of those systems – forms such as the globally integrated enterprise.

In the early stages of this technology's evolution, the low-hanging fruit is likely to be greater efficiency and productivity. One of the countless examples of how data is being used in creative ways to drive corporate efficiency comes from a *Wall Street Journal* article about auto insurance:

> As soon as Ed Scharlau of Austin, Texas, pulls out of his driveway in his Ford Expedition, a computer starts keeping score. It keeps track of how fast he accelerates, how abruptly he brakes and how far he drives. The prize if he scores high enough: a substantial discount on his car insurance. "This is a step in the right direction," the 74-year-old former manufacturing executive said. "How I drive should affect my insurance premium." Mr. Scharlau is on the leading edge of a revolutionary shift in how insurers price car insurance, one that has tantalized the $167 billion industry for more than a decade. . . . The idea is to use small telematic devices—in Mr. Scharlau's case, one that plugs into his Expedition's diagnostic port—to compile and analyze data on driver behavior. The programs are voluntary, and better drivers qualify for discounts. In general, insurers say those who fall short aren't charged higher rates, but instead pay no more than what they already are paying, based on conventional pricing methods. The insurers embracing telematics are gambling that the incentive of discounts and data-based feedback will produce better drivers, and thus fewer claims—and higher profits.[xl]

The data opportunities – and challenges – are only going to get bigger. IBM projects 800 percent growth in the amount of data to be generated in the next five years,[xli] with more than 22 billion

web-connected devices generating more than 2.5 quintillion bytes of new data every day by 2020 (equivalent to the amount of data that would appear on 168 million DVDs).[xlii]

This projected growth is a reminder that the Big Data and analytics story is only in its early stages. With more data, and more powerful tools to make sense of it, companies will be able to make decisions faster and with greater precision, as they will no longer need to rely on simple intuition and experience. This will have profound consequences for how and where companies operate.

# # # # #

In the centuries since the first companies were created, the corporate landscape – like the world around it – has been transformed. I saw this transformation play out during my career at IBM, unleashed by the twin forces of global economic integration and the digital network revolution – creating extraordinary new opportunities for individuals to achieve higher living standards and for companies to organize and operate in new ways.

Just as the intertwined histories of global integration and of the digital network revolution show unambiguous progress, they also show that this progress can be (and often is) disrupted. Wars stifle trade networks, but even in the absence of armed conflict, public policy can become an obstacle to deeper economic integration. Similarly, technological innovations drive new efficiencies and opportunities, but by dislodging the old they will inevitably dislocate those companies that try to cling to past practices.

The challenge for companies and the people who work in them is to develop a comprehensive understanding of not just where the world is today, but what it looked like in the past, and how it is evolving. I see an ecosystem emerging that will continue to nurture the development of the globally integrated enterprise, which is built on opportunities derived not only from digital networks and common technology standards, but also higher living standards and higher expectations. The place of the globally integrated enterprise on the world's stage should only grow bigger, but in order to maximize the opportunities one must understand its dynamics and be prepared for the inevitable challenges it creates.

Chapter 3
From Here Through There

I grew up in the Northwood section of Baltimore in a typical hardworking Italian-American family (my father owned an auto repair shop). I had a wonderful set of parents and siblings, and my grandparents, who lived nearby, still communicated with each other in their native tongue. I was expected to work hard, do well in school, and behave.

My parents encouraged me to take up music, so I played the saxophone in high school and often performed in a band at local events and school functions. When the Temptations came to Baltimore, they hired musicians like me to play back-up. I once made $1,000 in five days and promptly spent the money on a used station wagon.

My other noteworthy extra-curricular activity in high school and college was football. It wasn't glorious – I was the center (and captain) – but I learned the importance of teamwork and that it

was more important than individual achievement. It was a valuable lesson to learn at a young age, as I understood that once individuals put their own goals first, the team would suffer and usually it would result in a loss.

I learned another valuable lesson during the spring semester of my senior year at Johns Hopkins. I was enrolled in a graduate-level class, "French Government in Thought and Practice," and the professor, Orest Ranum, asked me what I was going to do upon graduating. I said I was going to work. With surprising candor, he told me that knowledge of French history was not going to help me in my career, but that he could teach me how to write – and he did. He had me write a 50-page paper and then edit it down to five pages. The exercise wasn't always fun – remember, I was writing the paper using a *typewriter* – but it taught me how to communicate in a concise manner. As an aside, it's interesting that in November 2013 France's president, Francois Hollande, awarded me the Chevalier de la Legion d'Honneur, which is the highest honor awarded to civilians by the French government. Who would have ever imagined that my study of French history would have led to this fantastic honor?

My first meaningful exposure to IBM came after my senior year at Hopkins. Like everyone else applying for a job at the company, I took an aptitude test. Having started as a math and chemical engineering major (I later switched to a mix of history and economics), the questions were not too difficult and I was eventually hired for data processing. We all had to start as systems engineers, but that role was not a great fit, and I knew I would be better at sales. To accelerate the process of transferring to sales, I sold something. Before long, I was selling mainframes and data processing equipment to Baltimore's city government.

My first 13 years at IBM were focused almost entirely on the U.S. market. In 1986 I was involved with a task force focused on launching the AS/400, a family of easy-to-use computers designed for small and intermediate-sized companies. Working closely with Bill Grabe (an IBM vice president) and the IBM Italy office, the task force took an unconventional approach to introducing the new product. Rather than going head-to-head with similar computers being manufactured by a company such as DEC, we focused on specific business applications and marketed the AS/400 as a targeted solution machine. As part of the global introduction of the AS/400, we also released more than 1,000 software packages, making it the biggest simultaneous applications announcement in computer history.[xliii] It quickly became one of the world's most popular business computing systems.

The experience underscored for me the need to adjust sales and marketing to suit regional, national, and local conditions. What worked in the United States might not work in Europe. Similarly, what worked in Italy might not work in Germany. Regardless of the location, the key was for the on-the-ground issues to be driven by those closest to the customer – not by people at IBM headquarters thousands of miles away. After all, it was the customers who would determine

our value and decide to invest in our ability to help them succeed. Our focus on being globally consistent but locally relevant was a valuable lesson to have learned before IBM deepened its globalization in the years ahead.

Japan

In 1990, I had to choose between taking the top position in one of IBM's U.S. divisions or taking a job with IBM Japan. At the time, I was working as an executive assistant for John Akers, IBM's Chairman and CEO. I was concerned that the job in Japan would have little structure and could be a dead end, so I asked John for advice. He strongly recommended I go to Japan, saying there was a very talented IBM executive in Japan named Takeo Shiina[xliv] who would find a good role for me and be a valuable teacher. (Shiina-san had joined IBM Japan in 1953 and became CEO of the country's operations in 1978.)

John's counsel taught me an important lesson: if you're going to be successful, you need to learn to operate in many different kinds of environments. He knew that doing something comfortable, even if it meant holding a senior position in the United States, was not going to prepare me for the future. I needed to put myself in an uncomfortable space and figure out how to adapt.

During my time in Japan, which began in January 1991, the country's prolonged period of robust economic growth was tapering off. And while a highly advanced economy, it still brought a unique set of challenges. I learned what it was like to work in a setting with 23,000 Japanese and just a few *gaijin* (the Japanese word for "foreigners"). I also learned a tremendous amount about how to work in a different culture, which was much harder than just the business problems we were trying to solve. I had to learn to listen and to communicate the subtleties of language and culture. Just because people are uncomfortable with English as their business language didn't mean they had nothing to say.

To familiarize myself with IBM Japan, I attended meetings with Shiina-san. He was kind enough to invite me to many of his Sunday evening dinners with many Japanese business leaders. When I transitioned into a role as senior managing director of operations, I was assigned to work with Kakutaro Kitashiro, a senior executive who had worked at IBM since 1967 (and who would go on to become the first non-American to lead IBM Asia Pacific).[xlv] We were running a large account division and I oversaw a variety of internal functions, including forecasting, products, and professional services.

It's important to remember that this was the pre-Internet era, and we rarely spoke to our colleagues in the U.S., as telephone calls were extremely expensive. To update the corporation's status of the business, executives like me were required to return to IBM headquarters every quarter. Today that seems odd, but at the time it was simply how we operated and no one saw the need to change it.

There was always value in staying current with developments in IBM headquarters Armonk, but I learned there was a downside to this travel – it fed suspicions that I (and my predecessors) had been sent to Japan to report back to headquarters on the workings of the Japan operation. Fueling the suspicion was my role with IBM Japan, as most IBM executives who were assigned to Tokyo worked in the Asia-Pacific regional headquarters, not the country headquarters. And since I had come directly from the office of John Akers, I'm sure that some viewed me as a CEO spy.

I never saw my role as a spy. To combat the perception, while also gaining a better understanding of the environment in which I was operating, I tried to immerse myself in the company and the local culture. I met with a Japanese language tutor 2-3 mornings per week. I regularly attended ceremonial and cultural events. I socialized with colleagues and clients, which could include anything from playing golf to attending a sumo wrestling match. And I spent considerable time with branch managers and people in sales. I think my colleagues appreciated my effort to immerse myself in their culture, and I know that it boosted my effectiveness in Japan.

My time in Japan also taught me to become a better listener. A conversation between two people in Japan doesn't include the interruptions that can be standard practice in other countries. Indeed, it's considered extremely rude to interrupt. As a result, people listen to each other more. But the Japanese were often reluctant to speak up in meetings, so I worked to create an environment in which they would feel comfortable offering their opinions.

My two-plus years in Japan proved formative. The experience dramatically broadened my sense of the world, of the industry, and of our clients. This is where I was first introduced to emerging markets. For me, the best way to sense the pace of economic change that was occurring was to experience it. While working in Japan, I was asked to evaluate placing a manufacturing facility in mainland China. Of course, we evaluated demographics, per capita income growth, economic incentives, etc. But, in addition, I would walk around and sense what was happening on the ground. As I did this, I observed jet boats moving cars from Hong Kong into China in the dark of night. Interestingly, without local law enforcement, what economic advantage would there be in locating manufacturing in China. For me, study from a far, wasn't the answer. I needed to get a feel for the market and continued to do this as we expanded into emerging markets.

Additionally, this gave me a whole different view of IBM as an institution. Nothing will give you as clear a sense of an enterprise's culture and values as when you see them through a different lens. Working in Japan helped to shape my views about leadership, the next generation of IBM, and what it would take to succeed. I learned that the path of higher risk and deeper learning is not the easy path, even though it is grounded in optimism. One cannot move to the future without changing oneself.

My time in Japan strongly shaped my views about the operational side of IBM. I developed an understanding of what functions needed to be local and what could be global. I saw how the company could be restructured to drive greater economic value and reduce the center of gravity by eliminating what I called "overhead talking to overhead." It was also becoming clear that there were extraordinary opportunities emerging in Asia's developing countries. (During my final six months in Japan, my responsibilities also included overseeing products for the Asia-Pacific region.) I was regularly reminded that you can't be purely transactional in Asia – you also need to be relational. Potential clients and existing ones want to know your company is sustainable, will still exist in 100 years, and is committed to the society – not just selling PCs in stores.

My time in Japan also opened my eyes to the hallowed position IBM occupied in select countries. The IBM general manager in places like Japan and Germany would often serve as an advisor to the prime minister or the chancellor. I came to understand that we were not viewed as an "American" company by governments throughout the world. Instead, we were viewed more as a partner that could help them achieve their goals. (It didn't hurt that we were often one of the largest private-sector employers in a country.)

This translated to high-level access. In 2004, when we were just beginning the process of selling our PC business to Lenovo, I met personally with China's Premier Wen Jiabo to discuss the importance of global enterprises to China's future. He gave me the sense that he would be comfortable with a strategic relationship between Lenovo and IBM. The following year, we held a board meeting in London and met with Prime Minister Blair at 10 Downing Street. The Prime Minister himself met with the IBM Board and me for nearly two hours. In 2008, while I was CEO, we held a board meeting in Delhi and met with Prime Minister Singh.

Our competitors would sometimes complain to senior government officials that these meetings were unfair. Our counterparts did not understand that our access was a byproduct of the investments we had made in these countries, often reaching back many decades when the commercial opportunities there were minimal. As part of our leadership model, our country general managers were trained and empowered to build relationships and, more importantly, to build trust. While the managers were always representatives of IBM, we also wanted them to be seen as having sufficient authority to act.

My time in Japan coincided with perhaps the most difficult period in IBM's history. The company's workforce began to shrink and many analysts projected it would be broken up and sold off in pieces. Japan was one of IBM's most important markets during this period. Even with a slowing economy, it was generating close to 20 percent of the company's earnings. But the country represented a larger share of a shrinking global pie, and by the fall of 1992 it was

becoming clear that John Akers was unlikely to survive IBM's downturn. This period was difficult for everyone at the company, and in late January 1993 John announced his retirement. His successor, Lou Gerstner, came to IBM with a very successful record in business, and there was an excitement about the prospect of new leadership as well as an opportunity to build a new strategy for IBM. At the same time, many of my colleagues were wedded to the past and would resist the change that was ahead.

Services

While I was working in Japan, IBM had launched a worldwide services strategy with the goal of making us "a world-class services company" by 1994. As part of this strategy, the Systems Services Division was restructured into the Integrated Systems Solutions Corporation (ISSC), a wholly-owned subsidiary to provide a broad range of outsourcing services to customers. Running ISSC was Denny Welsh, an IBM veteran who had extensive experience with government clients. I didn't know Denny, but I quickly learned that he was precisely the kind of colleague you want to have, as he combined a warm personality with a strong sense of mission. And while I didn't possess any special knowledge about the services business, and had some people tell me it would be an unstructured job, I was drawn to ISSC by the opportunity to work with Denny and to continue working outside my comfort zone in a business with considerable upside potential. In a way, we were creating a new business model from within.

When I joined ISSC, it had about $300 million in annual commercial revenue, which was primarily generated by three clients: Continental, Kodak, and McDonnell Douglas. We operated with a high degree of autonomy, given our small size (by IBM standards) and the big problems facing the company. We quickly discovered there was a lot of demand for our services – outsourcing and IT professional services – in the U.S. and throughout the world. Companies recognized that ISSC brought together IBM's deep history and competencies in tackling large systems projects, many of which we had completed for our government clients. Our public-sector knowledge and skill, which was reflected in Denny's expertise, coupled with my experience on the commercial side, helped the business achieve strong growth. ISSC was reorganized into IBM Global Services (IGS) in 1995, and by 1998 it had $24 billion in revenues.[xlvi]

Our operating model was very, very lean – we had little to no overhead and everybody had to bill their time. It quickly became clear who was creating economic value and who was not. Also, the ISSC experience showed the value of a business model of scale. The conventional wisdom on Wall Street and elsewhere held that a professional services business couldn't be scaled (in fairness, it had never been tried). But we had a different idea, saying that we could achieve large-scale growth by "productizing" service lines: skills competencies, global scale, and global process commonality. We could run it like a product business, even if it was mostly people-based. So we could scale and globalize labor activities – service centers, development centers,

accounting centers, and contract centers. Later on, we actually created intellectual property and assets to leverage our capabilities beyond people.
I took over IGS in January 1998, which at the time had about 135,000 employees, representing approximately 40 percent of the IBM workforce. Building on the division's past successes, we secured more than $30 billion in new contracts that year. Of the 38 outsourcing contracts we signed in 1998 that were worth $100 million or more, nearly half were with customers outside the United States, more than double the percentage just two years earlier.[xlvii]

While I moved on from IGS the following year, to head the PC division, services continued to take on greater importance within IBM. It accounted for a growing share of the company's revenues, rising from 25.2 percent in 1997 to 35 percent in 2001.[xlviii] Indeed, the vitality of our services business allowed us (unlike many other technology companies) to successfully weather the severe downturn of the "dot-com bubble" bursting. IBM's revenues, which had risen every year since 1994, continued rising through 2000. And while we saw small declines in 2001 and again in 2002, we still managed to gain market share in our core businesses. Underscoring the importance of the service business, in July 2002 – just a few months after I had become CEO – we acquired the global business consulting and technology services unit of PricewaterhouseCoopers, which consisted of 30,000 professionals.

Globalizing and Unifying IBM
Much of my time as CEO was focused on positioning IBM to seize global opportunities while also managing the inevitable challenges that came with globalizing the company. While IBM had a long history of operating throughout the world, the depth and breadth of our global operations in the 2000s was without precedent. Thus I saw the need to pursue some new initiatives that reflected the new era. At the same time, it was clear that the emerging countries, i.e. China, India, etc., were going to be larger participants in the global economy.

When I became CEO, we had more than 300,000 employees serving clients in 170 countries. Forty percent of those people did not report daily to an IBM site; they worked on the client's premises, from home, or they were mobile. Half of our employees had been with the company for fewer than five years because of recent acquisitions and our relatively new practice of hiring seasoned professionals.

Adding to the complexity, we had 60 or 70 major product lines and more than a dozen customer segments. If you mapped out the entire 3-D matrix, you'd get more than 100,000 cells – cells in which you have to close out profit and loss statements every day, make decisions, allocate resources, make trade-offs. I recognized that trying to manage every one of those intersections centrally would drive people crazy. It would also be highly inefficient.

We saw that there was no way to optimize IBM through organizational structure or by management dictates alone. We needed to empower people to make decisions. However, we also needed to ensure that they were making the right calls the right way. And by "right" I mean more than ethics and legal compliance; at IBM those are table stakes. Decisions were needed to support and advance IBM's strategy and brand – decisions that would shape a culture of helping clients.

In a company as diverse and as committed to the "right way" as IBM, values have always been its cultural foundation and daily connective tissue. As a result, values became a cornerstone for decentralized decision making. It used to be a rule of thumb that "people don't do what you expect; they do what you inspect." It was going to be impossible to inspect everyone. But we could not simply let go of the reins and let people do what they wanted without guidance or context. So we needed to create a management system that would empower people and provide a contemporary basis for decision making that was consistent with IBM's DNA. Doing this in a top-down controls-based management system was going to be contentious and challenging.

After considerable reflection with a number of colleagues, we chose to refresh a values-based approach that had guided the company. The three values that supported the company – respect for the individual, the best customer service, and the pursuit of excellence – had been laid down in 1914 by Thomas Watson, Sr. Those values served IBM well, but they had evolved into a sense of entitlement. A lot had changed at IBM and throughout the world over the course of nine decades. We wanted to take stock of our values given these changes.

I asked Jon Iwata, senior vice president for communications, to begin the process of tapping the wisdom of IBMers around the globe. Jon was a key architect of our GIE thinking. He is a master at bringing really hard things into a clear and relatable form. So on July 29, 2003, we launched a "ValuesJam," which was an online, three-day event that allowed any IBMer anywhere in the world to weigh in on what the company should stand for and how IBMers should operate. It was a free-for-all, which meant that there was a fair share of comments that were far from complimentary. Some of my colleagues thought we should pre-emptively pull the plug on the exercise, but we opted to keep the commentary open, and it gradually became more thoughtful.

We had a team analyze the comments and it was clear that the proposed value statements needed to change to reflect the nuances and emotion people expressed. Drawing on this analysis, along with other employee feedback, we settled on IBM's new corporate values.

The first value was "dedication to every client's success." At one level, that is pretty straightforward: bring together all of IBM's capabilities – in the laboratory, in the field, in the back office, wherever – to help solve difficult problems clients cannot solve themselves. But this is also a lot more than the familiar claim of unstinting customer service. "Client success" isn't

just “the customer is always right.” It means maintaining a long-term relationship where what happens after the deal is more important than what happens when it’s signed. It means a persistent focus on outcomes. And it means being invested in your client’s success.

The second value was “innovation that matters – for our company and for the world.” When employees discussed how IBM makes a difference in the world, they included more than our work of inventing and building great products. They recalled how their work touches people and society and how we helped improve lives, citing IBM’s work with Memorial Sloan Kettering Cancer Center, with America’s Apollo program in the 1960s, with mayors and community leaders to create safer and more sustainable cities. This type of innovation enabled us to attract great scientists to build what we later came to call “a smarter planet.” This value also reflected IBM’s commitment to continual experimentation. Throughout our company’s history, with the exception of one period when we became arrogant and complacent, IBM never stopped questioning assumptions, trying out different models, testing the limits – whether in technology or business or in progressive workforce policies. Employees reminded us that those features mattered as much as new products.

The third value was “trust and personal responsibility in all relationships.” Interestingly, the feedback from employees on this value focused on relationships among people at IBM. But we were also talking about the company’s relationships with clients, suppliers, investors, governments, and communities. As IBM globalized its operation, trust became an essential ingredient to the success of the GIE.

We published the values in their final form – along with some elaboration on them and some direct employee postings from the jam – in November 2003. Over the next ten days, more than 200,000 people downloaded the online document. The responses flooded in, both in the form of postings on the intranet and in more than a thousand e-mails sent directly to me. The reviews, often containing sharp language, told us just where IBM’s operations fell short of, or clashed with, these values. Some of the comments were painful to read, but they exhibited something every leader should welcome: People at IBM were invested in the company’s future. And the comments were, by and large, extremely thoughtful. The revisiting of our core values could not have happened without a more open culture and the leadership of Jon Iwata.

Observations from the “field” – A Commitment to Leading

Soon after I became IBM’s CEO, some disturbing trends I had seen developing began to come into sharper focus. While the United States had achieved global leadership in innovation during the 20th century, I saw the country losing its edge at precisely the moment other countries were becoming more focused on innovation. Skills were eroding and research was declining, with federal funding for research at only half the level of the 1960s and corporate R&D investment at its lowest level in 50 years. I also had a sense that the nature of innovation was changing, with

fewer sole inventors tinkering in garages or garrets. Finally, I felt that business leaders and policymakers had not fully grasped the implications of global economic integration for companies and for the country. The need for innovation was becoming more critical as the global economy was on course to become more integrated.

To address these challenges, I agreed to co-chair the National Innovation Initiative (NII), which was sponsored by the Council on Competitiveness. I worked closely with my co-chairs, Wayne Clough (the then-President of Georgia Institute of Technology) and Duane Ackerman (the then-Chairman and CEO of BellSouth), and our final report, issued in December 2004, built on input from more than 400 leaders drawn from throughout American industry, government, labor, the non-profit sector, colleges and universities.[xlix] When this initiative began, we asserted that innovation should be one of the nation's highest priorities. What we learned was that there was a strong and growing consensus that innovation was not just a national imperative – it was *the* national imperative.

The report emphasized the need for business, government, and academia in the United States to place renewed focus on innovation – not just "inventions" but also the economic value that could be derived from service industries and service models. In all, there were 26 recommendations, which included specifics on tax policy, research and development, labor practices, physical sciences, education, intellectual property, and portability of employee benefits (such as health care and pensions). We wanted to set a national framework for the way in which the U.S. and global economy was evolving. The reforms we proposed found support in Congress, and many of the provisions were included in the "America Competes Act," which passed the House and Senate and was signed into law by President Bush in August 2007.

Sensing the significance of the NII, I asked my IBM colleague Nick Donofrio, who helped lead the NII task force and was serving as executive vice president for innovation and technology, to lead our outreach to countries around the world. Many governments had heard the message and a number of them asked us to organize similar efforts. They needed to convene their national stakeholders around the importance of innovation to their economic future. Nick was a key figure in this process and became a global innovation champion. These efforts helped us build goodwill in these countries, highlighting that our operations were not solely focused on sales, but rather on making a larger contribution that would help foster countries' long-term development. This was the beginning of many of the research-based projects that became the underpinning of our Smarter Planet campaign.

For me, the experience of co-chairing the innovation initiative deepened my understanding of how the global economy was changing and how the nature of innovation was changing. Both were becoming more multidisciplinary and more collaborative. It also reinforced my conviction that the services sector was set to occupy a larger and larger share of the U.S. economy. I saw

many similarities between my efforts to ensure IBM's long-term competitiveness and how the dynamics of the global economy were impacting the future resiliency of America.

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Even though I spent my entire career at IBM, and was sometimes held up as a very traditional IBMer, I always viewed myself as thinking (and acting) outside the structure. I frequently took an unconventional path and chose to value learning over ambition. That choice brought challenges (such as working in a country where I didn't speak the native language) but it also meant I was always growing. It allowed me to look at situations through a different lens than my peers. This perspective proved to be critical as I moved up the ranks at IBM. It ultimately enabled me to see how both the technology industry and the global economy were changing, and that IBM needed to get ahead of these changes if we were going to remain a leader in the 21st century.

Chapter 4
Transforming into a Globally Integrated Enterprise

When I joined IBM in 1973, it was a classic multinational – with mini-IBMs in countries all around the world. IBM Japan, IBM Brazil, IBM UK, IBM Germany, IBM Spain, IBM Ireland (where we were the first IT multinational – starting operations in 1956). And it was a very successful model. It allowed us to grow in those markets and understand local customer requirements and customs. The IBM brand became a strong national asset in each of these countries. Very importantly, we developed local talent. We did not export Americans all over the world. We didn't have to. We hired and developed leaders "in country" and exposed them to various parts of IBM during their careers.

This was a very efficient way to grow in local markets. What once looked like efficiency, however, came to look like redundancy. In order to gain access to local markets and to scale our businesses in all of those countries, we had to replicate IBM in every country. Every country operation had its own sales force, but also its own supply chain, procurement, finance, HR and other so-called "back-office" functions. In many cases, the countries had their own manufacturing, development, even research capabilities. In his book, *Who Says Elephants Can't Dance?*, my predecessor as CEO, Lou Gerstner, described the fragmentation he discovered when

he arrived at IBM in 1993: “In Europe alone we had 142 different financial systems. Customer data could not be tracked across the company. Employees belonged to their geography first, while IBM took a distant second.”[l]

This structure exemplified what was handicapping IBM. It was not only expensive, but it interfered with speed, responsiveness and innovation and impaired our ability to make the most of our collective smarts. There was a clear need for change.

This chapter will tell the story of IBM’s transformation from a multinational company, with operations throughout the world, into a globally integrated enterprise. As one of the earliest explorers of what it means to be a truly global enterprise, IBM offers lessons on how to build, manage and evolve institutions; on what information technology can transform in science, commerce, and government; and on the arena in which those institutions will perform and that science will advance.

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Born in 1911 at the height of the first age of globalization, the company that would become IBM saw itself as international from the beginning. By 1920, it had opened offices in Argentina, Australia, Austria, Belgium, Brazil, Canada, Denmark, France, Germany, Hungary, India, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.[li] In 1924, the company changed its name to International Business Machines (certainly an improvement over the name up to that point: Computing-Tabulating-Recording, or “C-T-R” for short), and three years later, our long-time CEO, Thomas J. Watson, observed that IBM products were being distributed in 58 countries. (“The sun never sets on International Business Machines,” he told employees in 1927.)[lii] Watson later adopted a company slogan, “World peace through world trade,” that spoke to our global outlook. IBM was driven to a multinational model and in 1949 established a subsidiary, the World Trade Corporation, to manage its international operations. In the process of its evolution, IBM pioneered many of this model’s management and technological systems, from training, benefits, equal opportunity policy, corporate culture and the role of the manager, to mainframe-driven automation of the "back office" and collaboration systems for modern “knowledge work.”

The company invested $5 billion (equivalent to about $35 billion today) to develop the S/360 mainframe, a revolutionary innovation introduced in 1964 that enabled a shift from country-by-country control of business to the global standardization of a product. Standardization was the core value proposition of the S/360 – both standardization of the product itself, and also of the processes the mainframe enabled companies to manage. While the mainframe made a new model of the large, complex business organization possible, it also made a new level of global integration possible.

Another key development in IBM's contribution to global integration was the company's move in 1969 to unbundle its software from its hardware, as this fostered the development of standardized software packages. As Alfred Chandler, Jr., and James W. Cortada write in *A Nation Transformed by Information,*

> A team of programmers could write a program for billing, for example, and know that there were thousands of firms that might buy the software because they all shared common technical standards. In other words, these systems were compatible, so a billing package running on one machine could also run on another – because the machines were becoming standardized and compatible.[liii]

In a number of respects, we were becoming a global company. We certainly appreciated the value of being global, not only in terms of growth opportunities but also to insulate us when we experienced a downturn in the U.S. (as we did in the late 1980s). And in a precursor to the GIE model, we used workers who were best equipped to complete assignments, no matter where they were based. In the late 1980s, we began using an IBM lab in Yamato, Japan for design and engineering work. A few years later, impressed by the lab's performance, we tasked it with producing the first ThinkPad notebook PC. The lab in Japan collaborated with our Italy-based design consultant and our U.S.-based product marketing team and eventually produced a hugely-successful product.[liv]

But operationally, IBM was still a creature of geography, with a low level of cross-border integration. A story shared by our country manager in Ireland, Peter O'Neill, illustrates this lack of integration as recently as the mid-1990s:

> I don't think a senior IBM Ireland manager had ever been inside corporate headquarters in the U.S. We simply didn't have a network of contacts at executive level in the corporation and we didn't have anyone on the team with experience of working at headquarters. So, without that high level network it was very difficult for us to get any insight into what opportunities might be coming up. Ridiculous as it sounds, back in the '90s we started by looking up the internal directory for senior US executives with Irish surnames and then giving them to the [Irish Development Authority] to call on.[lv]

IBM's Transformation

One of the recurring themes throughout IBM's history has been the company's ability to transform itself. As Thomas Watson, Jr., who was the company's CEO from 1956 to 1971, once wrote, "If an organization is to meet the challenges of a changing world, it must be prepared to change everything about itself except [its basic] beliefs as it moves through corporate life."[lvi]

IBM started as the product of a merger of three firms that manufactured and sold mechanical accounting machines, commercial scales, industrial time recorders, and even meat and cheese

slicers.[lvii] In 1915, Thomas J. Watson (father of the aforementioned Thomas Watson, Jr.) became president of what was then called C-T-R (just 11 months after joining) and promptly moved the company out of small office products and into providing large-scale, custom-built tabulating solutions for businesses. Within four years, revenues more than doubled to $9 million and the company launched operations in Europe, South America, Asia and Australia.[lviii]

Watson's son, Thomas Jr., pushed forward with yet another transformation – this one based on the model set by the highly-successful auto company, General Motors. Watson wanted IBM to do more than just respond to changes in the marketplace – he wanted the company to anticipate them. As Steve Hamm recounts in the IBM-commissioned history book, *Making the World Work Better,* Watson convened 50 IBM executives in November 1955 to plot the company's future. According to Hamm, "The purpose of this meeting [said Watson] was to lay the groundwork for a new IBM, beginning the process of setting up better management systems, improving internal communications and distributing power and responsibility deep into the organization."[lix] A subsequent executive retreat resulted in decisions to vest managers with new powers and responsibilities. The changes made at this gathering, writes Hamm, "created the stalwart organization that would stand atop the computer industry for decades."[lx]

Indeed, these reforms were a cornerstone of IBM's success, but the company was constantly evolving. The development of the S/360 was another example of the company's transformation. As Hamm writes,

> IBM was one of the most successful companies in the world at a time when the US economy was thriving, but Watson wasn't satisfied. He saw that by maintaining five separate computer product lines, IBM was wasting a lot of effort. At the same time, customers couldn't easily switch from one product to another as their computing needs changed and grew. Rather than waiting around to see if a competitor would come up with a better business model and customer proposition, in 1962 Watson decided to reinvent the company's product strategy, replacing the existing products with a new family of computers, all of which used the same software and peripherals. The family of machines was called System/360. Launched in 1964, it was a game changer. Its performance in the marketplace led IBM's pre-eminence in the computer industry for the next two decades.[lxi]

This evolution continued with IBM's highly-successful move into personal computers. Introduced in 1981, IBM's PC contained highly sought-after features, including 16 kilobytes of user memory (expandable to 256 kilobytes), one or two floppy disks and an optional color monitor.[lxii] Lou Gerstner transformed the company again in the 1990s – implementing reforms amid difficult fiscal conditions (IBM lost $16 billion from 1991 through 1993) and then launching an e-business strategy to seize the opportunity presented by the Internet.

Soon after I moved into the CEO suite, I saw the need for another transformation, given what we at IBM saw coming – namely, fundamental shifts in the information technology industry and in the global business environment. Not only did our products and services need to be transformed, so did the entire structure of the company. So we took wholesale action, which positioned us to deliver on our business model on a sustainable basis, while giving us greater flexibility to focus on growth and profit opportunities in what was a rapidly-changing world.

Changes in the IT Industry

One shift was the bifurcation of the IT industry, unleashed by the relentless cycle of innovation and commoditization. Some companies were choosing to compete on price, speed and efficiency, which was difficult, given the ongoing consolidation and commoditization in some industry segments. IBM opted to compete on our capacity for high-value innovation, which we believed to be a better long-term bet.

Along the same lines, IBM dramatically shifted from commoditizing segments of its servers, middleware, and IT services practices toward higher-value businesses with better profit opportunities. Emblematic of the change was our decision to divest businesses that thrived during the PC Era – hard disk drives, panels, and eventually, PCs themselves – and acquire businesses in more high-growth, high-value segments. The share of segment profit accounted for by software and services rose from 65 percent in 2000 to 84 percent in 2011.[lxiii]

We saw the PC becoming more of a consumer electronics product and less of an enterprise product. In enterprise, we thought sensors and mobile devices would take on a bigger role. We didn't think PC's were the right place for IBM to be, for the simple reason that we were an enterprise company. Equally important, I don't think we could have executed a consumer electronics business effectively, and the experience of other companies that tried to do both suggests that you have to do one or the other. They are fundamentally different businesses, calling for different management systems and different skills. I had seen this trend unfolding during my time as senior VP and group executive in the Enterprise Systems division and in 1999 had pushed for IBM to divest itself of the PC business. I didn't prevail then, but the trendlines had only become clearer in the years that followed, particularly with the proliferation of devices like smartphones. And so we made the decision to exit the PC business and related components, which was controversial at the time but which was clearly the right decision.

These shifts, coupled with innovations in our operations, helped us improve our gross profit margins from 2001 until 2012. The company's gross profit margin improved 3.2 points in 2005 alone. IBM's chief financial officer, Mark Loughridge, pointed out in a presentation to analysts in early 2011 that IBM was growing despite the global recession that had begun in 2008:

> IBM's business results since 2006 significantly outperformed those of the S&P 500. If you compare our EPS growth to the S&P, you can see that IBM's growth rate is 17

> percent, while the earnings of the S&P was flat. And when you look at total return on the stock, which includes share price plus dividends, we cumulatively returned 62 percent or $47 billion of shareholder value, since the end of 2006, while an investment in the S&P resulted in a modest decline.[lxiv]

Much of the credit for these achievements goes to the decision to pursue organic investment, divestitures and acquisitions, which fundamentally remade IBM's business mix.

The post-PC World

The shift I've been describing was not simply a change from one kind of device to other kinds of devices. The world's business environment was shifting to a post-PC, networked computing environment, one that has evolved beyond communications and trading into a true business platform. We saw that the Internet was a network of more than a billion people and hundreds of billions of things – embedded objects and intelligent devices, all interconnected and integrated thanks to open standards and technologies such as Linux and web services. This platform was enabling the globally integrated enterprise to emerge, and giving rise to all manner of new business services and applications, developed for and delivered via the Net. It was also fostering new forms of collaboration and global partnerships, as companies were able to engage with communities of expertise anywhere in the world.

Integration and Innovation

We also saw these trends driving our clients to place a premium on two related priorities: integration and innovation. And from this recognition, we crafted what was (and continues to be) perhaps IBM's strongest competitive advantage – the integration of technology with business design. As new technologies get infused into every aspect of business and society, organizations have no choice but to engage. The integration of business and technology is also the source of innovation – which business and government leaders recognize as the surest path to survival and growth in an intensely competitive global market.

We saw that the kind of innovation companies needed went beyond products and services and involved every aspect of the enterprise – from business processes and business models, to management systems, culture and policies. We saw that CEOs were worried – as they needed to be – that business model innovation by their competitors could radically change their industry's landscape. That was the "stick" driving businesses to undertake comprehensive, enterprise-wide innovation. The "carrot," the glass-half-full part of the historical moment, was that an incredible array of new capabilities had come of age – technological enablers that provided businesses and institutions of all kinds, sizes and locations with a truly astonishing range of options to improve productivity, serve their customers better than ever before, create new sources of revenue – and make a difference to their societies.

Globalization

The second shift, and the one that will be the focus of the rest of this chapter, was globalization. To seize the global opportunity, we restructured our operations to enable us to draw more efficiently on our global resources, and to capitalize on opportunities in emerging growth markets.

We began our restructuring in Europe. With the goal of lowering the center of gravity in the company, we eliminated layers of bureaucracy and pressed for more decision-making in local markets and less at IBM headquarters. We also moved managers out into local markets, where they could execute closer to our clients. If our structure was that of a pyramid, we wanted to recreate it as a diamond, with the people at the top of the pyramid moving to the middle of the diamond. We did that by restructuring the financial incentives so that work with clients would be more handsomely rewarded. We found that this leaner management system, coupled with solid execution and a slowly improving business environment, enabled us to compete more effectively in the European markets.

We also took core processes and functions that were once managed regionally, shifted them to a horizontal model, integrated them, and began managing them globally. These changes enabled us to improve responsiveness to our clients through new ways to bring together sales support. We called these "deal hubs," and in the parts of Europe where we tried them out, our win rates improved dramatically.

These changes flattened hierarchies, eliminated redundancies, and improved productivity. More broadly, moving to a GIE model also gave us much greater flexibility to locate business functions where the necessary skills existed and to redeploy people and teams wherever market opportunities dictated. Here's how one outside observer (a professor at the University of Southern California's Marshall School of Business) described the situation in a case study on IBM:

> IBM differentiated itself on its practical know-how and the ability to deliver its services quickly, effectively and efficiently. That meant that while a client might have operations in one country, the client's purchasers might be in another country, the IBM programmers might be in another, the IT architects in another, etc. The idea was that while sometimes the workforce delivering the services did need to be in the same country as the client's operations or purchasing decision makers, in many cases the workforce did not need to be located there. Increasingly, it was becoming apparent that IBM's competitive advantage would hinge on globally optimizing service delivery rather than on coordinating multiple operations across several nations.[lxv]

Illustrative of IBM's global focus, our chief procurement officer, John Paterson, made the decision to relocate from Somers, New York, to Shenzhen, China in October 2006. He was the first IBM division head to be based outside the United States.[lxvi]

The decision to locate in Asia was simple. We already had more than 1,850 procurement and logistics professionals in the region, many of them at our China Procurement Center in Shenzhen. We also had strong and collaborative relationships with nearly 3,000 suppliers across Asia, accounting for about 30 percent of the $40 billion IBM was spending annually on procurement.[lxvii] Just as important, the move to Shenzen made it acceptable for other departments to shift out of Armonk, and before long data center delivery moved to India and intellectual property to the Netherlands.

The announcement nonetheless unleashed some culture shock within IBM, which was still accustomed to having all division heads based at or near our Armonk headquarters. John didn't consult me on the decision, but I was 100 percent supportive and used it as an example of the initiative and global mindset I wanted to cultivate across IBM. John saw the way global business was evolving and jumped at the opportunity to go where the greatest opportunities existed.

The move was an important step in IBM's evolution into a globally integrated enterprise. As John pointed out when making the announcement, "IBM is a global company, and today that is as much about making efficient and effective use of skills everywhere in the world and integrating them globally to serve clients, as it is about developing deep local relationships in markets around the world. We are becoming a globally integrated company that allows us to do both."

The Reality of Global Integration

What I came to understand as CEO, following a series of wake-up calls, was the reality of global integration and that it had changed the corporate model and the nature of work itself. Ongoing technology advances were making it ever easier to trade, interact and transact across geographic boundaries, time zones and languages.

I saw that there would be winners, and there would be losers. And I saw that the new leaders would win not by surviving the storm, but rather by fundamentally changing the game. So that's what we did at IBM – we changed the game. Our evolution into a globally integrated enterprise changed the way the company worked, managed, and made decisions – from sales and marketing to HR and research. We significantly lowered our operational center of gravity – away from headquarters, closer to markets and customers. And we didn't simply enter markets. As IBM has done throughout its history, we *made* markets, working with leaders in business, government, academia and community organizations to help advance their national agenda and

address their societal needs. It requires building real skills in the local workforce and enabling new capabilities among its citizenry - being a force for modernization and progress.

Many of these changes were huge shifts for IBM – but I believed they were necessary if we were going to capture the benefits and step up to the challenges of a globally integrating economy. And the changes weren't just happening at IBM. Throughout the world, I saw that organizations with a globally integrated business model were optimizing resources and capital productivity on a global basis while also reducing costs.

As IBM was beginning to implement the reforms that would position us to compete in the future, we were starting to see troubling indicators on the public policy front. In the United States, support was waning for the basic elements of global trade and investment. In early 2004, President Bush's chief economic adviser was lambasted for describing "outsourcing" as "probably a plus for the economy in the long run." Later that year, the political environment was inflamed to the point where executives who invested overseas could be described as "Benedict Arnold CEOs." And in August 2005, the attempt by a Chinese oil company, CNOOC, to purchase the American oil company, Unocal, was withdrawn amid fierce political opposition. We were also seeing some countries resisting both imported goods, but also investment, which they saw as competing with domestic industries and also threatening to move public opinion toward a more "American" way of life. Left unchecked, we knew that these developments could be a bigger obstacle to success than any of our competitors.

To counter these challenges, we at IBM saw the need to make the *constructive* case for global business – showing the opportunities it would create while also dispelling some of the myths. Many of the concerns of the anti-globalization forces were legitimate – concerns about environmental impact, about access to markets, about the need for improved education and new skills, about openness and fairness. But protectionism was not the way to address these concerns.

As CEO of IBM, I was also acutely aware of the need to make the case to IBMers. The world was changing, and IBM needed to stay ahead of that change, which meant transforming the company. That was going to involve some short-term dislocation in exchange for long-term growth. To accept the change, people needed not only to understand our strategy, but also to feel a sense of common purpose. And that was the motivation for launching the "ValuesJam," which was the company-wide brainstorm I described in Chapter 3.

In 2005, we told the senior leadership group of IBM that it would be reshuffled the following year, as would the worldwide management committee. Names were going to change, and people were going to change, as everyone was going to be re-evaluated and then reappointed to the position where they could create the most value.

In early 2006, I held a meeting with the 300 members of the senior leadership group and the message was, "everything has changed." A key element of what I was announcing was integrating the company. We announced at the meeting that the equity bonus of each member of this group could be increased up to 200 percent or reduced down to zero, depending on their performance as leaders.

We needed buy-in from the group – now rechristened the Integration and Values Team – because we were selling the plan to them, and we needed them to sell the idea to their colleagues.

The Evolving Business Model

A centerpiece of the IBM transformation was exiting businesses that we believed did not fit IBM's business model – from PCs to hard disk drives. In these instances, and many others where we were advancing major reforms, my colleagues and I learned that if we only described the reforms as driven by "re-engineering," we were going to meet fierce internal resistance. Employees needed to hear more detail and, frankly, they deserved to hear how the reforms being implemented were part of a larger strategy to enhance the company's long-term competitiveness.

So as part of our reform agenda, we set out to answer two basic questions: Is there a future for the company? Is there a future for me in the company? When answering the first question, we explained the principles underlying our vision for the globally integrated enterprise. The answer to the second question wasn't quite as simple. For some IBMers, they might need to learn new skills given our move to becoming a globally integrated enterprise. But one of the many benefits of our highly educated workforce was that individuals were capable of doing many different things, and so many of those working in divisions we were selling could be transitioned into new roles.

But the transformation wasn't just about selling off businesses – it was also about reconstituting the company around the principles of the globally integrated enterprise.

I saw that IBM's future was going to be focused on innovation, which meant that rather than being capital-intensive (we weren't going to be building huge new plants), we were going to be human capital-intensive – delivering software and services. So it was even more important than in the past that we hired and retained the best people. But unlike earlier eras, it didn't really matter where these people were or where they came from – we simply wanted them to excel in their work at IBM and we wanted to do what we could to help them excel. And throughout the world, we found that our clients – in the private sector and the public sector - didn't care where the IBM employees supporting them came from. The clients simply wanted talent the world could provide. IBM could do this better than others.

We could deliver a global workforce, but we recognized the need to create a common culture that would ensure consistent values throughout the company, regardless of where our employees were working (That's the "integrated" part of GIE). Our teams, which could include people from a wide range of countries, needed to be able to unite around creating value for our clients.

While costs were not irrelevant to our efforts to develop a global workforce, the most important driver was skills – contrary to what you often hear. We were looking for the most talented and capable workers anywhere in the world, and with rising educational achievement in many developing economies, we were finding a huge pool of talent in locations outside the United States and Europe. These workers had the added benefit of bringing different experiences and perspectives – whether in education or their personal histories – and these character traits were often quite valuable to incorporate into our teams.

Global Shared Services

One of the most straightforward – but crucial – aspects of IBM's transformation into a globally integrated enterprise was turning our support functions – once contained within every unit of the business – into global shared services. It was no longer viable to have every function of the company in every country.

We began a shift toward developing Globally Integrated Support Functions (GISFs). Realizing that support functions separately integrated into each business and geographic unit were inefficient and incompatible with global integration, we sought a way to provide rigorous management of back-office support and shift more resources more quickly to front-line roles that deliver direct client value and growth.

As an example, for most of my career at IBM, we had separate supply chains in different markets. We eventually changed that so that we had a single global supply chain. In our professional services businesses, we traditionally thought about our human capital – our people – in terms of countries and regions and business units. We changed that so we managed and deployed our human capital as one global asset.

Our R&D had been global for many years, with research and software development carried out in labs around the world. We moved away from the classic view of R&D as scientists conducting research in isolation, and focused on having our researchers collaborate hand-in-hand with both external clients and internal business units. Spending roughly $6 billion a year on research and development, we built a global capability with eight laboratories on three continents. In India, we focused on issues such as e-governance, e-commerce, software engineering, and high-performance computing. In Brazil, the labs focused on natural resource management, smarter devices, and smarter human systems. But these labs, like the other ones, looked at all of the issues not through a national or regional

lens, but a global one. In addition to the labs, we also established partnerships – we called them "collaboratories" – with many top universities in China, India, and other emerging market countries. Our collaboration was bolstered by the firm's embrace of open source technology, such as the Linux operating system.

We ultimately transformed all of our support functions (e.g., human resources, information technology, finance, marketing and communications, legal, real estate, sales operations and government relations) into GISFs and used our experience with the supply chain integration to establish a disciplined migration approach. Our focus was to integrate, automate, optimize, and elevate. Here's what that meant:

- Integrate – place all resources under one global leader
- Automate – eliminate non-value-add steps and use tools and technology to streamline the workflow
- Optimize – decide where each process is best performed (locally, regionally or globally)
- Elevate – move resources to higher value-add work to drive further efficiency and effectiveness

The model of shared services caught on. Global procurement was centralized in China. Back-office finance operations moved to Brazil. IBM established Centers of Excellence, for telecommunications, water management, rail innovation and more, which served clients around the world.

Today, IBM shares services among its legal, marketing communications, sales transactions, governmental programs, real estate and other functions. From 2005 through 2010, IBM reduced spending by $4.8 billion through shared services.[lxviii]

This transition helped us segregate transactional and consultative processes, supporting a focus on value-added work. It also created clear career paths and development opportunities in what were traditionally stagnant roles, increasing the caliber of talent we could attract and retain.

More broadly, we started to look at the world, and ourselves, very differently. We sought to identify pools of talent that were high value and competitively priced, and that could be used globally to serve both our internal and client needs. As an example, for IBM Japan human resources began to be carried out in Manila, accounts receivable in Shanghai, accounting in Kuala Lumpur, procurement in Shenzhen, and customer service in Brisbane.[lxix]

In 2008, the transformation journey entered a new phase, with a focus on what Linda Sanford, an IBM senior vice president for enterprise transformation, called "radical simplification." She led an effort to eliminate, standardize, and automate work that added to our complexity and made global integration more difficult. We began to review our horizontal processes end-to-end, looking for greater synergies, simplifying workflows, and moving services and resources into the right channels. The goal here was to increase the speed of our operation through massive simplification.

Linda's work was quite successful. In the hardware product design and development process, the systems portfolio was reduced by 40 percent and features and products were slimmed down by 35 percent. This streamlining is expected to yield $250 million in savings through 2015. And in the sales process, by pooling tasks related to the pre-sales phase into a sales support hub, 10 to 20 percent of seller time was freed up to focus on the client.[lxx] By focusing on the company's global pipeline – where a globally integrated, common process was employed for worldwide reporting – our leadership team gained a weekly view of the company's opportunity pipeline as well as visibility into which units were facing challenges to achieve their targets.

The framework that emerged from our focus on becoming a globally integrated enterprise transformed IBM – from how we managed our client relationships and R&D, to our benefits programs. Everything was focused on providing more choice, more control, more responsibility in the hands of the people who were in the best position to call the shots – not headquarters, but the individual IBMer. In return, we asked individual IBMers to take on greater responsibility for the direction of their own careers, their own learning, their own wellness, their own entrepreneurship, and their own community involvement.

I believed these programs were not only worthwhile, they were also good business. They would make us more competitive and would result in a very powerful "virtuous circle," driving benefits to and from empowered individuals, more agile and innovative companies, healthier and more vibrant communities and a more competitive nation – all reinforcing one another. IBM needed the best expertise and talent, and I believed this kind of program would help us attract the smartest and most creative workforce.

# # # # #

There are multiple explanations for IBM's robust performance over the past decade or so, but I attribute much of it to the company's evolution into a globally integrated enterprise. It made us more efficient, more flexible, faster, and more competitive.

It's easy to look back now and see the wisdom in this transformation. But there were quite a few challenges along the way – both internal and external to the company. Transforming a company

of any size is never easy. And the bigger the company, the more difficult the transformation. There are different transformations for different circumstances, of course. If a company is on its back and struggling to survive, there's going to be less resistance – internally and externally – to wholesale change. But sometimes success can be a company's undoing, as it breeds complacency and an unwillingness or inability to institute the reforms needed to sustain the success. And this applies not just to companies – countless countries have fallen into the trap of basking in their past glories rather than positioning themselves for future growth.

In IBM's case, we were proposing wholesale change even as the company seemed to be on solid footing. But we saw the way the world was evolving, and we were convinced we needed to change in order to seize the opportunities of the future. The change we pursued wasn't just the small, easy, bite-sized stuff. In football terms, we opted to "go long." And we did so because we felt we needed to in order for the company to be viable in the future. We also wanted to ensure that the company was never again facing the financial turmoil of the early 1990s – a period that saw a dramatic reduction in the size of the workforce and prompted widespread discussion of the company being broken up and sold off.

I learned an important lesson along the way: *It's not easy to go to the future.* You need to be confident about what you think the future holds. That said, if a business doesn't have a view about the future, it can't allocate resources to position itself to get there.

While we were confident about the technology shift that was already underway, there was no guarantee we'd be right. But our value proposition was to innovate for clients to make them more competitive – in the present and in the future.

Peter O'Neill, the IBM country manager from Ireland who I quoted near the beginning of this chapter, has spoken eloquently on the difficult process of shaking up a company.

> There's nothing comfortable about transformation. It involves risk and there can be winners and losers. I'm a firm believer that you're far better to embrace change and control how you transform than to try and resist it and have it forced upon you. IBM in Ireland managed to do that. I saw some of our sister companies in other countries take the approach of trying to protect what they held and ultimately they lost out.[lxxi]

My colleague Shanker Annaswamy, IBM country manager of India and our key leader in-country, had a similar understanding of the need to embrace change.

> We were totally focused on market leadership. We knew that in order for us to achieve this, we needed to do some first-of-a-kind (FOAK) things. We needed to be bold, invest smartly but aggressively, and to think about how our actions in India were going to project IBM capabilities elsewhere around the world.

They're both right. One of the reasons Ireland and India have attracted so much investment from IBM (and countless other companies) is the ability of each country to adapt to changing conditions. And that's a powerful lesson, because companies throughout the world always need to be thinking a few steps ahead and how they will shift to take advantage of new circumstances. As Thomas Friedman has written,

> When, as a result of the flattening of the world, so many people have so much connectivity, and so many people have access to low-cost tools of innovation, and so many people are able to tap into each other's markets, workforces, brainpower, and ideas to discover and invent new things – and then quickly disseminate them around the globe – well, then, whatever can be done will be done. So if you have an idea, pursue it. Because someone else will have a similar idea, and pursue it, faster than you think.[lxxii]

Evolving into a globally integrated enterprise prepares companies to meet the innovation challenge, and for IBM – like all other companies – it's a never-ending process. Indeed, the journey has only begun.

I think this also applies to nations. Leaders need to have a sense of where the world is headed and what their country's role will be. This will require having a clear point of view and the fortitude to reallocate their resources accordingly.

Chapter 5
The New Playing Field

In the previous chapter I described IBM's transformation during my time as CEO. Coinciding with this transformation, and helping to drive it, was an ongoing transformation in emerging market countries throughout the world. Their economic models were being revolutionized – shifting away from simply being a source of low-cost labor and instead transitioning into centers of innovation and differentiation, while also deepening their integration with the global economy. Along the way, they were achieving robust levels of economic growth, which was enabling people living in these countries to become consumers and join the global middle class. Hundreds of millions of people were opening their first bank accounts, getting their first cell phones, using their first credit cards. Tens of millions were buying their first automobiles. These were historic developments, and are pretty far removed from economic fluctuations in the United States, Europe and Japan.

At IBM, we referred to these countries as "growth markets," and we saw enormous potential – both in their ability to grow and in our ability to help them realize that growth.

We knew that growth would depend on building and developing infrastructure – not only the IT infrastructure, but business infrastructure for banking, manufacturing, telecommunications, transportation and government service. And we knew that to seize these opportunities, IBM had to be truly global. That meant doing a lot more than setting up sales offices or research facilities in multiple markets, or sending our people on international assignments. Doing business in these countries was (and is) about relationships, not just transactions. It was essential to engage at the level of culture, as well as process. We had to build trust. We had to be integrated on the ground, working shoulder-to-shoulder with local suppliers, governments and communities, and understanding their point of view on business and innovation. We had to help them advance their agendas, not just our own. And we had to train our leaders everywhere to be global leaders.

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While IBM had been doing business in growth market countries for decades before these countries were seen as centers of growth, by 2007 I saw an opportunity – and a need – to redouble our focus on these countries. I asked our senior vice president for sales and distribution, Doug Elix, to create a new structure whereby we could separate out investments, earnings, taxes, and other financial information between emerging markets and advanced economies. Naturally, we encountered significant resistance internally and were given many reasons why drawing this geographic distinction was impossible and couldn't be done. But we moved forward anyway, with Mark Loughridge, IBM's chief financial officer, and his team developing an entirely new operating system for the unit.

In 2008, while visiting China, we brought together more than 500 of IBM's China-based employees for a town hall meeting, which was also broadcast online to all of IBM. I described the new management system, which we were calling the Growth Markets Unit, which was to encompass nearly 150 countries and be based in Shanghai. And soon thereafter, we announced it would be headed by Bruno di Leo, who at the time was our general manager for northeast Europe. Bruno, like me, thrived on being successful outside the traditional model. He was the right executive to lead the growth unit.

With the leadership and support of Doug Elix and Ginni Rometty, who was serving as senior vice president for global business services, we pursued three strategies focused not only on tapping into existing growth markets, but also on creating new ones.

The first element of this strategy was focused on targeting 16 new countries beyond the "BRICs" (Brazil, Russia, India, and China). As part of this strategy, we also broadened our focus beyond the traditional big cities in these countries – opening branch offices in new cities while leveraging the global infrastructure. By the end of 2010, we had opened 103 branch offices in growth markets. And in some quarters, our fastest growth came from these new expansion territories.

The second element of our strategy focused on helping countries develop their IT infrastructure, which we saw as a catalyst for higher levels of economic growth. We knew that the mass migration of tens of millions of people from rural to urban areas was creating high demand for banking, telecommunications, transportation, and energy. Our goal was to provide the IT that supported the build-out of this infrastructure. That meant high-end systems, software solutions and large services projects. Some examples include:

- In China, we worked with Peking University People's Hospital to build an evidence-based, patient-centric care system that enabled resource sharing among service providers for improved patient care.
- In India, we worked with a state infrastructure development agency, Keonics, to deliver a mainframe-based education solution that enabled the government client to offer a more sophisticated, advanced technical curriculum to their corporate clients.
- In Africa, we extended a relationship with Bharti Airtel to provide IT solutions to its employees across 16 African countries (more on that below).
- In Ethiopia, we reached a strategic agreement with Commercial Bank of Ethiopia to modernize its core banking systems.
- In Ghana, we reached a collaboration agreement with the University of Ghana to foster new entrepreneurial approaches to education and R&D, and to support the adoption of new technologies such as cloud computing and business analytics.

The third element of this strategy was to develop expertise and leadership in those industries we believed would be most relevant in the growth markets. These industries included banking, energy and utilities, healthcare, transportation and rail, and natural resources. We hired industry experts and experienced professionals, while also training our employees to deepen their knowledge of these industries.

To bolster our work in growth markets, we had opened a facility devoted to developing skills and jobs in areas that hold significant business potential for IBM. This "integrated delivery center" (IDC), located in South Africa, sparked the creation of 500 new jobs and continued to increase local employment, while providing services to more than 250 businesses in South Africa and elsewhere. As part of the effort, IBM also established a graduate program for financially challenged students, helping to foster their professional careers. Based on its success, the South

Africa IDC became the model for the establishment of IDCs in Argentina, Brazil, China, Egypt, Vietnam and other countries worldwide.[lxxiii]
IBM's expansion in growth markets stemmed, in part, from their economic expansion. But the expansion was also a byproduct of IBM's ability to deepen our engagement in these economies in rapid fashion, thanks to the GIE structure. We didn't have to deal with the usual back-office issues that usually arise when expanding operations in a country – we could get right to work on selling to clients and carrying out the work.

The new unit helped us place renewed emphasis on these markets, with a focus on driving differentiated strategies and operational excellence that would help us capture opportunities in these fast-growing economies, while simultaneously helping them achieve accelerated growth. In 2008, the Growth Markets Unit generated more than twice the revenue growth of IBM's major market operations.[lxxiv] And by 2011, growth markets accounted for 22 percent of IBM's geographic revenue – up from 11 percent in 2000. By 2015, growth markets are expected to approach 30 percent of the company's geographic revenue.[lxxv]

Investing in India
During my time as CEO, India became a centerpiece of our work in growth markets. Our experience in India was (and is) a key part of the globally integrated enterprise storyline.

IBM first established a presence in India in 1951, with the creation of a hardware manufacturing unit. But in the mid-1970s, India's Foreign Exchange Regulation Act required foreign-owned companies to reduce their equity ownership – and IBM's share was slated to decline to 26 percent. Rather than submit to this punitive measure, we opted in 1978 to begin conducting business in India as an off-shore entity only, through a Liaison Office, operated by a handful of local employees.[lxxvi] While this was a volatile period, our presence in India during this period was valuable. It expanded our global footprint and it built a constituency for computers in India. "In the nearly 25 years that IBM operated in India in the first phase," wrote an Indian newspaper (*Business Today*) in 2011, "it helped create a computer culture and pave the way for introduction of computers on a large scale. It created of a pool of highly trained computer professionals in systems engineering, programming and maintenance, and IBM's training programmes helped develop basic knowledge about programming."[lxxvii]

Once the process of deregulating India's economy began in earnest in 1991, the country's economic growth rates rose, and we formally re-entered the Indian market through a joint venture with Tata Information Systems. But the effects of deregulation went beyond a more open door to non-Indian companies. Local outsourcing companies such as Infosys, TCS, and Wipro started to flourish, and they posed a competitive threat to IBM and other global service providers by offering lower-cost system integration and outsourcing.

So we decided to engage in this competitive battle on two fronts. First, we focused on reducing the cost and improving the quality of our service delivery, recognizing that India could be a large market for our services. Second, we positioned the company in India not as a low-cost provider but as a creator of breakthrough technology and deeper client solutions – often by drawing on the highly-skilled domestic labor pool to be competitive in global services. India quickly emerged as a high-growth center for IBM. Consistent with what I mentioned earlier, we didn't just enter the Indian market – we also helped create a market.

In 1997, we launched IBM Global Services, offering a range of IT services that included networking services, outsourcing, education, system integration, consulting, software development and hardware design. The following year, we launched the IBM School of Enterprise-wide Computing at the Indian Institute of Information Technology (IIIT), to offer short-term courses to the public and credit courses on enterprise-wide computing to graduate and undergraduate students. Around the same time, we also established the IBM India Research Laboratory in New Delhi, on the campus of the Indian Institute of Technology (IIT).[lxxviii]

IBM Global Services was particularly important, because we were seeing that services businesses were less inclined to rely on their global headquarters for research labs. So we set up research labs in 1998 and 2001 and co-located them with our services business. And as part of our business process services, we developed the tools to mine the structured and unstructured data that was coming in, which helped us offer insights to clients. These were the game changers.

A key moment for IBM in India, and for IBM's evolution into a globally integrated enterprise, came in 2004, when Bharti Airtel, South Asia's leading mobile communications provider, selected IBM to run IT and applications for its entire network in India. There had never been initiative like this at a telecom company. It freed Bharti from having to focus on infrastructure maintenance or systems management. Instead, it could do what it did best – develop creative pricing models and innovative services for current and prospective customers.

Our growing presence in India coincided with a number of Indian technology companies – including those I mentioned earlier – becoming very successful throughout the world. They didn't care for having an American company play on their turf, and they began making statements about how they were planning to go head-to-head with us. Indeed, one CEO said that his company would do to IBM what Toyota did to General Motors. I welcomed the challenge to achieve market leadership, and while we were lagging in areas such as servers and storage I was confident we would prevail. Indeed, in 2005 I promised the head of our India operations, Shanker Annaswamy, that when IBM could be certified as the largest IT company in India, we would hold a major event in the country to celebrate our success. At the time, we employed about 3,000 people in the country.

By early 2006, we had charted enough progress that I gave a green light to the meeting. I wanted it to send an unmistakable message that we were committed to India and the Indian market. So we had to find a setting large enough to accommodate the thousands of people we expected. I also wanted our time in India to include a meeting of Wall Street financial analysts.

I knew it was a bold move, and I knew that it was probably going to meet stiff resistance internally. It did. I was told the analysts wouldn't come and that staging such an event would be a logistical nightmare. I understood the resistance, but was determined to overcome it. We eventually brought on the team of experts who oversaw logistics for IBM at the 2000 Olympics in Sydney (where IBM was the chief technology provider and needed to build a massive operation to support our technology). As I mentioned in this book's introduction, the team settled on the Bangalore Palace, a 45,000 square foot venue, set on grounds covering more than 450 acres. (The grounds have been staging areas for concerts by many big-name performers, including the Rolling Stones and Elton John.) We still needed to build a road to get to the venue, and retrofit the facilities in a variety of ways (such as building a fully functioning kitchen). Nothing was left to chance. Anyone who accepted our invitation was met at the airport, driven to their hotel, driven to the event, and driven back to the airport for their return flight. Altogether, 1,500 people worked on making the event happen – and it showed.

BusinessWeek described it as "a cross between a U.S. Presidential visit and a rock concert."[lxxix] We erected a tented venue that could accommodate nearly 11,000 people. Of these, about 10,000 were our Bangalore-based employees. The visit reflected that IBM was the largest global employer in India, with 53,000 employees (up from 9,000 in early 2004). In 2004, we had spent $160 million to acquire an outsourcing firm, Daksh eServices, which had 6,000 employees. Within two years, the operation had expanded to 20,000 employees. And we were realizing strong growth in India. Revenues increased 45 percent in 2004 and 55 percent in 2005.

The centerpiece of my speech in Bangalore was an announcement that IBM would increase its investment in India from $2 billion over the previous three years to nearly $6 billion in the three years that followed. The increased investment was directed at the following:

First, I announced that we would be establishing the first in a new breed of Service Delivery Centers in Bangalore, deploying new processes and technology that automated IT service delivery to provide clients with enhanced flexibility and increased worldwide access to skills, service offerings and continuous availability at lower cost. These centers were part of an IBM entity (the Global Delivery Research and Development organization) that paired researchers from its eight worldwide labs with services delivery experts. The objective was to reinvent

service delivery for IT by creating a virtual global delivery platform unifying IBM's entire network of IT delivery centers.

The technologies we deployed in India were eventually rolled out to IBM services centers throughout the world: Boulder, Colorado, U.S.; Bratislava, Slovakia; Brno, Czech Republic; Buenos Aires, Argentina; Dublin, Ireland; Hortolandia, Brazil; Johannesburg, South Africa; Shenzhen, People's Republic of China; and Szekesfehervar, Hungary.

Second, I announced that we would locate a Telecommunications Research & Innovation Center at our India Research Lab in Delhi. The center was designed to focus on such areas as advanced analytics to identify useful information from telecom call center records, network management technologies for improved transaction process monitoring, and technologies to allow telecom companies to offer location-based services to their customers.

Third, we pledged to increase the capabilities and staff of the High Performance On Demand Solutions Lab in Bangalore, a first-of-its-kind lab in India that connected IBM's top consultants, developers, engineers and researchers in India and around the world. Customers would bring their applications to this dynamic infrastructure lab to validate their performance, scalability and solutions needs before deploying them in a business environment. The specialists at the HiPODS team then worked with the customers to fine tune their application to facilitate optimal performance. The lab and other IBM HiPODS Labs located in various regions of the world facilitate billions of transactions every day from the company's many high-volume customer engagements.

As we moved forward with these initiatives, our work with Bharti Airtel continued, and the company was experiencing explosive growth: its customer base increased from six million in 2004 to more than 225 million in 2011.[lxxx] The relationship deepened in 2010, when Bharti Airtel announced the selection of IBM to consolidate 16 different IT environments across the company's African operations into an integrated IT system, while also overseeing the management of all of Bharti Airtel's African applications, data center operations, servers, storage and desktop services.

One of the many reasons we invested in India was the vast reservoir of local knowledge and talent that could be deployed in ways that would benefit both the country and IBM. The IBM India Research Lab had devised a tracking system used by global shipping companies, a warranty maintenance system used by U.S. car companies, and vocalized websites (the so-called "Spoken Web") used by the illiterate and the underprivileged.[lxxxi] Our confidence in India led us to take a mostly hands-off approach to companies we acquired, allowing them to keep doing what had made them a success. In the case of Daksh, the company's boss, Pavan Vaish, told *The Economist*, "[IBM] studied the way we did business and said we don't have to do everything here

the way we run our other businesses. Certain core functions were added, such as finance, but the rest was left alone."[lxxxii]

Some people assumed we were making large-scale investments in countries such as India (and not China) because we were betting on democracy versus central planning. But the deeper truth was that were making a bet on those countries like India that we thought would actively engage the global economy – and, as a result, would pursue certain policies in order to maximize the opportunities from that engagement. Just as important as the country's political system, elected officials and regulators needed to be consistent and pragmatic in their policy posture. Companies can adapt to policies that may be far from perfect. The real costs arise when these policies take a dramatic and rapid change for the worse. Thus, we needed to have confidence that the policy environment was not going to become hostile. We saw a commitment to consistency and pragmatism in India. Among the political class, we also saw an understanding of the nexus between investment, economic growth, and an expanding middle class.

Empowering our People and Lowering our Center of Gravity

As part of our commitment to deepening our presence in growth markets such as India, we recognized that our work would need to be highly collaborative, highly attuned to a multiplicity of cultural differences, and more fluid and less hierarchical than the norm. So in January 2008 I asked a group of 26 leaders – drawn from the Integration and Values Team – to address specific challenges and opportunities related to IBM becoming a globally integrated enterprise. The team, known as IVT5, had a mission to create an external and internal environment that would develop and enable IBMers to seize opportunities presented by the global era.

A key element of our GIE strategy was ensuring that the global focus filtered through the company to the local levels. The goal was for IBMers to become global IBMers. The members of IVT5 took a comprehensive approach. They reviewed more than 150 data sources, interviewed more than 600 IBMers from 31 countries, and talked with clients, governments, partners, students, academics, and NGOs. They posed difficult questions:

- How do we ensure and expand market access?
- What are the characteristics of successful global leaders?
- What defines global experience?
- How do employees collaborate in the new world of work?
- How does the relationship between IBM and the employee evolve?

The group ultimately recommended creating new multi-country, multi-discipline Global Enablement Teams (GETs), each comprised of four or five senior executives from multiple geographies who would work side-by-side with a particular Country General Manager. The

goal was to develop global leaders for the 21st century who could adapt to new cultures, leverage company-wide capabilities, and enable IBMers to execute enterprise strategy even in times of uncertainty. The teams would typically visit their countries once or twice a year, supplemented by individual member visits. Between these visits, the teams would maintain contact by working on specific initiatives and forming one-on-one mentoring relationships with country leaders.

As we entered new markets, we wanted our people to be prepared to work together, with everyone, at different levels, doing a bit of everything. But given the hierarchical traditions that existed in many of these countries, we knew we needed to create a culture in which this cooperative spirit would be embraced. We knew we needed to integrate talent and resources at the executive level to support a lower center of gravity.

The teams were launched between 2008 and 2010 in a cross-section of countries: Brazil, China, Egypt, Poland, Ghana, India, Malaysia, Nigeria, the Philippines, Romania, South Africa, Tanzania, Turkey and Vietnam. These teams mentored country managers and helped them develop relationships with major clients. They also became involved in projects focused on enhancing the skills of local managers and helping them understand the full range of IBM's resources.

Here's an example of how it worked. In South Africa, IBM's chief information officer worked with local leaders on advising government officials on issues such as the design of an integrated financial management system that would cover all of the country's agencies. He was assisted by top IBM software architects who had designed such systems, and when the government moved ahead with its project IBM won some of the contracts.[lxxxiii]

To develop a set of recommendations, the global engagement team spoke face-to-face with hundreds of IBMers in more than 30 countries, as well as clients, business partners, university faculty and students (potentially future IBMers), and government leaders. Their rich input informed the creation of a deployment model to guide employees in attaining the correct type of global skills relevant to their job roles. Working with Human Resources, the team developed a holistic approach designed to include every IBM employee worldwide. Skill needs were grouped according to the degree of an employee's participation in global activities.

One of our key goals was to empower and enable our people to make decisions and to act. As I mentioned earlier, we called this "lowering the center of gravity" of the company – that is, trusting IBMers and pushing decision-making authority out and down.

At this time, IBM was like virtually every other multinational company – it developed global leaders by sending executives and their families on one- to three-year assignments to

countries where they typically lived in corporate enclaves isolated from the realities of their host countries. Overseas placements like this would typically cost IBM and other corporations more than $1 million per employee per year — all in. They also required back-filling the jobs back home. That approach was no longer affordable or desirable.

IBM needed to develop thousands of global leaders who understood how to function in sometimes gritty and often confusing emerging markets. The idea was to force people out of their comfort zones by placing them in modest accommodations in an alien environment with a team of peers – and demand quick results. IBM wanted them to have a transformative experience, so they would be shaken up and walk away better equipped to confront the challenges of the 21st century. They'd be better listeners – and more flexible and adaptive.

Another initiative that emerged was the launch of the Corporate Service Corps (CSC). It was primarily as a vehicle for leadership development and corporate social responsibility. Under the CSC, small teams (8-15 people) of high-performing, non-executive employee volunteers would be sent on single-visit, short-term global assignments. They would work with government, business and civic leaders in emerging markets to help address high-priority issues. They would also help grassroots organizations serving entrepreneurs and artisans.

The CSC and an off-shoot, the Executive Service Corps, quickly exceeded expectations. In addition to improving IBM's standing in communities and equipping IBMers for the challenges of working in a global organization, these initiatives were cogs in the GIE machinery.

Teamwork was an essential part of the Corporate Service Corps experience. In the crucible of a team of strangers, without an assigned leader, operating on deadline in a foreign setting, powerful lessons about collaboration are learned and strong bonds are created. The team members would be challenged to become a new kind of leader.

A survey of participants conducted in July of 2011 revealed a high level of enthusiasm and satisfaction. Of 575 people who responded, 88% agreed or strongly agreed that their CSC involvement had enhanced their leadership skills and 94% said it had expanded their cultural awareness. Ninety percent said it had increased their understanding of IBM's role in the developing world, and 76% said it boosted their desire to complete their business career at IBM. "This CSC experience made me challenge my assumptions, disrupted the regular routine ways of doing things, and introduced me to new and unexpected ways of thinking," said one participant. "I am returning back to IBM with fresh ideas, new business skills and a greater capacity for addressing the challenges that I may face in the future."

The program has had clear benefits for not only the participants, but also the areas where the participants have served. In July 2011, the government of Kenya launched the Kenya Open Data Initiative, a free Internet service cataloging and displaying a wide variety of information about the country - including demographics, government expenditures, parliamentary actions, health care, education and the economy. The Open Data Initiative was aimed at strengthening the country's democratic institutions and economy. It's the first such government transparency move in all of sub-Saharan Africa.

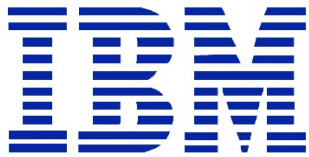
Kenya's government leaders deserve the credit for this bold gesture, but they received vital assistance from a succession of CSC teams in 2010 and 2011. The teams helped Kenya's ministries craft their initiative and helped set up a related digital village program that makes the data available to many thousands of Kenyans who don't have computers and Internet access. "IBM's Corporate Service Corps is helping us set our strategic direction in the investments in information and communications technology in this country," said Dr. Bitange Ndemo, permanent secretary, Kenya Information and Communications Ministry, in 2011. "They're helping to redirect the e-government strategy in Kenya."

The program has also been strategic for IBM's business leaders in Kenya. Anthony Mwai, who served as IBM's country manager for East Africa, has said the CSC helps build long-lasting relationships. "These engagements have opened up access to government officials that we didn't have in the past. We're having different conversations than normal hardware and software conversations. We're talking about what kind of societal impact IBM can have that is aligned with a national agenda."[lxxxiv]

# # # # #

A key factor in the success of IBM's growth markets strategy was that it built on the company's history. Of course, IBM has been *international* practically since the company was founded (don't forget that the "I" in IBM stands for "International"), with operations in 19 countries after just nine years. But as I've explained, international is not the same as multinational, and multinational is not the same as global. A truly global mindset, complemented by different skills and behaviors, more collaboration, greater focus on a multiplicity of cultural differences, and less hierarchy, would be required. We also saw the need for the company to become fully invested in these markets – helping them to grow through better schools and more modern infrastructure. And perhaps most important of all, we placed renewed emphasis on tapping into the wealth of knowledge and insight possessed by the people living in these markets, as they were best equipped to deliver the products and services that would help make IBM not just another multinational company but rather a trusted partner that could deliver long-term value to countries and their citizens. I cannot

emphasize enough the importance of trust in today's environment. It will only be built through the actions of a company and its employees.



Chapter 6
The World of GIEs Beyond IBM

Throughout this book I've documented IBM's history and its transformation into a globally integrated enterprise. But IBM is far from the only company that has adopted key GIE principles and practices. In fact, a number of companies, operating across a diverse set of countries and industries, have implemented measures that resemble those we adopted at IBM. That's not because we showed them the way, but rather because their own experiences led them to the same conclusions: that companies need to be global in order to stay competitive, but need to do so in ways that keep them close to their customers while also emphasizing values and principles that foster agility, innovation, and productivity.

In this chapter, I showcase three companies that are following this path: Cemex of Mexico, a leading producer of cement and other building materials; Bharti Airtel of India, one of the

world's most dynamic cellular telephone providers; and Geely of China, which is making major inroads in the global car industry thanks to innovative products and management.

The CEMEX Way

One of the most innovative and successful companies of the past two decades sits in the middle of an industry that is all around us but largely invisible to many: cement. The company, CEMEX, has evolved from a small, privately owned company serving only its home market of Mexico into a large, publicly traded global leader in the production, distribution, and selling of cement, ready-mix concrete, aggregates and related building materials. Headquartered in Monterrey (about 120 miles from the border with Texas), it now operates in more than 50 countries spread across the Americas, Europe, Africa, the Middle East, and Asia and employs about 43,000 people. In 2012 its sales were close to $15 billion, making it the third-largest cement producer in the world. It is also the largest supplier of cement and ready-mix concrete in the United States. Its embrace of GIE principles is found in its impressive transformation.

CEMEX was founded in 1906, but did not start its international expansion until it acquired two Spanish companies in 1992 (other leading cement companies had gone global decades earlier). The CEMEX decision coincided with the North American Free Trade Agreement (NAFTA) among the United States, Mexico, and Canada. Seeing that the agreement was likely to become law (the U.S. Congress still had to approve it), CEMEX executives recognized that the tariff liberalization in NAFTA was going to usher in more robust competition in its home market. And that was a catalyst to pursue even more international acquisitions over the next few years – in Venezuela, Panama, the United States, and many other countries in the years that followed. "We had to take risks that a lot of people thought were too high," the company's CEO, Lorenzo Zambrano, later told an interviewer. "But we knew that if we did not take those risks, we would not survive as a company."[lxxxv]

While IBM worked with CEMEX during my time as CEO, it wasn't until six months after my departure as CEO that the two companies reached a comprehensive agreement to advance CEMEX plans for deeper global integration. I had the pleasure of working with Lorenzo, who was elected to IBM's board of directors in June 2003. He is a farsighted leader and an excellent manager.

Lorenzo's drive to globalize CEMEX stemmed, in part, from his own experience studying outside Mexico (he is a graduate of Stanford Business School). "I learned there are other ways of thinking – and also what the competition would look like later," he told the author of *The Emerging Markets Century.*[lxxxvi] "I became convinced that it is important for future managers to spend some time outside their own country." Today, Lorenzo's conviction has shaped a cadre of executives with extensive international experience.

As CEMEX has expanded throughout the world, it has adopted many policies and practices that advance the company's global integration, though it emphasizes a "country-centric" approach to management and operations. These policies were not foisted on them by IBM or anyone else (Indeed, much of what CEMEX adopted predated IBM's own transformation into a globally integrated enterprise). CEMEX implemented the reforms after seeing that they would help maximize agility and productivity in their global operations, while keeping the company close to its customers and reducing costs.

As the company has grown, it has continually refined these policies and practices, and that process continues, with some functions being globalized (such as Finance and Process & IT) even as regional presidents press for greater autonomy. This struggle between "localization" and "centralization" is natural (I certainly encountered it at IBM) and even healthy.

One idea that may help resolve the differences is the internal collaboration networks CEMEX launched a few years ago, which are focused on fostering and articulating deeper knowledge-sharing among the members of its global workforce, a version of global integration 2.0. The networks are enabled and supported by a platform (described in more detail below) known as "Shift," which is already showing signs of improving country-level execution while simultaneously advancing synergies throughout the world.

The CEMEX Way of Going Global

While the CEMEX of today is dramatically different than the CEMEX of two decades ago, one constant has been the company's values. Lorenzo and his colleagues recognized that as CEMEX began acquiring companies outside Mexico, the employees dispersed throughout the world needed a set of values that would serve as connective tissue. In 1998, CEMEX decided to review and document its corporate values. In order to do so, a multi-cultural and multi-disciplinary team partnered with 2-3 representatives from the countries where the company had operations. Facilitating the process were faculty members from a leading Mexican university, IPADE.

The team agreed to the values of Leadership, Integrity and Collaboration, and they became the foundation and inspiration for the rest of the CEMEX Code of Ethics. The Code was launched in 2000 at an event hosted by CEMEX senior management. During the event, executives and employees signed the Code of Ethics and formally committed to the highest ethical standards. The Code was subsequently translated into all of the languages used by CEMEX employees, and ever since it has served as a pillar of the company's activities throughout the world.

But even a common set of values could not shield CEMEX from the inevitable challenges that arise when a company is expanding throughout the world. CEMEX discovered that an inconsistent integration process often followed its acquisition of other companies. Business units

were independent of each other and they relied on local banks rather than in-house facilities. There was also little communication with the accounting department.[lxxxvii] Lorenzo revealed in a 2002 interview that:

> Each [subsidiary] company had developed its own subculture, not a single CEMEX culture. . . . At each CEMEX plant we had a manager and an accountant. Each plant had its salesmen and each plant was fighting for territory. . . . With time, it would be harder for the systems to integrate, to communicate, and harder for people to move from company to company.[lxxxviii]

These shortcomings were a catalyst for CEMEX to restructure all of the company's treasury departments spread throughout the world, putting them on a single server accessible by all of the company's business units. There were many benefits to this change, as a CEMEX treasury official later wrote:

> [Our] subsidiaries are governed by their respective regional treasuries, which run according to the global treasury strategy as defined by the Corporate Treasury at head-quarters in Monterrey. Each subsidiary is now also using CEMEX's in-house banks, which has been facilitated by the new system environment. We can now monitor the financial exposure of the company on a daily basis. With centralized access to accurate and complete data, we have improved reporting, and we are able to make better use of third-party tools, such as, risk management modelling, which we now perform on a daily basis. This was not previously possible without the consolidation of all information.[lxxxix]

Over time, CEMEX developed an even more comprehensive approach to ensuring that its acquired companies were smoothly integrated. Known internally as "PMI" (post-merger integration), the process has been a critical element of CEMEX's global growth. An MIT case study has captured the key themes:

> While typically 20% of an acquired company's practices were retained, instead of eliminating the 80% in one swift motion CEMEX Way teams cataloged and stored those practices in a centralized database. Those processes were then benchmarked against internal and external practices. Processes that were deemed "superior" (typically two to three per standardization group or 15-30 new practices per acquisition) became enterprise standards and, therefore, a part of the CEMEX Way. As one industry observer noted, CEMEX's strategy sent an important message of, "We are overriding your business processes to get you quickly on board, but within the year we are likely to take some part of your process, adapt it to the CEMEX system and roll it out across operations in [multiple] countries." By some estimates, 70% of CEMEX's practices had been adopted from previous acquisitions. . . .

> A key feature of the PMI process was the strong reliance that CEMEX placed on middle-level managers to both diffuse the company's standard practices and to identify existing capabilities in the acquired firms that might contribute to the improvement of CEMEX's current capability platform. PMI teams were formed ad-hoc for each acquisition. Functional experts in each area (finance, production, logistics, etc) were selected from CEMEX operations around the world. These managers were then relieved from their day-to-day responsibilities and sent, for periods varying from a few weeks to several months, to the country/ies where the newly acquired company operated. Because these managers were the ones who *did* at home what they were teaching newly acquired firm's managers, they were the best teachers as well as the most likely CEMEX employees to identify which of the standard practices of the acquired firm might make a positive contribution if adapted and integrated into the CEMEX Way. On the other hand, because they were seen as the best and the brightest within CEMEX, these managers had the legitimacy to propose and advocate for changes in the firm's operation standards in a way that no other manager could. Hence, PMI team members were low enough in the organization that they were in a unique position to identify and evaluate different ways of doing things. At the same time, however, these managers were high enough in the organization that they could effectively "sell" the value of changing a particular practice to corporate level managers.[xc]

The PMI process highlights the way in which CEMEX has been globalized through a process that embraces local focus. This is an important element for many globally integrated companies – recognizing the need to (as we said at IBM) "lower the center of gravity" within the company and vest regional middle managers with greater decision-making power.

The PMI process also underscores the CEMEX focus on constantly striving to improve internal organization, operations, and management. Based on the company's path of expansion and integration in the late 1990s and 2000s, Lorenzo understood how the company's growth needed to be enabled by technology and he was committed to using state-of-the art applications for CEMEX. But CEMEX also knew that beyond great tools and applications, it is business processes that actually make the difference between success and failure. Through the years, CEMEX had consolidated its process integration and standardization practice, becoming not only a leader in building solutions using an integration software platform to share information globally but also becoming a leader in processes development and management practices. CEMEX's process implementation discipline was a key corporate strength and driver of the company's success in the 1990s and 2000s.

More recently, Lorenzo and his senior colleagues have been focused on making the company leaner and more nimble. As CEMEX observed in its 2012 annual report,

> We are simplifying and delayering our corporation to accelerate our decision-making, improve our efficiency, and position our operations as close as possible to our customers. For example, in the U.S., we reshaped our organization, narrowing our executives' geographic scope, while greatly increasing their spans of control. This ensures that our decision-making and execution are more efficient, our executives enjoy enough room to act quickly and effectively, and they are as close as possible to the markets in which they are operating.[xci]

Emblematic of CEMEX's commitment to continual reinvention (and consistent with the principles of a globally integrated enterprise) was the company's decision in mid-2010 to pursue a new business process model. The result helped to integrate the company's operations.

> CEMEX's previous operational model involved an organization where each business unit (i.e. cement, concrete, and aggregates) had its own logistics, materials, and commercial pillars involving operationally siloed "vertical" processes. Vertical operational processes spanning from this core structure were tied to diverse product lines and replicated horizontal activities such as planning, distribution, and production. The new business model adopted by CEMEX operates on an accurately defined set of end-to-end "horizontal" processes that extend over all business units based on a single technology and process best practice, resulting in minimal customization.[xcii]

With this new business model "CEMEX accelerated its ability to define and implement new business processes. Once a process template is defined, it can be adopted in all geographies and business units simultaneously with the right mix of global standardization and local adaptation."[xciii]

Further proof of CEMEX's commitment to reinvention was its 2012 agreement with IBM. The agreement calls for IBM to deliver world-class business process and information technology services. Additionally, IBM provides to CEMEX business consultant services to detect and drive sustainable improvements in profitability, using the entire breadth of IBM's capabilities, including R&D expertise. The 10-year agreement is projected to generate close to $1 billion of savings for CEMEX. Equally important, the agreement will help to globally integrate a range of functions, operations, and services: IT infrastructure, application maintenance, finance administration (this includes accounts payable, travel and expenses, and billing) and human resources administration.

Global Integration 2.0

The centerpiece of CEMEX's ongoing efforts to advance its global integration process and position the company for future competitiveness is the application of social networks for

business purposes. In 2009, after integrating an acquired company, RMC (a large UK-based heavy construction materials company with operations in more than 20 countries), Lorenzo challenged his innovation team: "We need a much more agile and globally integrated company, a company that is able to apply globally the knowledge and experience spread in our businesses worldwide at the fastest speed possible."

The company launched a global innovation process in 2010, with Lorenzo defining five global networks and appointing leaders who would focus on developing and articulating these networks. The networks were supported by a platform called "Shift," which is a platform for open collaboration that's focused on identifying, exploring, developing, and applying ideas and expertise residing in the company's global workforce. "We started the whole process of global initiatives with this platform," says Fernando Gonzalez, the CEMEX chief financial officer. "And we packaged the whole idea as an innovation process."

Shift enables the company's employees to share opinions, thoughts, information, experience, knowledge and best practices. CEMEX found that this global network model could break down the traditional barriers to collaboration such as language, cultures, time zones and organizational hierarchies. The effect was unprecedented business agility.

Since CEMEX has opened the platform to all employees, the idea has gone viral, with more than 2,800 virtual communities growing organically. Wikis (CEMEXpedia), blogs, discussion forums, file and video sharing, social projects, idea management tools, gamification, social recognition, surveys, activities, community calendar, translation, employee directory are being used in each of these communities as a means to solve local problems with global talent, and share and store the knowledge generated. CEMEX estimates that Shift is used by *all* of its 24,000 online employees.

Here's how the company describes the impact of collaboration networks:

> A large number of new ideas are now having exposure and transparency in Shift. Ideas not only come from top management but from employees at every organizational level. Positive feedback is received to find areas of opportunity, as well as negative feedback to find ways to improve the collaboration among employees. Since Shift's launch, a few idea jam sessions have taken place where hundreds of employees have posted their proposals for consideration. At the same time, a series of Global Innovation Initiatives, teams that seek new ways to reach global strategic goals, were established. The progress of these initiatives has been closely followed up by all Shift users, as they are setting the pace for innovation through collaboration. Their value lies not only in the new solutions they may find to their challenges, but also in proving the value of collaboration through Shift.[xciv]

CEMEX also credits its Global Collaboration Network (GCN) model with enabling knowledge-sharing about a key innovation at one of the company's plants in Germany. The plant had become an industry leader in the use of alternative fuels, and through GCN the company spread knowledge and understanding of these fuels throughout its global operations. In May 2013 CEMEX proclaimed that its alternative fuel strategy had enabled it to avoid the use of 2.3 million tons of coal and the emission of 1.8 million tons of carbon dioxide into the atmosphere.[xcv] The strategy had also contributed to $100 million in company-wide savings and made CEMEX the leader in alternative fuels in the cement industry.

Another breakthrough credited to the GCN was the development and launch of three global ready-mix brands in record time: Promptis, Insularis, and Hydratium. The company created a global knowledge base with technical and commercial strategies to replicate new products in all operations in CEMEX. The percentage of sales of value-added products increased from 8.5% in 2006 to 30% in 2012. This network formed around the Ready Mix business also defined a new pricing strategy aim to increase profitability.

The applied technology underpinning the GCN enabled a new way to manage a global company – virtually linking thousands of people in all CEMEX geographies around commonalities, complementary skills, and specific business targets. A new managerial culture started to emerge, where people at every level could post their ideas with the certainty that they would have an echo with colleagues across the globe. The effect, said CEMEX, was a flatter, more nimble, and more agile company that could quickly adapt to the market's requirements and develop innovative products and services for its customers.

The Bharti Airtel Breakthrough

The cellular telephone market in India is among the most dynamic in the world. In the span of just ten years (2002-2012) the number of mobile phone connections in the country increased from about four million to more than 900 million[xcvi] – sparking nationwide change that has improved lives in ways big and small. And while India's cellular market is fiercely competitive (like almost everything in India), it's generally understood that the most dynamic company in this dynamic industry is Bharti Airtel.

The company started operating in 1995, offering service only in Delhi. In 2001, India's federal government granted it a license to operate as a mobile provider in Mumbai and seven other areas. By March 2002, the company had 1.5 million mobile subscribers. A year later, the number of subscribers had more than doubled, to nearly 3.5 million,[xcvii] and the explosive growth has continued ever since. Today Bharti Airtel is India's largest wireless telecom provider, with more

than 196 million subscribers as of November 2013. When coupled with its subscribers outside of India, it is the fourth-largest mobile service provider in the world.

Many factors have contributed to Bharti Airtel's success, with skilled management being at the top of the list. During my time as CEO, I had extensive contact with the company's founder, Sunil Bharti Mittal, and found him to be extremely insightful about his company, the technology industry, and global economic trends. He brought strong entrepreneurial and non-traditional thinking to our work. I knew I could rely on him for clear and bold thinking, high energy, and passion for results. He also had an inspiring vision for the company, which Bharti Airtel's Managing Director and CEO (International), Manoj Kohli, described a few years ago:

> This company is about change. Bharti Airtel, when it was launched in '95, started with an entrepreneurial spirit, which is very important for any new company. We also started with a lot of passion and enthusiasm of our employees for success. The culture we built, and the DNA we built, initially was very change-oriented. We believed that you should love to change; you should embrace change; you should not worry about the side effects of change. If you change faster, you'll be able to get on top of the market. . . . Luckily for us, our competition was slow. They were large companies; they were bureaucratic, hierarchic, and not eager to change. Change, and the speed of change, actually became the biggest weapon of Bharti Airtel.[xcviii]

Sunil surrounded himself with innovative managers who were the architects of pioneering agreements with IBM and other companies. These agreements, which I describe below, helped to transform Bharti Airtel and create a business model that is the envy of many companies in India and throughout the world.

# # # # #

When IBM first started talking with Bharti Airtel in 2003, India's telecom market was in its early stages. There was a massive opportunity for any company that could help build out the country's telecom infrastructure and navigate its complex market structure. Bharti Airtel understood that seizing the opportunity depended on not doing business as usual.

It became apparent to the IBM team, which was working directly with Sunil and his colleagues, that a balance was needed if Bharti Airtel was going to succeed.

> Bharti Airtel was the only operator to offer its services (mobile, fixed line and Internet access) in each of India's 22 "circles," or operating areas. While this wide service footprint made Bharti Airtel especially well-positioned to capitalize on India's telecom boom, it also presented the company with significant challenges and risks in addressing this demand. In order to keep up, while also maintaining high levels of customer service, all the processes required to run its business – from order management and service activation to those processes involved in the operation of its core network – needed to run smoothly and in sync with each other. With the company approaching a new phase in its

> growth as a business, and with the need for a compelling user experience of utmost strategic importance, Bharti Airtel knew it needed to take a fundamentally new look at the way it created and managed its customer-facing processes.[xcix]
>
> The company's other big challenge was the need to make the major investments in IT infrastructure required to service its rapidly growing base of subscribers. As a capital expenditure, these investments are typically offset by the future service revenues that they enable. But in addition to the inherent risks of a large fixed investment, Bharti Airtel faced an added financial risk from a steady decline in India's average revenue per user (ARPU) for mobile telecom services, the result of government-mandated pricing changes that created – at roughly eight dollars a month – one of the lowest ARPUs of the region. Thus, while Bharti Airtel knew it needed to invest in its future growth, factors unique to the Indian market substantially increased the risks of making these capital investments.[c]

To help address these issues, Bharti Airtel struck an agreement that called for outsourcing the company's hardware, software and IT services requirements to IBM. This included all customer-facing IT applications, such as billing, customer relationship management (CRM) and data warehousing. In addition, IBM would service the company's internal-facing applications such as the intranet, email and online collaboration. And IBM would consolidate the company's data centers and IT help desks while helping to enhance its disaster recovery capabilities.[ci] This agreement supplemented another agreement that called for Ericsson, Nokia, and Siemens to help develop and manage Bharti Airtel's telecom network.

Speaking a few years after striking these agreements, Kohli, then Bharti Airtel's CEO, was candid in describing the new business model as one that called for the company to "outsource all expertise areas to people who are better than us."

> And we don't mind saying it. They are better than us. We have kept to ourselves our core competence. Our core competence is customer management. Brand is so important for us. We don't outsource that. People management and motivation of our people, that's our job. Financing is our job. . . . These things we do because that's our core competence. Everything else, we don't do. Everything else is done by our strategic partners, who have better domain knowledge, skills, and capabilities to help us. Today in the global telecom sector, the Bharti Airtel business model is looked at as most unique, most viable . . . for all emerging markets.[cii]

The arrangement had many benefits for Bharti Airtel. By substituting predictable operating expenses for risky, upfront capital investments on IT, the financial underpinnings of the company's business model were fundamentally transformed. No longer would it have to devote energy to infrastructure maintenance or systems management – it was free to develop creative pricing models and innovative services for current and prospective customers. This helped Bharti Airtel reduce the time needed to activate an account by 90 percent and focus on growing, serving, and retaining its customer base. With India's cellular business one of the fastest growing

in the world, being able to add accounts quickly was essential and it enabled the company to achieve rapid growth.[ciii]

Perhaps most noteworthy, the agreement specified that the payments made to IBM were to be linked to the percentage of revenues generated by Bharti Airtel and pre-defined service-level agreements. This model was the first of its kind and it changed our relationship from customer/client to one of true partnership. The observation of Akhil Gupta bears repeating:

> For the first time in telecom history, perhaps anywhere in the world, the network equipment vendor and the operator would be on the same side of the table. Right now, the equipment vendors make more money when they sell more boxes to us, whereas we needed to ensure that we buy fewer boxes but get maximum capacity and coverage to stay competitive. This [caused] an inherent conflict of interest between the two of us. I felt that we needed a completely different equation.[civ]

In addition to the arrangement with IBM, Bharti Airtel outsourced many other key functions, such as call centers and the construction and maintenance of cell phone towers.

It proved to be a winning formula and showcased the core benefits of the GIE model – increased agility, growth and productivity. Over the next few years, the outsourcing helped Bharti Airtel enter new markets quickly and achieve rapid growth. From March 2005 through March 2006, its customer base grew 77 percent and revenues grew 44 percent.[cv]

In recognition of the progress, the company received the highly coveted business model innovation award from Nasscom in February 2007 (Nasscom is the industry association representing India's IT sector). The award was presented by Prime Minister Singh. A company rep characterized the significance of this innovative approach: "The objective was not cost savings, but building the future of our company by listening more closely to our customers."[cvi]

The agreement has clearly benefited Bharti Airtel and inspired similar arrangements. As Vijay Govindarajan of Dartmouth's Tuck School of Business wrote in 2010,

> Bharti has innovated a management model – the virtual corporation – that has enabled the company to manage an enormous subscriber base and still grow cost effectively. Bharti Airtel offers mobile telecom service at $.01 to $.05 per minute, perhaps the lowest in the world. Despite very low prices, Bharti has enjoyed compounded annual growth in sales revenues of 120 percent and growth in net profits of 282 percent per year between 2003 and 2010. Its market cap has steadily grown over the same period and stood at around US$25 billion as of April 30, 2010. Bharti Airtel's innovative business model has now become the norm not just in India's telecom industry but also in the telecom industries of several other emerging and developed countries.[cvii]

While Bharti Airtel's agreement with IBM and other companies has been a cornerstone of its success, other factors have contributed as well. In 2008, Kohli spoke about the company's openness to different perspectives and new ideas.

> We have been very conscious that our leadership team has to be global, because we felt that we don't want to be the best of India – we need to be best in the world. The leadership team we brought from across the world. Our CFO comes from the UK. Our customer service director comes from Italy. Our assurance head comes from Australia. Our CTO, network chief, as well as CIO, IT chief, come from the U.S. We are bringing in best practices and great learnings from all those global companies into our young company. In many companies there's an internal culture of rejecting new learnings. I think we are completely opposite. We embrace new learnings. We love to learn. We love to change. We love to go through proactive change before the market, before the industry requires us to change.[cviii]

Building on this global outlook, Bharti Airtel acquired telecom operators in Asia – entering Sri Lanka in 2009 and Bangladesh in 2010. The following year, the company acquired the African assets of Kuwait's Mobile Telecommunication Company, known as Zain, for an enterprise valuation of $10.7 billion. The acquisition gave the company a foothold in 15 countries across Africa. One of the immediate challenges was integrating the 15 companies, which had operated as stand-alone units.

Today, the company is embracing diversity, with much of its international leadership embedded across the full array of its global operations.

Just three months after the Bharti Airtel purchase was finalized, I traveled to Nairobi, Kenya to join with Sunil (the company's Chairman) to announce that IBM would manage the computing technology and services that powered Bharti Airtel's mobile communications network across Africa. The agreement called for IBM to provide a standard operating environment, helpdesk (remote) and deskside (in-office) support to enhance employee efficiency and convenience. IBM would also provide comprehensive end-user services to Bharti Airtel employees across Africa, in French and English. The consolidation of the company's helpdesks was expected to bring greater cost savings and efficiencies by streamlining the processes of addressing IT operational issues.

At our joint press conference, Sunil said that, "We are delighted to extend our successful relationship with IBM in South Asia to Africa. This transformational business delivery model, which will be a first in Africa's telecom industry, will bring enhanced efficiencies to our operations and help us deliver world-class mobile services to our customers."[cix]

The sheer size of this agreement, and the number of countries involved, made it more of a challenge to implement than the 2004 agreement. But it was also an opportunity for Bharti Airtel to deploy some of the key principles of a globally integrated enterprise related to human

resources, procurement, and shared services. In short, the company didn't need to reinvent the wheel in each country – it created offices serving multiple countries. This accelerated the pace at which Bharti Airtel could enter the markets and begin offering solutions to customers.

The company's implementation of these innovative practices – both in India and abroad – has begun to serve as a model for the country's other globally oriented companies. They've seen how these practices – from procurement to human resources to finance and budget – have contributed to Bharti Airtel's success, and they want to do the same.

Geely – Fueling Growth by Going Global

China has achieved the highest economic growth rate of any country in the world over the past two decades. Yet even amid this expansion, few of the country's firms have developed a truly global profile. In the 2012 Interbrand survey of the 100 Best Global Brands, not a single Chinese company made the list.[cx]

I expect this will change soon, and I also think it's likely that Geely will be helping to lead this change. An auto manufacturer headquartered in Hangzhou, a prosperous city about 100 miles southwest of Shanghai, Geely is not well-known in the United States. But it has made major inroads in Europe – purchasing the assets of two high-profile companies: Volvo of Sweden and MBH of the United Kingdom, which manufactures the iconic London Taxi.

Despite having been in the auto business for less than two decades, Geely now employs more than 18,000 people and operates eight manufacturing plants spread throughout China, with partnerships at plants in eight countries across Europe, Asia, Africa, and South America. In 2013, the company sold close to 550,000 cars and generated revenues of $4 billion.[cxi] With combined sales revenue of $24.5 billion from both Geely and Volvo, Geely Holding Group made the Fortune Global 500 in 2012.

Geely's visionary founder and CEO is Li Shufu, whom I recently met. He impressed me with his view of the benefits of global corporate values and management thinking. In 1984, his father, a farmer, loaned the 21-year-old Li the equivalent of about $325 to establish a factory that would manufacture parts for refrigerators. The company was a great success, and evolved into the production of full refrigerators. But in 1989 the central government began issuing licenses for refrigerator production, and Li's company was not selected, forcing its closure.

A few years later, Li started a company focused on manufacturing aluminum magnesium boards, and by 1993 it had annual sales of about $25 million.[cxii] Li then began manufacturing small motor scooters in 1994, but his sights were set on the auto sector. Without a government license

to produce cars, he had to be creative. He bought a license from a prison facility and promptly moved the factory out of the prison to Linhai, a city of one million people in eastern China.[cxiii] The first car produced in the new factory rolled off the assembly line at 8 a.m. on August 8, 1998 (8 is a lucky number in China), and it marked Geely as China's first privately owned car manufacturer.

Geely quickly racked up large sales in China, selling 150,000 cars by 2005. In 2006, Geely reached an agreement with MBH to jointly manufacture the London taxi, which made Geely China's first auto company to operate beyond the country's borders.[cxiv] "Our dream is to see Geely vehicles driven around the world," said Li in 2007.[cxv]

The international expansion continued in March 2009, as Geely acquired an Australian company, DSI, which was the world's second-largest producer of automatic transmissions. But the international acquisition that sparked headlines around the world was Geely's $1.8 billion purchase of Volvo in August 2010. The brand, which Ford had purchased in 1999 for nearly $6.5 billion, had fallen on hard times. In 2009, during an admittedly difficult year for the auto industry, it had lost $934 million. A few months following the purchase, Sweden's King Carl XVI Gustaf met with Li in Hangzhou. At the meeting, which included more than 50 leaders of the Royal Swedish Academy of Sciences and Swedish enterprises, King Gustaf said that, "Volvo was born in Sweden and became the best auto brand, now I'm pleased to see her extend the concept and keep growing under Geely and in China."[cxvi] Since the purchase, there's been some recovery in Volvo's sales, and Geely's commitment to revitalizing the brand is underscored by its move to open a Volvo manufacturing plant in Chengdu, China, with another under construction in the northeastern China city of Daqing.[cxvii]

Geely followed the Volvo purchase by acquiring all of the MBH assets and taking full control of The London Taxi Company in February 2013. Seven months later, Geely resumed production at the company's factory in Coventry, where more than 130,000 taxis had been produced over the previous 60 years. During a December 2013 trip to China, Britain's Prime Minister, David Cameron, met with Li and praised the acquisition as well as Geely's investment in the UK operations.

The acquisitions were only one part of Geely's global strategy. The company has also focused on exports, which started in 2003. They grew to 20,000 cars in 2007 and to more than 100,000 in 2012. Key export markets are Russia, Ukraine, Saudi Arabia, and Egypt, while the company has partnerships with manufacturing facilities in Uruguay and Belarus. Geely also maintains about 500 sales and service outlets spread across 38 countries[cxviii] and has said it plans to enter the U.S. market in 2016.

Li Shufu's Vision of Global Corporate Culture and Values

The driving force behind Geely's global outlook has been Li. In my discussions with him, I was struck by not only his entrepreneurial mindset but also his unyielding belief in the need for companies to have a global presence and sell throughout the world. In February 2012, Geely launched the Research Center on Global Corporate Culture, which is focused on fostering the formation and development of a new global corporate culture. At the Center's launch event, Li summarized his vision:

> A large number of foreign enterprises enter the Chinese market while a lot of Chinese firms strive to go abroad and gradually adapt to world economic society. In this respect, the study and formation of a global corporate culture has not only important and far-reaching significance for the sustainable development of China and the global economy, but also for the cause of world peace and well-being of the human society. Companies with this new pattern of global culture are what I would call "truly global companies." They have diluted or erased patterns associated with their countries, races, religions, languages, and cultures and over time build a brand new culture and values centered on the company itself. This type of new culture is characterized by respect, embrace, integration, and adapting to each other so that the company can benefit from the unified efforts and succeed worldwide.

Li's vision is embedded in Geely's corporate culture, which is based on values and principles spelled out on the company's website. The core value is happiness, which can build unity within the company (Geely draws on the "Amoeba Management" concept advocated by Japanese business leader Kazuo Inamori[cxix]). People work for the shared target and their contribution can be measured and rewarded with clear standards. Another value is "humanity," striving to create a family-like atmosphere among Geely's workforce, while also ensuring full compliance with company's rules. Geely's third company value calls for "efficient execution," with company leaders showing "concern and care for their subordinates" and regularly training and evaluating them. In return, employees are to "respect their leaders and superiors."

These values provide the connective tissue for the company's global workforce. The values are reflected in the company's approach to acquired companies. Similar to CEMEX, Geely makes a conscious effort to draw on the knowledge and expertise of their new colleagues. ("Standing next to partners and learning from them", is how Geely describes it.) An analysis of Geely by the consulting firm Booz & Co. observed that the company's approach to Volvo was to "study the entire 'eco-system' and integrate this into Geely's global strategy."[cxx]

One example of Geely's focus on collaboration was the September 2013 opening of its Research and Development Centre in Gothenburg, Sweden (near Volvo headquarters), which serves the needs of both Volvo and Geely. The R&D center will build on the best of both companies to

develop a leading modular architecture for C-segment vehicles. "Geely will continue to improve its product quality in the years to come and can learn from Volvo Cars," Li said when announcing the center. "However, the sharing of knowledge and technology has to be done without jeopardizing brand integrity and individual product development. We believe a stand-alone, yet joint R&D Centre with a focused approach is the best way to achieve this."[cxxi]

Geely's research builds on a strong foundation, as the company holds more than 10,000 patents, including over 1,800 patents for inventions and over 40 international patents.[cxxii] Underscoring the commitment to research, Geely created the Geely Automotive Technology Center and the Geely Automobile Institute in Hangzhou and Linhai, which develop vehicles, engines, transmissions and electrical devices.

Logistics

Logistics are a key ingredient in the competitiveness of all modern manufacturing companies, and they're particularly important for Geely, given its global orientation. The vice president of the company's international division, Jenny Jin, has implemented a number of noteworthy innovations that have contributed to the company's strong position in a fiercely competitive global market. One such innovation was eliminating third-party logistics providers – often known as "the middle man" – for ocean transport and dealing directly with the shipping lines. Jin has said the move reduced inefficiencies, increased transparency and made the process more straightforward.[cxxiii] Jin also created a transparent process that enabled shipping lines to bid for Geely's business. The net effect of these reforms, wrote *Automotive Logistics* magazine, has been

> …to make Geely a more efficient organisation, and prepare it for the challenges of working in a truly global environment. She wants the right partners and logistics services, coordinated effectively and at the best price relative to quality. In other words, she wants to build a sustainable and world-class outbound supply chain.[cxxiv]

Another innovative Geely practice has been to offer consumers the opportunity to buy cars online.[cxxv] In 2013, the company sold 4,744 cars through an e-commerce portal.[cxxvi]

Open Innovation

Geely places a premium on scientific and technological innovation, which it calls "the driving force of the development of an enterprise." To that end, the company has embraced the open innovation model pursued by Procter & Gamble and others. It has developed a technology application platform that enables people from outside the company to cooperate with Geely on innovation. The platform, says Geely, "is open to the whole world and we welcome cooperation …with anyone that possesses innovative achievements."[cxxvii]

Education

Since Geely's start, Li has understood that fundamental to the company's global competitiveness would be the quality of its workforce. And while he needed workers who possessed the skills to design and manufacture cars, he had trouble hiring them. "People looked down on us. People wouldn't work for us," he's said. Rather than partnering with established universities and hoping for the best, he took the entrepreneurial route and launched an entirely new university. Opened in 2000, the private vocational college now serves more than 20,000 full-time students. And while the students can focus on a range of disciplines (there are 15 schools within the university, ranging from sociology to biotechnology), the automobile college is a centerpiece of the offerings. And it's helped to meet Li's goals. As the Chinese publication *Global Times* has pointed out, the university's creation "has not only addressed the shortage of front-line technicians but more importantly formed a line of production, learning and research and at the same time serve as a perfect example for the other domestic companies."[cxxviii]

Chapter 7
Where To From Here?

The globally integrated enterprise presents enormous opportunities for companies to become more agile and more productive in the 21st century. But realizing these opportunities depends on companies making the right decisions about their internal evolution and their external engagement. In this chapter I lay out a number of the key issues that I believe will shape the future direction of globally integrated enterprises and enable them to thrive in an environment marked by rapid innovation and heightened competition.

Trust and Transparency

One of the fundamental challenges facing globally integrated enterprise will be how to earn, maintain, and manage trust – internally and externally. Meeting this challenge will be more difficult given that companies operate in an age of increased transparency, which has the

potential to deepen cynicism about companies' motives and actions. As a result, earning and managing trust will need to be a core competency for the GIE leaders of the future.

For much of my professional career, company leaders could decide how much information they were going to share with their employees and with the public. And if they chose minimal disclosure, there was relatively little that employees or the public could do to change that.

That opaque era is long gone. Today, transparency is the new normal. Companies operate in an environment where a wealth of information exists about their daily procedures, their employees, their customers, their suppliers, and countless other facets of their businesses. And the information takes many different forms – Facebook updates, YouTube videos, and Twitter feeds. As a result, managing one's processes and behavior to ensure trust in the era of transparency will be central to a company's success.

This transparency is, by and large, a welcome development. It will help companies earn the trust of employees and the public – assuming the information shared by the company is authoritative. It will empower individuals – they can make more informed decisions about where to work and where to spend their free time. And it will serve as a check on wrongdoing. Company employees – at all levels – are less likely to engage in malfeasance if they know that their actions will be uncovered and publicized. Transparency doesn't eliminate wrongdoing, of course. And one wrong step by a company can undo the trust built up by decades of integrity.

Unfortunately, one byproduct of transparency is that companies are destined to find themselves subjected to unauthorized disclosures (or outright theft) of company information. This can take many different forms – from routine internal company memos, to highly sensitive specs related to a new product, to breaches of personally identifiable information, such as credit card data.

While such breaches are never welcome, the pressing question is, how does management respond? Does it behave in a way that will retain, or even enhance, internal and external stakeholder trust? Or will its behavior impair its brand integrity and undermine stakeholder trust?

Using the examples above, the release of internal company memos is an irritant, but unless they contain bombshell disclosures they're rarely more than a one-day story. The specs on a new product can compromise a long-term project, which has a monetary cost, but it's unlikely the company's reputation will be tarnished. Credit card breaches that expose personally identifiable information are in an entirely different category. They have the potential to be extremely disruptive and pose a significant threat to a company's viability.

The Cybersecurity Threat

There's no evidence that cyber hackers are in retreat – indeed, there's considerable evidence they are becoming more aggressive. In December 2013, a number of large U.S. retail chains announced that the credit card data of millions of their customers had been accessed. While this was hardly the first such data breach, the episodes provided a stark reminder of the cybersecurity threat and how the trustworthiness of companies could be called into question, particularly if they maintain weak or inadequate cybersecurity regimes or move slowly to address vulnerabilities or communicate with customers.

There's a clear monetary cost to these breaches, but the more worrying long-term cost is how they erode trust in companies and in commerce. Customers – be they individuals or institutions – must have confidence that their transactions will not result in their data being revealed. If that confidence erodes – and it doesn't take much to cause serious erosion – global integration will suffer.

For that reason, cybersecurity will assume heightened importance for globally integrated enterprises, which rely on secure payment systems and globally networked infrastructure. And that speaks to the need for leaders of companies operating globally to collaborate on more robust cybersecurity standards and to partner with governments throughout the world to ensure that chasing down cyber criminals – and prosecuting them – is a top priority.

Cybersecurity matters because trust matters. Trust is fundamental to every market economy, to every business, and to every human interaction. And in the 21st century – the era of transparency – these forces are now a reality that management must address and master.

Public Policy Engagement

In Silicon Valley and other centers of innovation throughout the world, it's sometimes fashionable for successful entrepreneurs to express disdain for the political process, declaring that they can't be bothered to focus on the creaky machinery of government when they are creating new products, new industries, and new jobs. For such companies operating globally, the temptation to ignore public policy can be even greater, since there are multiple governments to engage, which can seem like a distraction from the core business functions.

I understand the sentiment, but I also know it's deeply misguided. The reality is that no matter where a company operates, public policies will always influence the business climate. After all, public policies write and enforce the rules of the marketplace. The key question is whether this influence will be beneficial or adverse. All companies – but in particular those operating globally – need to be engaged with policymakers, at the national, regional, and local levels in order to bring their practical experience and insights to government officials.

Companies will attach different levels of importance to different issues, depending on their industries and the profile of their workforce. But there are a few basic issues that companies operating globally can't afford to ignore.

The single most important issue for businesses evolving into globally integrated enterprises will be ensuring that they have access to a workforce composed of individuals with high-value skills. That's because the vast majority of the work undertaken by successful GIEs will require individuals with a strong foundation in the STEM disciplines (science, technology, engineering, and mathematics). Enhancing skills will benefit individual workers as well as the performance of national economies. The Organization for Economic Cooperation and Development (OECD), an intergovernmental research organization, has found that more than half of the productivity gains achieved by developed countries over the past decade were a byproduct of better skills.[cxxix]

The demand for high-value skills is only going to accelerate and it underscores the need for rigorous education systems. But recognizing that education systems in the United States and elsewhere are often strapped for resources and high-quality instruction, company leaders should partner with governments to help ensure that students develop the skills that are in demand by society and the marketplace.

There are many examples of such partnerships, but the one I know best involved the launch of a school in New York called P-Tech that serves students from the start of high school all the way through two years of college. They study traditional subjects, but they are also required to study computer science. The school opened its doors in September 2011 as a collaborative initiative involving the New York City Department of Education, New York City College of Technology, the City University of New York, and IBM. It's been a great success – President Obama touted its achievements during a visit in October 2013[cxxx] – and its model is expanding to 27 schools throughout the United States.[cxxxi]

For leaders of global companies, engagement in local initiatives like P-Tech should be complemented by engagement on national and international issues (in military terms, this is akin to having different strategies for a ground war and an air war). One such issue is intellectual property protection. Intellectual property laws were created to enable individuals and institutions to reap the rewards of their inventions, while at the same time making these intellectual assets available for society as a whole. Within this rather delicate framework, however, there are diverging opinions about whose interests should come first. Some believe the best way to provide incentives for innovation is by fiercely protecting the inventor's proprietary interest. Others argue that we should open the doors and give full access to intellectual assets.

I believe we need a new path forward, an approach that offers a balance of those two extremes. To ensure the viability of companies – particularly globally integrated enterprises – we must

protect the truly new, novel, and useful inventions. But at the same time, we need to protect the interests of innovative communities and creative ecosystems – groups that are not incorporated or chartered but that nonetheless are engaged in genuine (and genuinely important) innovation. We want to encourage and protect collaboration between corporations and their partners, suppliers, and customers – a key feature of contemporary innovation and of the integration of technologies and business models. Underpinning the intellectual property regime must be consistent enforcement – otherwise, the huge innovative potential of a globally integrated economy will be diluted. In short, we need expanded notions of ownership for the global era, and the leaders of globally integrated enterprises can – and should – play a role in this process.

Another global issue that merits attention from global companies is trade policy. And in the 21st century, trade has many new characteristics. Think about how much e-business and e-commerce is done across the world today. It's huge and growing every minute – yet 20 years ago, it hardly existed.

Trade is often a contentious issue, and opponents of further liberalization can be quite vocal when making their case, since the dislocating effects of trade can be more visible than the benefits. But supporters can't cede the debate to the protectionists – whether they are physical or digital protectionists. The movement of goods and services across borders is fundamental not only to the long-term viability of globally integrated enterprises, but to the vitality of both global and local economies.

With specific regard to trade, leaders of global enterprises shouldn't overlook the fact that it is not just about exports – it's also about imports, which translates to heightened competition from companies throughout the world. Then again, the existence of global supply chains makes it increasingly difficult to characterize what is an import and an export, since so much of what is imagined, produced and delivered is done in many places around the world. What is "outsourcing" when there is no longer an "out"? What is "offshoring" when there is no longer a shore?

The final issue, which is closely related to trade, is income inequality and the so-called "middle-income trap." In countries throughout the world, but particularly in emerging markets, the robust economic growth of the past decade or two was a byproduct of economic deregulation and sound macroeconomic policy. While that continues to be a *necessary* condition for economic growth, it's no longer *sufficient*. As a result, countries will face the not-insignificant challenge of maintaining the high growth rates of the past, and ensuring incomes continue rising, all while facing growing competition from other countries to attract investment and jobs.

When countries experience economic slowdowns and/or declining living standards, there are always calls to rein in competition from other countries, which usually translates to

protectionism. That speaks to the need for companies operating globally to understand economic challenges and to push for policies and initiatives – such as STEM education and an innovation-friendly intellectual property regime – that will help to overcome these challenges. Doing so is the right thing to do, but it's also in the interest of globally integrated enterprises, which depend on a global economic climate that is open and a workforce that is well educated.

GIEs will find (as IBM did) that helping a region – or entire country – to advance its standard of living (particularly through education) will help earn the trust of government officials and make it much easier to achieve market access. And make no mistake – this trust must be earned, and that can only happen through behavior and actions, not through marketing. While at IBM I characterized this as getting "permission to operate," and over time we saw that our identity as an "American" company mattered less than the indigenous value we created in the countries where we were doing business.

The value creation started with generating jobs, making local investments, paying taxes and bringing high-quality, trustworthy products and services to new buyers. But it went beyond that. We saw that we could create more value – for the society and for IBM – by doing more than entering a market. As I have argued here, *making* a market involves working with leaders in business, government, academia and community organizations to help advance their national agenda and address their societal needs – whether those needs involve better schools, more robust public safety, more modern infrastructure, or something else altogether. In short, we would strive to build real skills in the local workforce and enable new capabilities among the citizenry. We consciously worked to serve as a force for modernization and progress.

The engagement should span all of civil society – including officials at all levels of government. While issues like trade and intellectual property are the province of national and international institutions, I see a trend toward addressing many of these concerns at the state and local level (akin to "lowering the center of gravity" that we undertook at IBM). This trend – particularly in emerging markets – means that policies enacted at the local level can reach large segments of the population. And compared to national policymakers, local officials are likely to find it easier to enact the needed measures, as they may not face cross-pressures as intense as those that are endemic to national politics. Similarly, policies can be more effectively targeted to local populations, rather than trying to enact national policies that may not be suitable for entire nation. As I look forward, I think it's clear that cities will be the optimal environment for leveraging innovation and integrated solutions – and I discuss this at greater length below.

Leadership

Effective leadership of a globally integrated enterprise will take many forms, but it will not be centered on a vague concept of "charisma." Instead, leadership must strive to foster enduring collaboration and trust that survives the inevitable C-suite transitions.

One of the keys to effective leadership in any company, but particularly a globally integrated enterprise, is a healthy dose of humility. Given the array of cultures, languages, insights, and points of view the GIE deals with, no one person or country will have all the answers. Hierarchical, command-and-control approaches simply do not work anymore. They impede information flows inside companies, hampering the fluid and collaborative nature of work today. Instead, leaders will need to be focused on the success of their teams, which also means rewarding successes of others instead of themselves. Leaders should also take the time to listen to diverse ideas even when the answer seems self-evident. Being much more open and collaborative is, at times, messy and, by definition, uncontrollable. But at IBM we found that listening and treating our people as grown-ups – and having confidence that they will behave in a manner consistent with our values – was a demonstration of trust that enabled us to get support for challenging projects or initiatives.

Humility is also needed because it will make leaders more flexible and willing to pursue reinvention when strategies they've spearheaded need to be refined or abandoned. One of the shortfalls I've seen in many leaders is that they get too attached to products or ideas they've pioneered and then can't relinquish them. Pivoting isn't always easy (as I know from experience) and many leaders can't do it, which is why so few technology companies have a successful Act II. Rather than reinventing themselves, many companies stick with the formula that made them successful. But in an environment marked by rapid innovation and global competition, standing still is a recipe for disaster.

Humility will also help leaders with another key dimension of reinvention, which is securing the support of those working for the company – many of whom are destined to feel threatened by a reinvention, since it will likely lead to a reshuffling of positions, with some jobs eliminated as others are created. There's no formula for managing through a reinvention, but all companies have their own tempo, and it's infinitely easier to understand that tempo if a leader has a deep feel for the company and its culture and knows when to push and when to stop.

Globally integrated enterprises will also need to refine the way they cultivate their future leaders. That process starts with creating a culture of collaboration. Giving employees more opportunities to work in teams will help nurture the skills needed in future leaders while also providing opportunities to showcase leadership abilities.

Within that culture, it's clear that GIEs will need a new generation of leaders who possess different skills, experiences, and acumen than those who worked in the traditional multinational corporations. The old model, which was utilized by IBM and countless other multinational companies, called for developing leaders all over the world. That model worked well if you put most of your global mission in the home country and installed strong local leaders heading up your local country organizations. In other words, management was still largely defined by

national boundaries. But that approach does not necessarily prepare people to lead global missions headquartered in any part of the world.

To that end, it's important to create opportunities for future leaders to lead in diverse environments. As I mentioned in Chapter 5, at IBM we established a Corporate Service Corps in which teams of 8-15 people, composed of high-performing, non-executive employee volunteers, were sent on single-visit, short-term global assignments. They worked with government, business and civic leaders in emerging markets to help address high-priority issues. Our experience, which would apply to other companies, is that we benefited from having leaders with new perspectives and enhanced skills. They shared their perspectives with their colleagues, who developed a more nuanced understanding of different cultures as well as the global context in which business operates today.

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These principles and management practices will guide globally integrated enterprises across a range of industries. And while companies operating in virtually any industry can become GIEs, the necessary transformation is destined to be easier in sectors that reward reinvention or that are in desperate need of it.

Let me give a couple of examples to illustrate the point. One is among humanity's newest technologies, the other among its oldest. The new one is advanced manufacturing, also known as 3-D printing. The old one is the city – the invention that allowed the development of everything we call "civilization." And with both cities and manufacturing being transformed, they are ideal testing grounds for GIEs to demonstrate their value proposition.

3-D Printing

An intriguing technological development for all companies, but particularly companies operating globally, is the rise of advanced manufacturing, or what's become known as "3-D printing." A blend of industrial age and information age technologies, 3-D printing empowers individuals to create a range of on-demand products, layer by layer, based on computer models. This new way of making things will have profound implications for the manufacturing sector. Indeed, since mobile 3-D printing machines can be located virtually anywhere, and spare parts can be manufactured on demand (thus reducing or eliminating the need for stockpiling), the effect is potentially transformative: consolidation of supply chains, acceleration of production times, and significant reductions in fixed costs.

There's another apparent benefit: the process of creating products through 3-D printing typically involves the use of less energy than traditional manufacturing. A 2013 study from Michigan Technological University, involving the creation of three diverse products (an orange juicer, a

child's building block, and a waterspout), found that the 3-D printing process used 41-64 percent less energy than making them in a factory and shipping them to the United States.[cxxxii] Another analysis, published in November 2013 by the Oak Ridge National Laboratory (an arm of the U.S. Department of Energy), focused on how 3-D manufacturing could reduce costs when building airplanes. With airplanes requiring the installation of up to 250,000 brackets, the analysis of one aircraft manufacturer's data found that,

> By optimizing the bracket design in computer-aided design (CAD) software and building them from titanium powders instead of titanium ingots, the manufacturer saved 1.56 pounds per bracket. That's a 50 to 80 percent mass savings, knocking the average weight of the conventional bracket from 2.4 pounds down to less than a pound. . . . In total, additive manufacturing amounts to 4,141 metric tons of reduced carbon dioxide emissions per plane over the plane's 30 year lifespan.[cxxxiii]

Where 3-D printing gets even more interesting is the way in which it's likely to disrupt global supply chains. Low-cost manufacturing will henceforth be accessible to individuals throughout the world, as 3-D printers are destined to proliferate as they come down in price. It's already the case that the global shipping company UPS is establishing 3-D printing shops in select cities around the United States. And even Washington, DC's public library is home to a 3-D printer, which is available to the public for print jobs at a cost of $.05 per gram.[cxxxiv]

That means 3-D printing may become a major challenge for developing countries, since their traditional cost advantage could disappear as manufacturing becomes more localized and less labor-dependent. And industries that have grown in concert with the expansion of the global economy, such as cargo (be it air, sea, or rail), could contract as products are created closer to end markets. This fluid and highly dynamic environment is ideally suited for globally integrated enterprises, which will be well positioned to quickly seize opportunities as they emerge and pivot away from sectors offering diminishing returns.

Cities

One of the most important developments of the past 50 years has been the surge of hundreds of millions of people from the rural areas into the world's cities. An inflection point was reached in 2008, when for the first time in history more than half of the world's population was living in towns and cities. This urbanization trend has been most pronounced in China. In the early 1980s, about 20 percent of the country's population lived in cities (as opposed to rural areas). Today, about 50 percent live in cities, and the government has set a target of 70 percent urbanization by 2025.[cxxxv]

The United Nations has described the global population shift as part of "the largest wave of urban growth in history."[cxxxvi] And cities are destined to be significant creators of economic

opportunity. McKinsey projects that by 2025, about two-thirds of global economic growth will be generated by 600 of the world's cities, and within this group 440 cities in emerging economies will generate close to half of global growth.[cxxxvii]

But the ability of cities to meet these projections and their potential will be linked to the ability of city and local governments not only to respond to the needs of their constituents, but to anticipate them. The good news, as I mentioned earlier in this chapter, is that city and local governments are often better suited than national governments to meet the needs of their citizens. These governments are also populated by a new generation of leaders who not only embrace technology, but are pragmatic, rather than ideological. These leaders are strongly competitive – but they maintain a broad societal view. And collaborative innovation is their default mode. Their global awareness exceeds that of previous generations, and they are more likely to view themselves as global citizens than citizens of any particular country.[cxxxviii] If you're a mayor, a city manager, or a police chief, you don't have the luxury of ideology. The decisions you make are immediately visible in people's lives.

What's more, city governments often have room to be innovative in ways that federal governments do not. A 2013 book about city government in the United States, *The Metropolitan Revolution,* pointed out that while conventional wisdom has often held that "the feds and states are the adults in the system, setting direction; the cities and the metropolitan areas are the children, waiting for their allowance. The metropolitan revolution is exploding this tired construct. Cities and metropolitan areas are becoming the leaders in the nation: experimenting, taking risks, making hard choices."[cxxxix] They are much like the proverbial "tail wagging the dog."

This innovative and experimental spirit is not limited to the United States – it encompasses city governments throughout the world, which makes them ideal partners for globally integrated enterprises. At IBM, we worked with city governments on a wide range of issues, from combating crime to bringing new efficiency to transportation systems. GIEs big and small can do the same to help cities meet their current and future challenges – many of them related to infrastructure that is out of step with modern technology.

One key issue for city governments – in developed and developing countries – will be pursuing a smarter approach to the way energy is distributed and consumed, since global growth in energy consumption is expected to increase by more than 40 percent over the next 25 years.[cxl] That growth has the potential to put an enormous strain on electrical grids – many of which are ill-equipped to meet today's energy needs – as well on as municipal budgets. Today, many large cities throughout the world are seeing their growth imperiled by energy constraints that take the form of unreliable access and high costs.

As part of their focus on securing permission to operate in jurisdictions throughout the world, globally integrated enterprises can partner with cities to help them meet their energy challenges. Massive savings can be realized through improved efficiencies in utility transmission and distribution systems, which would also reduce the need to make costly investments in expanding energy capacity. "Smart grids" can empower customers to make decisions about when they will utilize a range of energy-consuming tools, from computers to dishwashers. By helping to change behavior patterns, energy can be used more efficiently and at lower cost – benefiting both individual consumers and the power companies that serve them.

Competing – and Winning

All of the issues I've discussed so far ultimately lead to one question – in a world defined by the (mostly) free movement of goods, services, people, and capital, which enterprises and societies will win? The simple answer is that it will be those that learn how to play offense. This isn't American football, where strong defenses usually win. To win in this game, in an arena this dynamic, you have to be continuously moving forward, continuously adapting.

This situation is new, and it is creating an intense competitive dynamic on a scale that many people don't yet grasp. All countries face a radically different competitive environment, where there are higher expectations for everything – from product and service quality, to working conditions, to protection of intellectual property and the rule of law. Notice – "higher," not "lower." In other words, to succeed in this new global economy, you need to take your game to a new level. The playing field may be flat, but it isn't at sea level. The game is moving to a higher plateau.

I believe three principles can serve as the foundation for an offensive game plan that will strengthen enterprises and institutions in the world's first true global economy.

First, you have to deliver unique value. In an integrated global economy, investment, work and people flow freely. The question is: What will cause them to flow to *us*? The cities, institutions and companies that succeed will have clarity on the kind of economic and societal innovation they do uniquely well. They will understand the qualities of their culture, their expertise, their skills base, their business environment and their infrastructure that make them stand out in a globally competitive market for talent and investment. And they will make choices, strategically targeting investments, incentives and research at those differentiators.

Second, every enterprise and every society must simultaneously invest in the future *and* improve its competitive muscle tone. While there's a compelling case for dealing with financial deficits, both public and private, anyone who has worked in an innovation-based business knows that you cannot cost-cut your way to competitiveness. You have to invest in your future, and you have to sustain it in good times and bad. This is something IBM learned decades ago – and the lesson is

similar for cities and societies. Winning on a flatter, higher playing field will require *increased* investments in key areas such as infrastructure, disruptive business models, contemporary skills and deep research.

And it's not just about investment. Policies must be adapted to nurture and promote an innovation economy. Every city and country, like every start-up or globally integrated enterprise, must be able to tap into global supply chains, talent pools and collaborative relationships. They must use them to create things of indigenous value, whether products or services.

Third, enterprises and society must embrace the potential of technology. The convergence of Big Data, social, mobile and cloud technologies has fundamentally changed the way products and services are created, distributed and consumed. Data is nothing less than the emergence of a vast new natural resource. There is a saying that data is the new oil – but even that doesn't capture its historic significance. What steam power was to the 18th century – spawning the first Industrial Revolution… and what the electromagnetic spectrum was to the 19th century – enabling the second Industrial Revolution – and what hydrocarbons were to the 20th – making possible the modern age of transportation and energy – the explosion of data will be to the 21st.

Data makes it possible to see and understand the world as never before. The economic and societal value of that is almost incalculable. But capturing that value will require more than new science and new technology. There's a need for new forms of governance, new kinds of decision-making, new systems of public engagement, and new ways of thinking about crucial issues such as privacy and security. Big Data is the foundation of a smarter enterprise. When you combine Big Data and cloud technologies, they are game changers. I'm not referring to a cloud enabling social media or online games such as Angry Birds. It is analogous to what occurred in manufacturing supply chains. Consider horizontal business systems that scale globally and reside in the cloud, connected to your enterprise in a secure, reliable way. Think about that as the integrated supply chain for your managed system.

While it may be that enterprise cloud technologies aren't quite ready yet, advances will continue. They will create a new operational model that will unleash new levels of productivity and competitiveness.

Much To Do: Enabling GIE Best Practices

Within this macro-framework of what will enable enterprises and societies to win, there are a number of more targeted operating elements that are fundamental to a company operating as a globally integrated enterprise. The six core operating elements are:

1) Global versus local sales and marketing
2) Supply Chain market access and distribution efficiency

3) Creating, managing, and protecting Intellectual Property (IP)
4) Company culture, leadership identification and development
5) Economic and Financial Management (treasury/accounting/cash management)
6) Building government trust for market access and freedom of action

I've touched on these themes in this chapter and in other parts of this book. Each of them merit more attention and inquiry into what constitutes management best practices and how they can be implemented. To help advance that objective, I've launched the Center for Global Enterprise, which is a non-profit dedicated to researching and understanding global integration. Its work will include identifying the many ways in which the world has been transformed by the globalization of business and pinpointing the business practices, leadership styles and innovations that will help unleash even greater opportunity and prosperity. And it will help businesses, governments and leaders across civil society act to adopt the principles underpinning the globally integrated enterprise.

While there are many questions to answer, what we know is that businesses and societies are changing in fundamental ways – structurally, operationally, culturally – in response to the imperatives of globalization and technology. Leaders in business, government, education, and all of civil society need to develop a comprehensive understanding of the emerging dynamics and help the globally integrated enterprise develop in ways that will contribute to progress and prosperity throughout the world.

Conclusion
An Age of Discovery

I graduated from college in 1973 and started work at IBM shortly thereafter. At the time, no one talked of a "global economy." The United States and other developed countries in Western Europe were dominant – accounting for about half of global gross domestic product. The term "emerging markets" didn't exist (it wasn't coined until 1981), primarily because those countries weren't seen as "emerging." They were poor, many of them saddled with ineffective leaders pursuing misguided policies and with large populations that were then viewed more as a burden

than a benefit. They were the "debtor" nations. There was little reason to expect the status quo to change.

But it did. There is a lot of evidence of the change, but perhaps the most compelling evidence appeared in a *Financial Times* article published almost exactly 40 years after my college graduation. The article took note of a historic development: "In 2013, for the first time since mechanisation led Britain down the path of industrialisation in the 19th century, emerging economies will produce the majority of the world's goods and services." The article also pointed out that the trend is expected to continue: "By 2018, the International Monetary Fund reckons emerging markets' share of world output will have risen to 55 percent, making the term 'emerging' increasingly irrelevant."[cxli]

I don't think anyone in 1973 could have predicted this transformation. It certainly would have been unthinkable to me. So, when did I become convinced of the need to "go global"?

To those who knew me as a Baltimore native who did not make any foreign trips with my parents, did not speak a foreign language, and stayed in the city for college and a first job, my advocacy might seem puzzling. Even within IBM, it was more than a decade before any of my work had an international dimension.

But growing up in Baltimore did give me an appreciation for the world beyond America's shores. The city has always been home to one of the busiest ports in the United States, and since its founding in 1706 it has been a hub for international trade. I saw how the port helped give Baltimore – often thought of as a down-on-its-luck provincial city – energy and resilience.

Those impressions were reinforced years later when I moved to Tokyo. While it has little in the common with "Charm City" (as Baltimore dubbed itself in the mid-1970s), I saw how it was influenced by trade and investment. During my time in Japan, it was becoming more open to people and products from beyond its shores. Many Japanese told me the country benefited from the presence of companies like IBM, which brought new thinking and new ways of doing business.

My time in Baltimore and Tokyo, coupled with my global travels for IBM, shaped my thinking about the global era we're in today. I came to see a commitment among political and business leaders in emerging markets to discard past practices in the interest of developing a large middle class. Equally important, I came to see that the best ideas could come from anywhere – and that they often came from outside traditional channels. Every company – indeed, every country – can fall prey to groupthink, which has a corrosive effect as it stifles the innovative impulse that's so essential to progress. Thus cultivating outsiders and their unorthodox thinking (which is often a product of having lived in different parts of the world) is one of the many principles that will

drive excellence and competitiveness in the 21st century. And regardless of where you've lived, or where you work today, you (and your company) can adopt these principles, which I explain in more detail below.

But fundamental to excellence in the global era will be the ability both to adapt to change and – even more important – to see changes coming and position yourself to benefit from them. As I noted at the start of this book, rather than asking, "What will the global era *do to me*?" a better question is, "How can I get work and investment to *flow to me*?"

The answer comes from understanding the three forces that lead work to flow across the global network and economy. The first force is simple economics, which is driven by cost and profit potential, but also differentiation. The second force is the growing value of expertise. In a world where the means of production and distribution are increasingly available to anyone, the only true differentiator is to have a unique value proposition – ideas, skills, talents, or resources – that can be continually refined. The third force is openness: open technology standards, open trade, and openness to new ideas and new ways to work. Open approaches provide a level playing field, which stimulates competition, nurtures collaboration, and sparks innovation. And open standards are particularly important, as they free companies from the work of building labor-intensive platforms and thus are great enablers of scale.

Guiding Principles of the Globally Integrated Enterprise

One of my primary objectives in writing *Re-Think* has been to foster deeper understanding of the globally integrated enterprise and to highlight the principles that can guide it in the 21st century. In the words that follow, I summarize those principles, which can serve as a guide for companies (both their leaders and their employees) as well as countries.

- *You need to be globally consistent but locally relevant.* Companies operating in multiple countries need to tailor their offerings – be they products or public policies – to local constituencies, all while ensuring that the brand's value proposition and the principles guiding the company are the same everywhere.

- *Learn to operate in many different kinds of environments.* In an era marked by rapid change, the ability to adapt to change is a key contributor to success. And the best teacher of adaptability is experience in new settings with new people. Once you decide to change you must communicate the strategy and get the buy-in of your workforce.

- *See your enterprise through a different lens.* You can gain priceless perspective on your company by finding a way to step outside it. Take an assignment outside headquarters – the farther away the better – and enmesh yourself with the local culture. You'll learn new things and you'll learn to think differently.

- *Encourage thinking and acting outside the company structure and outside the comfort zone.* All companies need disruptors – people who will dare to be different – and the most hidebound companies need disruptors most of all. Management needs to support and reward unorthodox thinking and employees need to develop the fact-based, pragmatic ideas that challenge conventional wisdom.

- *Know what you're good at – not just what you can do.* It's easy for enterprises and their employees to cling to a line of business because it has a history of throwing off steady profits. But the history of business is littered with stories of companies that clung to products or services too long and then found it was too late to pivot.

- *Lower the center of gravity.* Find ways to devolve decision-making away from headquarters and toward local markets. Execute closer to clients and restructure the financial incentives so that work with clients is more handsomely rewarded.

- *Learn from below.* Management misses out on valuable information by failing to tap into the knowledge that resides at all levels of the company. Leaders can't afford to be insulated by a protective inner circle that shields them from information they think will be unwelcome.

- *Emphasize human capital. Employees have always been critical, but innovation-driven business models will cause skills to be equal to capital in value.* The growth of companies – and countries – will be driven increasingly by brains over brawn. Hiring the best people, cultivating them, and retaining them will be a key driver of competitiveness in the 21st century.

- *See the world as it is – not the way you want it to be.* Recognizing how the world is changing will be a catalyst for game-changing transformations of how a company is structured and managed. But it depends on clear vision and strong leadership.

- *Keep moving forward.* Going to the future – whether for companies or countries – inevitably involves change that's disruptive to (and resisted by) many. But standing still isn't an option. Have a view about the future and have the courage to go there.

- *Explain what you're doing – and why you're doing it*. Because change is often disruptive, it can spark a backlash among those who feel threatened by it. Companies and countries need to foster understanding about the measures they're enacting and how these measures will contribute to future competitiveness.

- *Create a common culture around common values.* All companies – but particularly those with operations spread across the world – need connective tissue that will focus employees on the same set of values. And the values will be more meaningful if the entire workforce is consulted on what they should be.

Maximizing the Age of Discovery

I started this book by describing the current era as an "age of discovery." And I'm more convinced than ever that this age – and the global economic integration that underpins it – is going to continue. Breakthrough discoveries – many of which will be tied to data and analytics and delivered via cloud technologies – will transform how businesses operate and how individuals go about their daily lives. And these discoveries have the potential to unleash a new era of innovation and opportunity.

But how soon will that potential be reached? And how many will realize it?

The answers will be found by looking at how companies and countries approach the age of discovery. Do they position themselves to seize the opportunities? Or do they resist the change that's coming?

If I learned one lesson from my 39 years at IBM, it was that the longer you wait to implement change, the harder it is to implement it – and the less effective it's likely to be. In the global era, the changes are going to come faster, they're going to come from countries – and especially cities – throughout the world, and they're going to be more transformative than in the past. Resisting the change is a recipe for oblivion.

The opportunities to be unleashed from the age of discovery – but also the challenges – speak to the need for leaders in business, government, academia, and elsewhere to invest in learning about the new dimensions of the future. A wide range of instruments and organizations can help leaders navigate these changes and benefit from them. I intend for the Center for Global Enterprise (CGE) to do its part. I think leaders will come to see – as I did – that the globally integrated enterprise offers the ideal operating structure for meeting the challenges and seizing the moments of opportunity in this new age of discovery. I am excited to help deepen understanding about the world we find ourselves in so that we can advance social, economic, and human progress across the globe.

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