Foreword

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Innovation is as important today as at any time in recent human history. Governments, businesses, NGOs, and individuals from nearly every country are facing challenges that will define the next decade. Climate change, economic dislocation, disease, and pandemics are just some of the issues that challenge our progress, causing leaders of communities, companies, and countries to pause and question: What can we do to respond to these perils? How can we put ourselves in a stronger position for the future? How can we hasten opportunities for development and growth without further compromising our shared planet?

The answers to these questions are complex. What we know is that we need a new formula for a new era of growth and development, a different approach from the one that has driven our progress in the past. To prepare for this future, we must not only solve the problems of today, but dare ourselves to think about what challenges we may face in the coming years and imagine how we can meet them.

This is where we must turn to innovation. As I travel the world, I hear from leaders who see innovation as offering the best opportunity to increase the quality of people's lives and stimulate economic growth. Innovation will fuel a better, stronger, and more efficient global society.

Of course, innovation comes with many definitions, but at its core, I see innovation as imaginative and more affordable breakthroughs that allow individuals, companies, NGOs, governments, and whole societies to achieve something never before possible. By doing something in a new way, innovation is the game-changer that pushes us beyond the boundaries that were thought to exist and allows the world to continually advance.

This kind of innovation does not happen in a vacuum. It requires work across borders, sectors, and industries. While the private sector is often stronger in the development part of R&D, the public sector excels in the research that is the foundation for breakthroughs. Both sectors must work together and draw on their respective strengths. As we face an increasing number of shared global challenges, we must also share ideas more freely. This will ensure that both developed and developing nations can contribute to and benefit from human innovation.

We should also acknowledge that innovation will come from everywhere—not just wealthy nations or so-called "in-

novation industries" like the pharmaceutical and IT sectors. I have no doubt that countries like China, India and Brazil will create some of the most revolutionary ideas and services over the next decade, driven by the dual needs to lower costs and broaden access for their vast populations. Individuals and virtual global communities will also increasingly use ubiquitous data and connectivity to make meaningful breakthroughs.

In my work at Microsoft, I have seen the rewards of innovation, not only for our company and customers, but also for communities and economies everywhere. Like many companies, Microsoft's future relies on our ability to innovate. One-third of our company's global workforce is dedicated to research and development and, despite economic challenges in the recent past, we actually increased our spending on research in our 2010 fiscal year to US$9.5 billion. Why did we do this? Because history has shown that innovation is a reliable engine for growth. We truly believe that our long-term future depends on our ability to sustain a drumbeat of new ideas and innovative technologies that improve people's lives. And of course we are not alone. Many other companies, governments, NGOs, and academic institutions are also investing in innovation as a basis for sustainable growth and competitiveness.

From my vantage point, I have had the opportunity to see IT become a major driver of innovation, globalization, and social opportunity. The PC, the Internet, and fiber optics have all been central to global productivity gains and growth over the past few decades. Years of research show that technology can be used as a catalyst for innovation and productivity, and thus enable companies, NGOs, and governments to run faster, better, and more efficiently. Today, technology innovations continue to offer one of the greatest opportunities for businesses and societies, creating value and improvements across nearly every sector of the economy and nearly every facet of life. Particularly in global growth sectors, such as infrastructure, education, healthcare, energy, and environment, technology helps to improve productivity and creates new opportunities for jobs and growth.

Right now, we are witnessing the ascendance of a new platform for innovation within the IT sector called "cloud computing." What is that? Cloud computing uses the power of a new generation of sophisticated software to connect the incredible capabilities of datacenters, networks, and personal computing devices. The shift toward cloud computing has profound implications for the way people use technology across their lives to work, learn, communicate, and have fun.

While traditional computing requires users to run software on their own devices (laptops, phones, servers on the premises), cloud computing allows users to run complex software that sits in a remote data center that could be located anywhere in the world.

This concept in and of itself is not new. What is new is the sheer computing power of today's data centers. This power has grown to the point where it is now feasible for individuals and institutions to move virtually all of their computing work out of their server rooms and into somebody else's data center, whether it's a data center run by Microsoft, Google, IBM, Amazon, or somebody else.

The advent of "the cloud," much like the advent of the Internet and the electricity grid before it, has the potential to catalyze a new wave of innovations for a number of reasons:

- **Cost Savings**: Cloud computing relieves people with big ideas of the large costs of setting up their own servers or acquiring other hardware. They can accomplish everything they need to through remote servers via the cloud.
- **Speed**: Creating new products and identifying scientific breakthroughs is much faster and easier with cloud computing. Navigating information with the computing power of these data centers provides users with unprecedented levels of data access, speed, and convenience.
- **Flexibility**: The cloud also can grow and shrink to suit the needs of people and businesses. If a business needs services, it can use them. If their needs change, they can taper off their usage. There is no longer a need for businesses to have to buy, use, and maintain their own servers when usage varies.

Cloud-based innovations are already a reality. They can be as simple as enabling old friends to store and share photos on Facebook or Windows Live, and as complex as allowing heart-disease patients to share their blood pressure levels with their surgeons on the other side of the globe. We are just beginning to see some of the possibilities of cloud computing such as:

- Creating huge genome records of large percentages of the world's population, transforming our ability to diagnose and treat diseases and pandemics;
- Allowing entrepreneurs who were constrained by the

cost and power of server hardware to create new products and global businesses from almost anywhere at almost no cost;
- Enabling businesses of all sizes to create scalable and efficient solutions to save money, increase speed to market and focus on core competencies;
- Combining the power of the cloud with emerging natural interface computing, such as voice, gesture and retina recognition, to allow new ways of finding information and communicating seamlessly and intuitively;
- Transforming classrooms by letting teachers and students tap into a constant stream of up-to-the-moment, high quality, globally accessible, and highly interactive instruction;
- Allowing citizens to easily view real-time information from their governments and public services, providing new levels of transparency and civic participation.

These ideas show how technology will continue to enhance people's lives in new and exciting ways. But while it is easy to get caught up in the future, we first need to do the work to make that future achievable. The spark of imagination and discovery is not something that can be bottled and shared. What we can do is look at the conditions that foster innovation and work to replicate them globally.

The Innovation for Development Report aims to do just that, delving into what makes an environment fertile for innovation. The *Report* is divided into three sections: the first houses the Innovation Capacity Index, a tool that examines nations' climate for innovation based on a number of country-specific factors.

The second section takes a closer look at discrete elements of innovation through articles authored by a variety of leading experts. Key topics discussed in this section include the impact of innovation and knowledge spill-over on the economic growth and potential of developing countries; the learning economy as a phase of economic development; social entrepreneurship as a key innovation for the business community in the 21st century; breakthrough innovation and the growth of innovation clusters; and the future role of technological innovation in international efforts to mitigate the effects of climate change.

Finally, the third section profiles the 70 countries that account for the majority of the world's output, providing detail on how they support and encourage innovation.

Throughout these three sections, the *Report* provides valuable insight into how we can inspire minds around the world and accelerate our journey toward the future we imagine for ourselves. I encourage you to think deeply about the *Report*, discuss it with others, and consider the many ways we can take these lessons and apply them to make innovation central to how we function as nations and as a global society.