# Executive Summary

**Geoffrey S. Kirkman,** *Center for International Development at Harvard University*

## The Context

Amidst the political and economic volatility of the last eighteen months, many observers have dismissed or forgotten the promise that the Internet offers. Terrorism is on everyone's mind, thousands protest at every major global meeting, there is a global recession, and in the wake of the bursting of the 1990s dot-com bubble, information and communication technologies (ICTs) have fallen far down on the list of global priorities.

The *Global Information Technology Report 2001–2002: Readiness for the Networked World (GITR)* reminds us of the continued relevance and promise of ICTs, and helps bring some order and clarity to our collective thinking about the appropriate use of ICTs in the world. We are very excited to bring together such a diversity of expert voices and wealth of analysis in one volume.

Although much has recently been turned on its head, some things remain clear. Most importantly for the context of the *GITR*, the Internet and other ICTs have fundamentally changed the way the world works. The Networked World is here to stay, but the changes have happened so fast that we don't really understand our new surroundings. Most importantly, we still have a long way to go in figuring out how ICTs can help in the greatest challenge we face today—the enhancement of global well-being.

The analysis and findings in the *GITR* are relevant to the whole world, but we have crafted a particular focus on the issues of developing countries. ICTs have yet to be adopted or used by most of the world, but it is those people who have not yet used the Internet or spoken on a telephone who perhaps have the most to gain from the potential of ICTs.

## The Report

In assembling this report, we wanted three basic elements to create a coherent message. First, we wanted *vision* to inspire and challenge us to think about technology, development, and their relationship, in new ways. Second, we wanted to better understand how people and organizations are translating vision into *action* on the ground. Third, and at the heart of the *GITR*, we sought to challenge conventional wisdom and standard operating procedures and find better ways to *analyze, understand, and measure* the results of action in order to establish benchmarks and decision-making capability for future success. These building blocks are central to all three sections of the *GITR*: the individually authored chapters, the country profiles, and the presentation of data.

## The centerpieces: Networked Readiness Index and country profiles

At the core of the *GITR* is the Networked Readiness Index, a major comparative assessment of countries' capacity to exploit the opportunities offered by ICTs. The Networked Readiness Index provides a summary measure that ranks 75 countries on their relative ability to leverage their ICT networks. (See Table 1.) The Index and its major findings are presented in Chapter 2.

The Networked Readiness Index goes hand-in-hand with the 75 country profiles that are presented in the second part of the *GITR*. These profiles explore subnational ICT trends and ways in which ICTs are contributing to national, social, and economic development goals in the context of the framework of the Networked Readiness Index. The country profiles provide snapshots of both the quantitative and qualitative factors of Networked Readiness and reveal common themes, different strategies, and clear patterns in national and subnational approaches to Networked Readiness. The challenges of encouraging greater and more effective use of ICTs by small and medium sized enterprises, overcoming rural versus urban discrepancies in ICT adoption, designing policies to encourage Networked Readiness, and overcoming marked deficits in the numbers and skills of ICT workers are among the issues being confronted in countries all over the world.

The final section of the *GITR* contains a series of tables that show in detailed ranking format, both the hard and survey data that were used to build the Networked Readiness Index presented in Chapter 2 and to develop the country profiles. This collection of data pertaining to the Networked World provides a rich trove for analysis that we have only begun to explore within the *GITR*.

## Expert voices on the Networked World

Our contributing authors include some of the leading thinkers, academics, business leaders, and analysts in the world, and each of their contributions is vital to enhancing our understanding of Networked Readiness. The essays in the first part of the *GITR* bring us an unrivaled balance of vision, action, and new ways of understanding the Networked World.

### VISION

The rapidity of the advances in technological development too often leaves organizations, programs, and businesses struggling to keep up. This means that we are left with policies, programs, and business models that do not leverage the real potential of ICTs. Our authors contribute to our understanding of what changes ICTs can bring in the future and how we can maximize their benefit.

### *One-to-one, many-to-many, and a better world*

We have yet to begin tapping into the power of the newest and next technologies. In Chapter 1, entitled, "Some Thoughts on How ICTs Could Really Change the World," John Gage of Sun Microsystems shares his inspiring vision of how ICTs could revolutionize economic development worldwide. Gage challenges readers to link tomorrow's technological change to real projects that can have a lasting, positive impact.

### *Finger paint and the computer*

The assumption that computers by themselves will improve the learning process has become endemic among decision makers in education and other areas. One of the misconceptions of how computers can help learning stems from an insistence that the same skills that we have been taught for the past century remain the most important and relevant in today's Networked World. In Chapter 3, Mitchel Resnick of the Massachusetts Institute of Technology (MIT) Media Lab in "Rethinking Learning in the Digital Age" emphasizes the need for radically different learning systems that tap into the potential that computers, in particular, offer. Drawing upon his experiences with the Computer Clubhouse and other projects, Resnick shows how computer-enhanced learning can create meaningful change in the lives of children, and points to the importance of the underlying philosophy of learning as key to instituting reform.

Table 1: **The Networked Readiness Index**

| Country | NRI rank | Country | NRI rank |
|---|---|---|---|
| United States | 1 | Latvia | 39 |
| Iceland | 2 | South Africa | 40 |
| Finland | 3 | Turkey | 41 |
| Sweden | 4 | Lithuania | 42 |
| Norway | 5 | Thailand | 43 |
| Netherlands | 6 | Mexico | 44 |
| Denmark | 7 | Costa Rica | 45 |
| Singapore | 8 | Trinidad and Tobago | 46 |
| Austria | 9 | Dominican Republic | 47 |
| United Kingdom | 10 | Panama | 48 |
| New Zealand | 11 | Jordan | 49 |
| Canada | 12 | Venezuela | 50 |
| Hong Kong SAR | 13 | Mauritius | 51 |
| Australia | 14 | Peru | 52 |
| Taiwan | 15 | Bulgaria | 53 |
| Switzerland | 16 | India | 54 |
| Germany | 17 | El Salvador | 55 |
| Belgium | 18 | Jamaica | 56 |
| Ireland | 19 | Colombia | 57 |
| Korea | 20 | Philippines | 58 |
| Japan | 21 | Indonesia | 59 |
| Israel | 22 | Egypt | 60 |
| Estonia | 23 | Russian Federation | 61 |
| France | 24 | Sri Lanka | 62 |
| Italy | 25 | Paraguay | 63 |
| Spain | 26 | China | 64 |
| Portugal | 27 | Romania | 65 |
| Czech Republic | 28 | Ukraine | 66 |
| Slovenia | 29 | Bolivia | 67 |
| Hungary | 30 | Guatemala | 68 |
| Greece | 31 | Nicaragua | 69 |
| Argentina | 32 | Zimbabwe | 70 |
| Slovak Republic | 33 | Ecuador | 71 |
| Chile | 34 | Honduras | 72 |
| Poland | 35 | Bangladesh | 73 |
| Malaysia | 36 | Vietnam | 74 |
| Uruguay | 37 | Nigeria | 75 |
| Brazil | 38 | | |

### *Get on board, or get shut out*

As the Internet continues to evolve, businesses need to evolve as well. In Chapter 5, "The X Internet: Leveling the Playing Field for Businesses in Developing Nations," George Colony, Navi Radjou, and Eroica Howard of Forrester Research show us how the next generation of the Internet, one that is executable and extended, will fundamentally change business practices and the sources of competitive advantage. The authors stress the importance for companies, particularly in the developing world, to adapt to the coming technological realities.

## ACTION

We can learn a lot from the on-the-ground experiences of projects, businesses, and endeavors that are using ICTs effectively. This is true in all areas, but especially important in education, business, and policy.

### Moving beyond the blackboard

More often than not, computers are installed into schools around the world without sufficient thought given to how the computers will be used. In Chapter 4, "Ten Lessons for ICT and Education in the Developing World," Robert Hawkins from World Links, a program of the World Bank Institute, discusses his program's experience in connecting schools to the Internet, training teachers, and grappling with curriculum and education reform issues in developing countries. Hawkins distills the World Links story into ten cogent, practical lessons that policymakers and business and community leaders should bear in mind as they attempt to incorporate the Internet into the educational process.

### The triumph of business fundamentals

The Internet can help create true excellence in business practice, but technology alone will do nothing if the appropriate managerial and organizational infrastructure and knowledge are not in place. In Chapter 6, "The Importance of Organizational Leadership for Creating Technology Excellence," Soumitra Dutta of INSEAD presents two compelling case studies that show the tremendous impact that leadership and organizational excellence can have in creating business success using ICTs in the developing world. Dutta effectively illustrates that managerial innovation is essential to creating environments where ICT-enabled business models can thrive.

### Navigating the difficulties of policy reform

In recognition of the complexity involved with telecommunications regulation decisions, in Chapter 12, "The Elements of Successful Telecommunications Sector Reform," Scott Beardsley, Ingo Beyer von Morgenstern, Luis Enriquez, and Carsten Kipping of McKinsey & Co. present the policy reform levers that policymakers have at their disposal. The authors discuss the sequencing and tradeoffs of implementing telecommunications liberalization programs.

## ANALYZING, UNDERSTANDING, AND MEASURING

We are still trying to understand the dynamics of the Networked World. There is a crucial need for measures that better capture its complexity.

### Redefining the Networked World

In Chapter 2, "The Networked Readiness Index: Measuring the Preparedness of Nations for the Networked World," Geoffrey Kirkman, Carlos Osorio, and Jeffrey Sachs from the Center for International Development at Harvard University present the Networked Readiness Index and the major Networked Readiness findings from 75 countries. In their more detailed findings, the authors break new ground in analytical measurement of the factors that generate Networked Readiness, and suggest that much conventional wisdom about ICT policymaking may be fundamentally flawed.

### Creating a digital provide

A shortcoming that has plagued the field of ICT and Development is its reliance on anecdotal accounts of how ICTs can help the ubiquitous poor farmer find out market prices. Descriptions pointing to why the Internet is relevant in the economic development process are filled with stories of online sales of Ethiopian sheep and Indonesian goats, but there has been little analytical evidence of the true microeconomic impact of ICTs. In Chapter 7, "Information and Communication Technologies, Markets, and Economic Development," Karen Eggleston of Tufts University and Robert Jensen and Richard Zeckhauser of Harvard University present a compelling analysis of the impact of ICTs on income in the context of rural villages in China. The construction of their economic model fills an important gap in our knowledge of how ICTs affect income, and paves the way for more analytical research in this area.

### Making rural markets work

Most of the world has still had no contact with the Internet or any other modern ICTs, and bringing the opportunities of connectivity to the rural areas of the globe remains a major development challenge. In Chapter 8, "Community Internet Access in Rural Areas: Solving the Economic Sustainability Puzzle," Michael Best of the MIT Media Lab and Colin Maclay of the Center for International Development at Harvard University discuss the major challenges to extending the benefits of ICTs to rural areas. Drawing largely upon their experience in southern India, Best and Maclay show that market forces and entrepreneurship are of paramount importance in meeting rural ICT needs effectively, and that perceptions of rural areas as nonviable markets are flawed.

### Putting e-commerce and trade strategies together

The challenges of making e-commerce truly global are wide-ranging, especially when policymakers lack the analytical tools to identify opportunity and craft policy accordingly. In Chapter 9, "Electronic Commerce, Networked Readiness, and Trade Competitiveness," Catherine Mann of the Institute for International Economics builds upon existing models of trade and e-commerce analysis to devise new analytical tools for policymakers as they focus on improving the policy environment for the development of e-commerce. In particular, Mann shows the importance in developing countries of aligning e-commerce and trade strategies around principles of competitive advantage and industry fit.

### Tracking the flows of trade

International trade can play a major role in extending the diffusion of ICTs around the world. In Chapter 10, "Trade in ICT Products: The Global Framework and Empirical Evidence," Peter K. Cornelius and Fiona Paua of the World Economic Forum and Friedrich von Kirchbach and Nicolai Sëmine of the International Trade Centre look at trends in the international trade of ICT products, with particular attention to improving the adoption of ICTs in the developing world.

### Mastering the minutiae of regulation

Telecommunications deregulation is one of the key areas of policymaking that affects Networked Readiness, because it affects the price, quality, and diffusion of the Internet. In Chapter 11, "Telecommunications Sector Reform—A Prerequisite for Networked Readiness," Scott Beardsley, Ingo Beyer von Morgenstern, Luis Enriquez, and Carsten Kipping of McKinsey & Co. examine the evidence of telecommunications liberalization to date, and through rigorous cross-country comparison and data analysis, present a solid look at the global experience. Their analysis provides a firm base for their discussion of the levers of policy reform in Chapter 12.

## Toward the Future

This inaugural *Global Information Technology Report: Readiness for the Networked World* is the first volume of its kind to explore such a wide range of issues, capture the current realities, and challenge us all to improve how ICTs are used throughout the world. We look forward to continuing to build on the vision, action, and tools for understanding that can be found throughout the Report. Above all, we hope that the *GITR* will contribute to the overarching goal of making the world a better place through the thoughtful and appropriate use of information and communication technologies.