A Report on the Global E-Discussion

Information and Communications Technology for Economic Development

Exploring Possibilities for Multi-sector Technology Collaborations

October 23–November 3, 2006

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Organized by the World Bank Institute's Business, Competitiveness, and Development Team and the RiOS Institute (Research and Innovation for Organizations and Societies)

Paul Braund
Kathrin Frauscher
Anke Schwittay
Djordjija Petkoski

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Contents

Foreword v

Acknowledgments vii

Abbreviations ix

Executive Summary xi

Introduction 1

Part I: ICT for Development —Understanding Key Issues 7
1. How Can ICT Advance Economic and Social Development? 9
2. Why Does Governance Matter For ICT For Development to Be Effective? 9
3. What Role Can Multi-Stakeholder Partnerships Play in ICT-enabled Development? 13

Part II: E-discussion: Observations and Discussion from the Participants 19
1. How Can ICT Advance Economic and Social Development? 21
M-Preneurs 22
Financing ICT for Development 24
2. Why Does Governance Matter for ICT for Development to Be Effective? 25
ICT as a Transparency Tool 27
3. What Role Can Multi-stakeholder Partnerships Play inICT-enabled Development? 28
The Need for Strong Leadership 30

Part III: Concluding Possibilities 33

Suggested Further Readings 37

Further Links 38

Appendix: E-Discussion Description 40

References 48

Boxes

Box 1. Definition of ICT for Development 4
Box 2. Overview of the Global E-Discussion "ICT for Economic Development: Exploring Possibilities for Multi-Sector Technology Collaborations" 4
Box 3. Summary of Findings from 2006 World Bank Report on ICT for Development 10
Box 4. Growth of India's Software Sector 11
Box 5. Reaching the Poor through ICT 11
Box 6. Global Alliance for Information and Communication Technologies and Development (GAID) 16
Box 7. Experience of GrameenPhone in Bangladesh 23
Box 8. "M-preneurs" in Nigeria 24
Box 9. Grameen Bank 25
Box 10. Internet Governance Forum 27
Box 11. Website of e-subasta in San Pedro Garza Garcia, Mexico 28
Box 12. E-ASEAN Initiative 29
Box 13. Kuppam and Mogalakwena (South Africa) i-communities, Hewlett Packard E-Inclusion Initiative in India and South Africa. 31

Figures

Figure 1. Barriers to ICT Adoption in Selected Countries 13
Figure 2. Key Constraints to Business: OECD vs. Emerging Economies 14
Figure 3. Core Competencies of Potential ICT Partners for Development 17
Figure 4. Mobile Telephone Subscribers Globally 23

Foreword

The adoption of modern technology can be a key driver for economic and social growth in transitioning and developing countries. This is acknowledged by the United Nations Millennium Development Declaration, which calls to "ensure that the benefits of new technologies, especially information and communication technologies...are available to all."

In support of this goal, the World Bank Institute (WBI) Business, Competitiveness, and Development (BCD) Team and the Research and Innovation for Organizations and Societies (RiOS) Institute explored how information and communication technology (ICT) can be harnessed more effectively for development during a global e-discussion. The role of multi-stakeholder partnerships was emphasized, as the nature and scale of development issues involving ICT often requires effective partnerships and solutions that involve different sectors of society. Our experience shows that, with sufficient attention to and tolerance for each others' differences, companies, government agencies and civil society organizations can find significant areas of common ground upon which to better harness ICT for development.

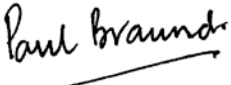
The e-discussion "Information and Communication Technology for Economic Development: Exploring Possibilities for Multi-sector Technology Collaboration," which WBI and RiOS jointly organized in October and

November 2006, explored how ICT can contribute to development through multi-stakeholder partnerships. The ensuing dialogue touched upon a range of issues, from access to infrastructure to the need for targeted capacity development to sensitivity regarding local context. In particular, questions of capacity development focused on the role of good governance as a necessary requirement to nurture an environment that can foster the responsible and effective use of ICT for development.

The e-discussion served as a preparatory event to the Silicon Valley Challenge Summit, which was co-hosted by RiOS Institute at Santa Clara University on November 16, 2006. The Summit explored how companies and organizations from Silicon Valley can play a larger role in the area of ICT for development through multi-stakeholder partnerships. During the event, the BCD Team hosted a workshop on "Working with Multilateral Development Organizations," exploring how, in light of the World Bank Group's governance and anti-corruption strategy, multi-lateral organizations and Silicon Valley institutions, foremost among them the private sector, contribute to promoting a transparent and well-governed environment that fosters ICT for development.

This report highlights some of the key questions and messages that evolved during the e-discussion and was prepared especially for those business and civil society leaders infrequently exposed to ICT for development issues. Our hope is that this report raises awareness among the business and development community on how ICT can be an effective tool for development.

Djordjija Petkoski
Head
Business, Competitiveness, and Development Team
World Bank Institute



Paul Braund
Executive Director
RiOS Institute

Acknowledgments

This report was prepared by the World Bank Institute Business, Competitiveness, and Development (BCD) Team and the RiOS Institute. The project team was led by Djordjija Petkoski, Paul Braund, Kathrin Frauscher and Anke Schwittay. The global e-discussion benefited from the participation of senior participants and experts from the public, private and civil society sectors, as well as academia from around the world. The e-discussion moderators were experts Zlatko Lagumdzija and Tarik Zaimovic from the Management and Information Technology Center (MIT), Bosnia; Michelle Selinger, Cisco Systems; Janine Firpo, Sevak Solutions; Mirza Hajri, The World Bank Group; Debra Dunn, Skoll Foundation; Paul Falchi, Talk Free, and Paul Braund, RiOS Institute. Opening remarks were made by Mr. Sarbuland Khan, Executive Coordinator of the United Nation's Global Alliance for ICT and Development (GAID). The draft report benefited greatly from the review and comments from Ronald Kim, Joyojeet Pal, Michelle Selinger and Jason Wakefield. Andrew Zerzan wrote the first draft of this report and significantly contributed to the initial research. Jenny Gold, Alexis Sampson and Amina El-Sharkawy also provided assistance to organize the e-discussion and prepare this report. The report was designed by James Quigley.

Abbreviations

BCD	Business, Competitiveness and Development
CEO	Chief Executive Officer
GAID	Global Alliance for ICT and Development
GDP	Gross Domestic Product
ICT	Information Communication Technology
IGF	Internet Governance Forum
IT	Information technology
MDG	Millennium Development Goal
M-PRENEURS	Mobile telephone entrepreneurs
NGO	Non-governmental organization
OSS	Open source software
RIOS	Research and Innovation for Organizations and Societies
VOIP	Voice over Internet Protocol
WBI	World Bank Institute
WBG	World Bank Group
WSIS	World Summit on the Information Society

Executive Summary

Information and communication technology (ICT) is increasingly being recognized as a powerful enabler of economic and social development. This report is based on a global e-discussion entitled "ICT for Economic Development: Exploring Possibilities for Multi-Sector Technology Collaborations," which was jointly organized by the WBI Business, Competitiveness, and Development (BCD) Team and the RiOS Institute in October and November 2006. The e-discussion explored how ICT can contribute to development through multi-stakeholder partnerships.

This report presents a summary of the main thematic areas of the e-discussion and is intended to raise awareness about ICT for development among those business and civil society leaders who are not yet aware of the broader development potential of ICT. Supporting the mandates of RiOS Institute and the BCD Team, the report emphasizes the crucial role of good governance and multi-stakeholder partnerships in the advancement of ICT for development, realizing that the nature and scale of development issues involving ICT often necessitate effective partnerships between different sectors of society.

This report focuses on three main questions that emerged from the e-discussion and are useful for understanding ICT for development:

1. *How can ICT advance economic and social development?*
   Recognizing the potential of ICT-enabled development projects, participants cited a lack of workable strategies for unleashing ICT for development. Greater attention to local needs and stronger civil society and private sector involvement were seen as critical steps to harnessing ICT more effectively. Participants also argued for an urgent need to design more innovative financial mechanisms for ICT-enabled projects. Attracting additional private sector investment, promoting microfinance and establishing new multi-stakeholder funds were thought to be potentially effective funding avenues.

2. *Why does governance matter for ICT for development to be effective?*
   Participants highlighted that effective ICT for development initiatives necessitate a sound and transparent regulatory and legal framework that promotes trust in and access to ICT applications. Participants also discussed approaches regarding how ICT could be used more effectively to promote and monitor transparency and anti-corruption measurements.

3. *What role can multi-stakeholder partnerships play in ICT-enabled development?*
   There was a consensus among participants that effective and sustainable ICT-enabled development initiatives often require the involvement of stakeholders from different sectors of society, including business leaders, government representatives, civil society organizations and international and regional institutions. Furthermore, participants referred to the pressing need for strong leadership in order to facilitate dialogue and mutual understanding between various stakeholders.

The concluding sentiment of the e-discussion was that although there are no easy solutions to build effective and sustainable ICT-enabled development initiatives, it is important to expand efforts to harness ICT for development. To further advance ICT-enabled development initiatives, the exchange of lessons about successful and failed initiatives is the ground upon which to build new and innovative projects.

Introduction

"If harnessed effectively, information and communication technologies have the potential to greatly improve our social, economic and cultural lives. They can serve as an engine for development in areas ranging from trade to telemedicine, and from education to environmental protection. They are tools with which to advance the cause of freedom and democracy. And they are vehicles with which to propagate knowledge and mutual understanding."

—Kofi Annan, World Summit on the Information Society
December 2003

Information and communication technology (ICT) is increasingly being recognized as a powerful enabler for economic and social development. ICT can advance economic growth, enhance social inclusion, increase health and education services and improve governance at all levels. The United Nations Millennium Development Goals (MDGs) recognize the potentials of ICT for development and MDG 8 (Target 17) calls "to develop a global partnership for development and, in cooperation with the private sector, make available the benefits of new technologies — especially information and communication technologies."

Despite its potential, ICT is by no means a panacea. ICT can also introduce new ways for fraud and corruption to occur, and its inappropriate application can sometimes derail development outcomes. ICT can also deepen existing inequalities and misdirect scarce resources. When thinking about ICT for development, it is thus crucial to foster an enabling, trustworthy, transparent and non-discriminatory environment that promotes the responsible and effective use of ICT for development for the benefit of all (see Box 1).

This report is based on the global e-discussion "ICT for Economic Development: Exploring Possibilities for Multi-sector Technology Collaborations",

Box 1. Definition of ICT for Development

ICT4D refers to the use of Information and Communication Technologies (ICT), such as computers, the internet, mobile phones and traditional media such as radio, to advance human and social development. More specifically, ICT is applied to areas like education, healthcare, governance and economic development. In this report, 'ICT for development initiatives' and 'ICT-enabled development projects' are used interchangeably.

Source: RiOS Institute

Box 2. Overview of the Global E-Discussion "ICT for Economic Development: Exploring Possibilities for Multi-Sector Technology Collaborations"

An E-Discussion is an online discussion led by expert moderators and commentators that allows participants to communicate with each other across countries and time zones.

Title
"ICT for Economic Development: Exploring Possibilities for Multi-Sector Technology Collaborations"

When
October 23–November 3, 2006

Objectives
The e-discussion aimed to contribute to the on-going debate about ICT for development by allowing participants to exchange experiences and best practices about opportunities and challenges that arise in ICT-enabled development projects.

Target Audience
100 participants from the public, private and civil sectors, as well as academia.

Key Issues
The e-discussion explored how ICT can contribute to economic development through multi-stakeholder partnerships and touched upon a range of issues, including access, infrastructure, the need for targeted capacity development, and sensitivity to local context.

which was jointly organized by the RiOS Institute and the World Bank Institute Business, Competitiveness, and Development (BCD) Team (see Box 2).

This report captures the key themes that emerged from the e-discussion and aims to raise awareness among business and civil society leaders on how ICT can be harnessed more effectively for development. The report was prepared especially for those who are not yet fully aware of the broader development implications of ICT, but are interested in strengthening their understanding about the benefits and risks of ICT-enabled development initiatives. The report presents a summary of the main discussion areas and offers a section of suggested further readings for further exploration of the topic.

The report is divided into three parts. Part I introduces key questions that are useful for understanding ICT for development:

1. How can ICT advance economic and social development?
2. Why does governance matter for ICT for development to be effective?
3. What role can multi-stakeholder partnerships play in ICT-enabled development?

Part II provides an overview of the observations, experiences and suggestions provided by the e-discussion participants. The comments of the participants are organized according to the key questions introduced in Part I. Part III presents recommendations and suggestions, highlighting some key issues that readers might find worthwhile to explore.

Part I:
ICT for Development—
Understanding Key Issues

1. How Can ICT Advance Economic and Social Development?

One fundamental question raised in the ICT for development debate is whether the usage of ICT can enhance economic growth and promote social development. According to a recent World Bank study, the appropriate use of ICT can indeed play a very important role in advancing economic growth and reducing poverty (GICT and DECDG, 2006). A survey of firms carried out in 56 developing countries found that enterprises that used e-mail to communicate with their clients and suppliers grew 3.4 percent faster per year in terms of sales and 1.2 percent faster in terms of employment creation than those that did not (see Box 3).

ICT can also contribute to the acceleration of economic growth at the country level, when deployed in accordance with the specific needs and capacities of each country. The World Bank Report "E-Development: From Excitement to Effectiveness" (Schware, 2006) highlights that "developed middle income countries and developing nations can reap benefits from having a healthy information technology (IT) supply sector. Software sectors in particular can have a considerable impact on employment, pay and economic performance." India is the leading example of a country that has encouraged ICT-led growth (see Box 4), and Malaysia, Greece, Israel, Singapore and the Republic of Korea have also taken a proactive stance to promote ICT-enabled growth.

Equally important, ICT can be one factor in sustainable poverty reduction. For example, C.K Prahalad and Al Hammond pointed to the potential of ICT to provide an effective tool for reaching the poor (see Box 5).

2. Why Does Governance Matter For ICT For Development to Be Effective?

Experience shows that certain conditions and success factors must be in place to maximize ICT for development potential. Regulatory stability, the ease of doing business, a low prevalence of corruption, trust in ICT-processes and legal protection are among the key factors that affect the adoption and diffusion of ICT for development.

Box 3. Summary of Findings from 2006 World Bank Report on ICT for Development

- ICT plays a vital role in advancing economic growth and reducing poverty. A survey of firms carried out in 56 developing countries found that firms that use ICT grow faster, invest more, and are more productive and profitable than those that do not.
- Over the past 25 years, developing countries have considerably increased ICT access, especially for telephone services. Between 1980 and 2005, the number of telephone subscribers in developing countries increased by over 30 fold. In 1980, developing countries accounted for only 20 percent of the world's telephone lines. In 2005, 60 percent of telephone lines globally were in developing countries. This expansion has been driven by the technological revolution of mobile telephony, as well as by increased private sector competition.
- Opening up to private sector competition has led to huge inflows of investment from overseas. Between 1990 and 2003, 122 of 154 developing countries received about USD $200 billion in foreign investment for telecommunications alone.
- While the transition to well-regulated and competitive service provision is important for increasing ICT access, there is some way to go in this transition. For example, nearly half of countries globally retain monopolies on the service provision of ICT.
- While the developing world has seen huge progress in the rollout of basic ICT infrastructure, the picture is more mixed for the advanced use of ICT. Worldwide, Internet use more than quadrupled between 2000 and 2005, but differences in the number of secure Internet servers, a proxy for the availability of e-commerce, remain stark. While developed nations on average reported more than 300 secure Internet servers per 1 million people, developing nations reported less than 2.
- There is a continued need for government and private sector support of initiatives that extend "access" to ICT. The report describes innovative examples of public-private partnerships that can extend access to ICT in rural and remote areas.
- A review of 40 national e-strategies from developing countries found that more than 85 percent of these strategies aim to expand ICT use in governments and schools, expand telecommunications infrastructure, and provide for an adequate legal and regulatory framework.
- Although many countries have made large advances in the area of ICT, more work is needed to use ICT as an effective tool for development. The report calls for "e-strategies" to develop clear cross-sectoral objectives and specific interventions with clarity in terms of budget and responsibility.
- The report also recommends that countries should increase efforts to collect and share ICT data, and the international community can help facilitate the improved coordination of such efforts.

Source: GICT and DECDG (2006).

Box 4. Growth of India's Software Sector

The growth of India's software sector has been striking over the past decade. In 2005–06, India's software and related services industry, which includes IT enabling services (ITES—including human resources, costumer care, payment services, finance, etc), grew by 28 percent, accounting for 4.8 percent of GDP compared with 0.5 percent in 1996–97. Services and software exports remain the mainstay of the sector with an estimated export growth of over 32 percent for FY07. India is also the global leader in the provision of business process outsourcing, exporting US$25 billion per year worth of these services, a figure that is expected to rise to US$60 billion by 2010.

Source: NASSCOM.

Box 5. Reaching the Poor through ICT

- Low-cost wireless networks and access devices => bridge infrastructure gaps in rural areas => link informal economy to established markets and provide distribution channels and transaction platforms
- Voicemail and voice recognition software => help bridge literacy gap => enable service delivery to and transaction with illiterate or semi-literate people
- e-commerce systems => eliminate intermediaries => provide transparency and reduce corruption

Source: Prahalad and Hammond (2002).

A recent World Bank study (GICT and DECDG, 2006) analyzed the most common barriers to ICT adoption for companies in developing and emerging countries. This study shows that inadequate legal protection, concerns about privacy issues and lack of skills to use e-applications are among the top obstacles (see Figure 1). While this analysis concerns the use of ICT by firms for business operations, studies that analyze the use of ICT for development show similar results. The United Nations ICT Task Force compendium "Creating an Enabling Environment: Toward the Millennium Development Goals" emphasizes

> "…in order to maximize the social and economic benefits of ICT, a favorable economic, political and regulatory environment is needed.

> Each of the stakeholders — governments, development agencies, international financing institutions, consumers and business — plays an important part in creating the required conditions. Governments are responsible for eliminating barriers to competition, encouraging investment in communications infrastructure, and establishing an independent regulatory authority. Development agencies could do their part by allocating sufficient resources to support the deployment of ICT in the developing world while respecting fair competition. International financing institutions can assist by giving priority to Information Society development. Industry could contribute by developing more efficient, user-friendly and affordable technologies and solutions, bringing ICT within reach of millions, and also joining various digital bridging and community involvement programs and actions" (Gilhooly, 2005)

Of equal importance is the need to ensure that the laws, regulations and Information Society initiatives are implemented in a transparent, consistent and effective manner. A study (Aubert, 2004) on promoting innovation in developing countries highlights "the crucial importance to go beyond the formal appearance of laws and to examine how laws are applied in practice in taking due account of the more or less informal relations regulating transaction among economic agents." In other words: the adoption and use of ICT for development challenges is linked to the governance conditions that are specific to each country.

Weak governance, comprising corruption and bureaucracy, was identified by executive managers in developing and developed countries as the most binding constraint for doing business in their country (Kaufmann, 2004). Although the clusters of finance, labor markets/human capital, tax regime and infrastructure also pose significant obstacles in many countries, they lag far behind the governance cluster (see Figure 2). More generally, weak governance and prevalence of corruption distorts the rule of law, weakens the institutional foundations of countries, disrupts the provision of public services, deters the development of markets and is thereby one of the main challenges to the effectiveness and sustainability of development efforts.

Figure 1. Barriers to ICT Adoption in Selected Countries

Barrier	*Brazil*	*China*	*Singapore*	*Global*
Need for face-to-face interaction	…	…	38	34
Concern about privacy of data or security issues	49	45	48	44
Customers do not use the technology	48	33	…	31
Finding staff with e-commerce expertise	34	…	…	…
Costs of implementing an e-commerce site	34	…	45	34
Making needed organizational changes	…	…	38	…
Level of ability to use Internet as part of business strategy	…	31	…	…
Business laws do not support e-commerce	…	41	…	…
Inadequate legal protection for Internet purchase				

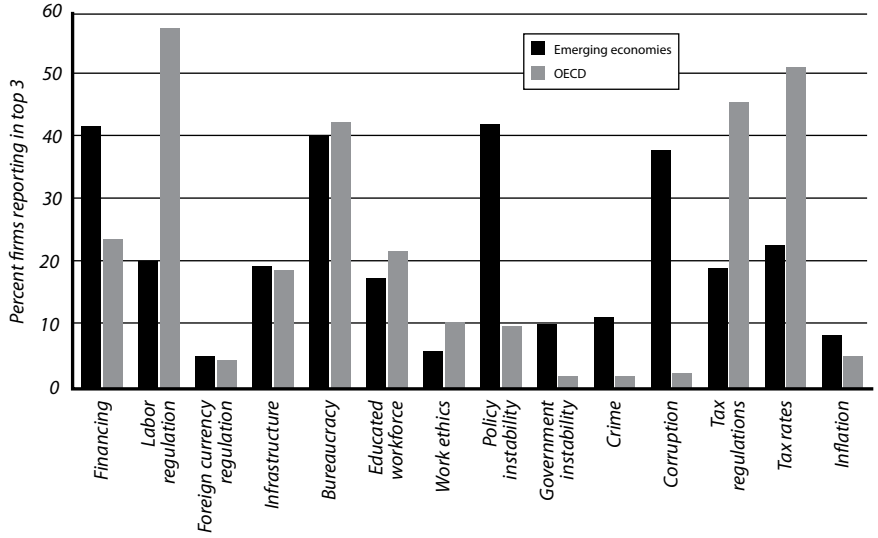
Note: The numbers refer to the percentage of firms citing obstacles (top five for each country).
… = not available
Source: GICT and DECDG, 2006.

The United Nations-sponsored World Summit on the Information Society (WSIS) aims to establish the foundation of an information society and recognizes the importance of fostering good governance and an enabling environment to unleash the potentials of ICT for development. In the Tunis Commitment prepared during the second WSIS Summit in Tunis in 2005, Heads of State from 174 countries, as well as high-level representatives from international organizations, the private sector and civil society, reaffirmed their resolution to create an enabling environment with a supportive, transparent, pro-competitive and predictable legal and regulatory framework that builds confidence in the use of ICT for development.

3. What Role Can Multi-Stakeholder Partnerships Play in ICT-enabled Development?

The nature and scale of development issues involving ICT often require effective partnerships and solutions that involve different sectors of society. It is widely recognized that all key stakeholders — including business leaders, government representatives, media, academia, civil society organizations, and international and regional institutions — can contribute to better harnessing ICT for development (see Figure 3).

Figure 2. Key Constraints to Business: OECD vs. Emerging Economies



Source: Kaufmann (2004).

- The *private sector* is critical in developing, financing and diffusing ICT for infrastructure, content and applications, and in bringing a drive for innovation and experimentation. It can also advocate for a conducive business environment that unleashes the development use of ICT and contribute to the monitoring and evaluation of government efforts in this field. Furthermore, the private sector can advice on effective business process models that help to create sustainable ICT programs.
- *Governments* can play a leading role in developing and implementing comprehensive and transparent regulatory frameworks and e-strategies that place ICT at the center of economic and social development. They can also be instrumental in strengthening the organizational and human capacities of stakeholders to use e-applications in an effective manner.
- *Media* can help shape public opinion and information on ICT for development.
- *Academia* can play a key role in research and development, fostering innovative and successful applications of ICT in development, and the building of skills and expertise.
- The involvement of *civil society* is important in implementing and

sustaining ICT-related initiatives for development as it can provide local knowledge and capacity building assistance. Civil society participation can also contribute to fostering transparency and good governance and creating an environment of trust for the scaling of ICT innovations.

- The newly emerging paradigm of partnership also reveals that *international and regional institutions*, including multi-lateral institutions, are a crucial force in the partnership equation. They can assist in overcoming the challenges of advancing ICT for development initiatives by providing expertise, resources and capacity development for multi-stakeholder learning, skill building, leadership, cross-stakeholder exchange, and the scaling of successful practices on how to effectively work together.

Given this complexity of roles and responsibilities, multi-stakeholder partnerships for ICT-enabled development often represent a challenge to the traditional motivational, organizational and accountability mechanisms long established for different sectors of society. ICT for development projects thus necessitate collaborative solutions with a deliberate experimental feature—learning from new actions and experiences taken by all stakeholders. Recognizing the challenges of multi-stakeholder partnerships for ICT for development, the United Nations launched in 2006 the Global Alliance for Information and Communication Technologies and Development (GAID) with the objective of "bringing together key organizations involved in ICT for development to enhance their collaboration and effectiveness for achieving the internationally agreed development goals" (see Box 6).

Box 6. Global Alliance for Information and Communication Technologies and Development (GAID)

Characteristics

- an open, inclusive, multi-stakeholder forum that brings together *governments, international organizations, civil society, the private sector, media and other stakeholders* to better harness ICT for advancing development
- an embodiment of Millennium Development Goal (MDG) 8: *"in cooperation with the private sector, make available the benefits of new technologies, especially information and communications technologies"*

Leadership

- *Steering Committee:* Chaired by Dr. Craig Barrett, Chairman of Intel, provides executive direction, priority setting, oversight and guidance
- *Strategy Council:* 60 multisector leaders, provides strategic guidance and vision
- *Secretariat:* Led by Sarbuland Khan, provides organizational, logistical and analytical support
- *High-level advisors:* Including Paul Braund, provides policy and expert advice

Objectives

- catalyzing multi-stakeholder action oriented partnerships,
- informing policy makers about the need for ICT
- facilitating identification of technological solutions for specific development needs and goals
- Promoting creation of an enabling environment and innovative business models for pro-poor investment, innovation and entrepreneurship and growth

Organization

Focus Areas	*Flagship Partnership Activities*	*Advocacy Themes*
• Education • Health • Entrepreneurship • Governance	• Better Connectivity with Broadband to Africa • Telecenters 2.0 • Cyber Development Corps	• Free access for all schools to the Net • Inclusive technologies

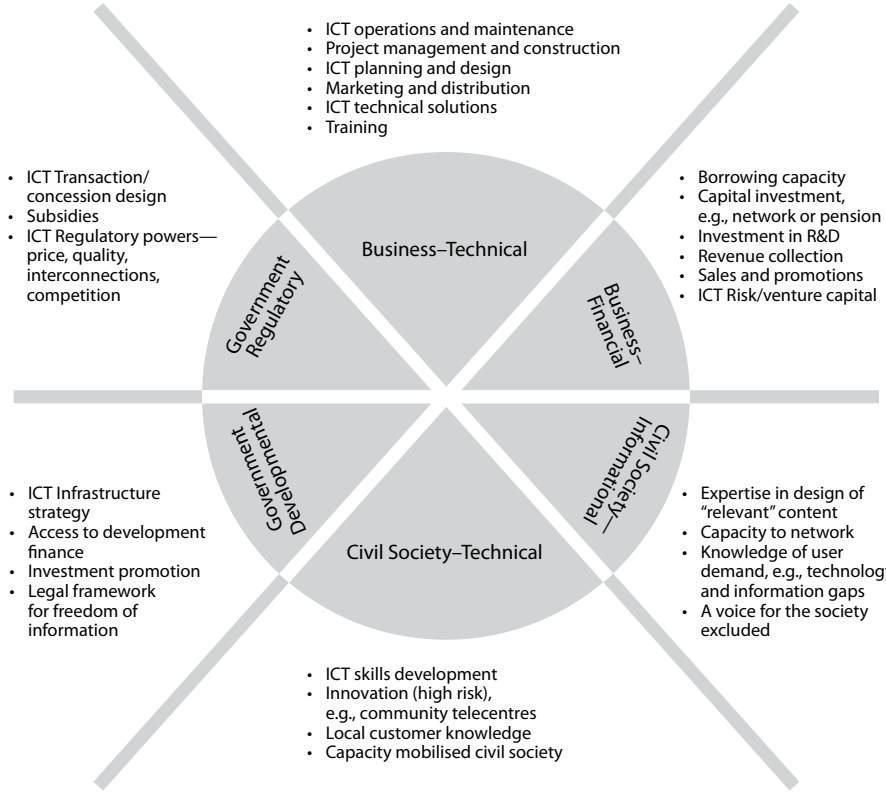
- also has Communities of Expertise, Stakeholder networks, regional networks

Funding

- funded by annual voluntary contributions from Strategy Council and Steering Committee:
- suggested amount of US$250,000 from OECD governments, multilateral finance institutions, large private sector members and foundations
- suggested amount of US$50,000 from other members
- in-kind contributions from civil society members

Source: GAID.

Figure 3. Core Competencies of Potential ICT Partners for Development



Source: GKP (2003).

Part II: E-discussion: Observations and Discussion from the Participants

Part II summarizes the observations and experiences of the e-discussion participants. The summaries are organized according to the key questions introduced in Part I. The first question focuses on how ICT can advance economic and social development. The second question concentrates on why governance matters for ICT for development to be effective. The third question explores the role of multi-stakeholder partnerships in ICT-enabled development.

1. How Can ICT Advance Economic and Social Development?

Recognizing the potential benefits of ICT-enabled development projects, e-discussion participants emphasized that improving the diffusion and utilization of ICT-applications can be an important objective of ICT for development initiatives, but should not be the end goal of such efforts. ICT by itself cannot resolve development challenges associated with poverty eradication, social inequality and environmental degradation. It can, however, contribute to the realization of development goals by enhancing the exchange of information, promoting the efficient use of resources and fostering individual and collective capacity development.

While many governments and development institutions have launched ambitious e-government and ICT for development initiatives, the issue of how best to execute these strategies has yet to be adequately addressed. In order to maximize the economic and social benefits of ICT, e-discussion participants cited the need for developing and implementing comprehensive and workable strategies for ICT for development initiatives. These included:

- greater attention to local needs and sensitivities as specific challenges to countries and communities
- the importance of stimulating local, grassroots projects, and providing civil society and private sector support through multi-stakeholder partnering and consultations
- providing open and affordable access
- creating an environment that promotes confidence and trust in the use of ICT

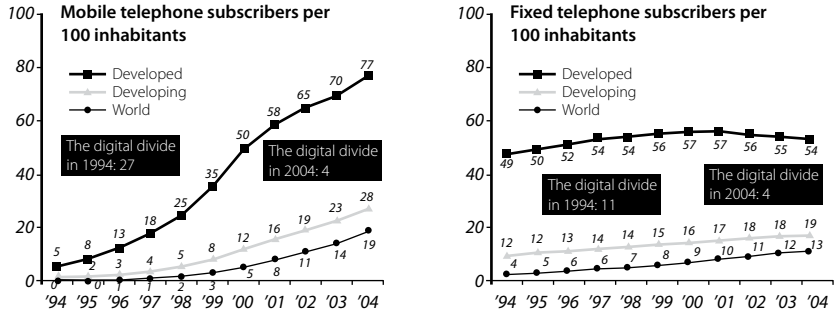
While there cannot be one prescriptive strategy for implementing ICT for development initiatives, participants felt that better knowledge sharing and additional empirical research could contribute to solutions for implementation challenges. Many participants pointed out that assessing and exchanging best practices could contribute to finding workable strategies that are tailored towards local needs and that promote grassroots engagement.

M-Preneurs

Regarding the possibility of using ICT to foster economic development and competitiveness, one of the expert moderators drew attention to the need to balance top-level policy work to improve investment climates and national competitiveness with smaller, more entrepreneurial approaches that can be implemented on an individual scale. The participant's own experience was from the area of Voice over Internet Protocol (VoIP) technology — a system by which telecommunications are run over the internet instead of a standard telephone network. In his case, VoIP presents a cheaper means of long-distance calling and encourages economic development by offering competition to traditional telephone companies, which are often monopolies. In order to counter resistance from established telecom operators to such disruptive technologies, regulatory oversight and enforcement mechanisms are necessary. VoIP also allows small entrepreneurs to start their own resell businesses with minimal start-up costs.

Other participants emphasized that one of the most successful communication technologies has been the mobile telephone (see Figure 4). The GrameenPhone initiative in Bangladesh was often mentioned as an example of how mobile telephones can contribute to local entrepreneurship (see Figure 5). One participant shared an experience from Nigeria (see Box 8), describing the emerging class of mobile telephone entrepreneurs or "m-preneurs" as forces for positive economic change in developing communities. If taught to diversify their use of communication technologies, the participants thought m-preneurs could continue to improve their quality of life by gaining better access to mobile banking, information services, and retail opportunities.

Figure 4. Mobile Telephone Subscribers Globally



Source: International Telephone Union (2003).

Box 7. Experience of GrameenPhone in Bangladesh

Since it first launched its services in Bangladesh in 1997, GrameenPhone has contributed to the country's social and economic development by fostering mobile penetration. Through its low pricing strategy, the company was able to increase competition, quickly bring down prices in the telecommunication sector and help increase mobile penetration from 0.3 percent in 1997 to over six percent in 2004. Besides connecting previously remote and unconnected areas, the company's Village Phone (VP) Program has allowed mainly low income women in rural areas to borrow enough money to buy a handset, a subscription and cover incidental expenses so as to start their own pay telephone service. The idea of the VP Program, which is implemented by Grameen Telecom (GTC) in cooperation with Grameen Bank, a micro credit lending institution is simple: Once the women have received training about the technical operations and tariffs, they are set to start up their own business. The average earning of a Village Phone Operator is about BDT* 5000 per month, which is more than twice the country's per capita income. GrameenPhone has also had a major macroeconomic impact and created new employment opportunities. In addition to employing over 1,000 people, the company has created more than 100,000 jobs, including for dealers, agents, contractors, suppliers, and Village Phone operators. GrameenPhone is also one of Bangladesh's largest private sector investors, as well as one of largest taxpayers in the country. By 2004, its contribution to the government represented 0.4 percent of the country's entire GDP.

* BDT refers to Bangladesh's currency (taka)
Source: International Telecommunications Union (2006).

Box 8. "M-preneurs" in Nigeria

One participant explained that, not too long ago, some local villagers in Nigeria would look at you with both fascination and skepticism if you told them that they could talk to their children living abroad with a handset connected to nowhere. Mobile telephones were regarded as science fiction in Nigeria, as even publicly switched telephony networks are often seen as a luxury. However, this is now far from the case. In Nigeria today, there is rarely any family, no matter how rural, without a mobile telephone. The participant further explained that with the advent of the mobile telephone Nigeria has empowered and created a generation of "m-preneurs" — people who manage call centre businesses on road sides and under trees for their main livelihood. The participant also noted that more and more people in Nigeria are practicing "m-commerce", i.e. the buying and selling of goods and services through mobile phones.

Source: E-Discussion Participant

Financing ICT for Development

The question of financing ICT for development is critical when thinking about unleashing ICT for development. Acknowledging the contributions of the private sector, which since the 1990s has been instrumental in financing provision of ICT infrastructure, access and application, e-discussion participants stressed the importance of developing more innovative financial mechanisms to promote access to and use of ICT in commercially less attractive regions and among the poor.

E-discussion participants from the private sector emphasized that, in order to encourage private sector investment in ICT for development, government and development institutions must play a proactive role in creating the appropriate policy and regulatory frameworks. For companies, investing in ICT is a business decision that is impacted by country-specific comparative advantages and the quality of the business environment. Regulatory stability, the ease of doing business, and the prevalence of corruption were mentioned by some e-discussion participants as important criteria when deciding whether or not to invest in ICT.

Some participants also noted that, given the involvement of multiple stakeholders in ICT for development initiatives, the establishment of more multi-stakeholder funds could be an effective financing mechanism. Despite

Box 9. Grameen Bank

The Grameen Bank operates 2381 branches in 75,950 villages, providing credit to the poor in over 90 percent of the total villages in Bangladesh. Since its inception, Grameen has loaned more than US $2 billion and now reaches more than 7 million borrowers. This new banking system of providing unsecured credit to the poorest of the poor began as an action-research project at Chittagong University, and later grew into a full-fledged bank. Grameen Bank's patrons are 97% women who have an unparalleled repayment rate of 98%.

Source: Grameen Bank.

their complexity, multi-donor funds offer the advantage of pooling and coordinating resources to limit duplication of activities, and allow for more concerted and effective assistance.

Another issue brought up within the context of financing ICT for development was how to effectively provide the poor with financial means to exploit opportunities offered by ICT. Many participants cited microfinance — the provision of relevant and affordable financial services to poor households — as a powerful instrument that enables the poor and people in commercially less attractive areas to participate in ICT for development initiatives. One example frequently referred to was Grameen Bank (see Box 9), which provides credits and financial services to the poor in Bangladesh. Participants believed that microfinance programs are also an important tool to scale ICT for development.

2. Why Does Governance Matter for ICT for Development to Be Effective?

Experience shows that, in order to unleash the potential of ICT for development, an enabling political and regulatory environment is needed. Participants emphasized the importance of understanding the country-specific political contexts before launching ICTD projects, and to put in place a number of activities that support these projects and contribute to their sustainability. The rule of law, transparent and competitive regulations,

intellectual property rights protection, information and network security, the attraction of foreign direct investment and the adoption of international standards were seen as essential to advancing the economic and social benefits of ICT.

Governments have a core responsibility in the creation of this environment and should intervene to correct market failures, attract investment, build infrastructure and create enabling regulations that are vital to enhance development efforts related to ICT. While acknowledging these as the primary responsibilities of governments, many participants called upon the private sector to play a more active role in building such an enabling environment. According to participants, companies (and business associations in particular) are in a prime position to further the ICT for development agenda through educating businesses about the social and economic benefits of ICT, advocating for a more conducive business environment, and monitoring government agencies in the implementation of laws and regulations. The latter is especially important, as creating regulations and laws alone is not sufficient to ensure that those are also implemented and followed in a consistent and effective manner.

E-discussants pointed out that good governance mechanisms that promote transparency, limit the opportunities for corruption and reduce policy discrepancies and uncertainty are crucial building blocks for ICT for development. Participants discussed how the private sector and civil society organizations can play a more active role in promoting good governance mechanisms and monitoring the transparent implementation of business environment regulations. One way of achieving this would be to identify key social objectives and then use regulatory tools, such as targeted private investment, in their achievement. Other suggestions included the launch of sector specific transparency initiatives, awareness raising campaigns and participatory evaluation and monitoring processes that allow involved stakeholders to scrutinize government interventions.

Another point that was raised was the role of international and regional institutions, such as multi-laterals and donors, in building good governance and transparency mechanisms for ICT. Many e-discussion participants welcomed the efforts of the United Nations to improve Internet Governance (see Box 10). Despite the increased engagement of development organizations in governance and anti-corruption initiatives, participants felt that this

Box 10. Internet Governance Forum

The Internet Governance Forum is a forum for a multi-stakeholder dialogue on Internet governance. It was established during the Tunis phase of the World Summit on Information Society (WSIS), which took place in November 2005. In the Tunis Agenda for the Information Society, Governments asked the United Nation's Secretary-General to convene the Forum, giving it the mandate to discuss the main public policy issues related to Internet governance, in order to foster the Internet's sustainability, robustness, security, stability and development.

Source: Internet Governance Forum.

is an area that still warrants more attention, especially when looking at the actual implementation of such initiatives at the country level.

ICT as a Transparency Tool

A common theme within the e-discussion was that while good governance is crucial to unleash the potential benefits of ICT, ICT itself can also be used as a transparency tool to help tackle corruption and foster good governance. Participants discussed initiatives that use ICT to enhance government management, improve government services to citizens, improve interactions between government agencies and business, and empower citizen through increased access to information. One representative from the civil society sector cited the "e-subastas" electronic auction in San Pedro Garza Garcia, Mexico as a successful example of an ICT-enabled project that enhanced the transparency of government services by allowing vendors to see each other's bids in a public auction system for government contracts (see Box 11).

While ICT often facilitates efforts to combat corruption, it can also have no effect, or even provide new opportunities for corruption. Participants cited incidences where ICT-applications led to an increase in corruption because only a few people understood the new technologies and how to use them. It was suggested that the use of ICT to re-organize government activities requires parallel investment in new management techniques and skills building. Participants agreed that capacity building to strengthen the orga-

Box 11. Website of e-subasta in San Pedro Garza Garcia, Mexico

Source: E-subastas homepage.

nizational and human capital of all key stakeholders, to promote leadership across sectors and to foster an organizational culture that is open to change is key when using ICT as a pro-transparency tool.

3. What Role Can Multi-stakeholder Partnerships Play in ICT-enabled Development?

Throughout the e-discussion, participants highlighted how multi-stakeholder partnerships can be a powerful instrument for initiating, managing

Box 12. E-ASEAN Initiative

ASEAN countries believe they must embrace ICT, its development, and use if they are to sustain economic growth and remain competitive in the global marketplace. ASEAN leaders thus agreed to promote collective efforts to complement national development strategies in this sector. The e-ASEAN initiative establishes a region-wide approach to making comprehensive use of information and communication technologies in business, society, and the government. The e-ASEAN Task Force is composed of representatives from the public and private sectors and explicitly states its intention to allow the private and public sectors to bring their respective comparative advantages together.

Source: GKP (2003).

and sustaining ICT for development initiatives. It was suggested that multi-stakeholder partnering is critical to overcoming challenges, such as creating an enabling regulatory environment and more effectively targeting commercially less attractive areas, that still hinder the use of ICT for development. Participants cited several examples of partnerships that managed to deliver meaningful impacts by bringing key stakeholders together, some of which are also discussed in a Global Knowledge Partnership publication (see Box 12).

Participants also pointed out that, given the complex responsibilities and risks, multi-stakeholder partnerships are often challenging endeavors. Some of the challenges mentioned were:

- Participants from the private sector pointed out that such partnerships often fall short in offering a profitable business model that would facilitate private sector investment and engagement.
- Bureaucratic obstacles, weak coordination and low capacity are some of the difficulties presented by public sector participants in partnerships.
- Achieving the right balance between optimal division of risk among stakeholders and the necessary flexibility to deliver affordable ICT solutions is difficult.
- Participants from all sectors felt that partnerships often make no, or only slow, progress because stakeholders are unable to establish communication channels that encourage consensus building and knowledge sharing.

- Stakeholders' objectives and expectations need to be clearly defined, and all involved stakeholders need to be tolerant of different ways of operating.
- Building mutual understanding and trust, as well as adopting a style of consensual cooperation and negotiations, is crucial when managing partnership dialogues.
- Changes in top leadership of all participants can impact the entire partnership.

One e-discussion moderator provided examples of how such challenges affected the outcomes of multi-sector partnerships from her own experiences (see Box 13).

The Need for Strong Leadership

Leadership was another issue raised within the context of multi-stakeholder partnerships for ICT-enabled development projects. These partnerships can only succeed if the leaders of all participating institutions are committed in the long-term, and put in place mechanisms for the continuation of the project in the case of their departure. Participants noted that committed leaders can facilitate among different interests, secure support from local constituents, provide guidance in decision making processes and ensure that appropriate resources are devoted to initiatives. It is crucial that the private sector shows more leadership, especially in finding innovative approaches to aligning strategic ICT priorities with sustainable development goals and the local needs of communities, and sustained commitment that is not directly tied to corporate financial performances. The powers of partnership facilitators, such as multi-lateral institutions and civil society organizations, were also discussed.

During the partnership process, problems can arise with regards to agreeing on decisions, meeting deadlines and dealing with setbacks. In these circumstances, facilitators can play a powerful role by creating a neutral space for discussions and problem solving. Learning to solve problems jointly and reach consensus while staying focused on delivering results was seen as a crucial process that multi-stakeholder partnerships need to master

Box 13. Kuppam and Mogalakwena (South Africa) i-communities, Hewlett Packard E-Inclusion Initiative in India and South Africa.

I'd be happy to share some successes and failures that we experienced in HP's e-inclusion initiatives. I'll start with a notable success. One of our large i-community projects based in Limpopo, South Africa in the community of Mogalakwena was a great example of cross-sector collaboration that continues to deliver impressive results and serve as an inspiring example. You can learn more about the details of the project by going to HP.com and searching on Mogalakwena i-community. In short the goal was to apply technology in appropriate and innovative ways to help address the development needs of Mogalakwena. HP committed a significant team (20+ people) to the project for a period of 3 years to work in collaboration with government and non-profit organizations as well as community members. Strong relationships were built with government at the National, Provincial and local levels. Many technology based services were rolled out in local languages and the skills and capabilities to expand and maintain the technology and services were developed among members of the community. The project was well aligned with the priorities of the HP organization in South Africa and with the government ministries that we were partnering with. HP's then CEO, Carly Fiorina provided strong, visible support as did President Mbeki and they both visited the project annually to review progress.

A similar project in India made significant accomplishments on the ground, but the government support that we had worked hard to build was disrupted when Chief Minister Naidu lost the election in Andhra Pradesh. We were also not as successful in aligning the project with HP's business organization in India so they never really felt a sense of ownership. As a result of these factors and others HP discontinued the project after Mark Hurd, the new CEO took the reigns and launched major cost-cutting initiatives.

Source: Debra L. Dunn, Former HP Senior Vice President of Corporate Affairs and Global Citizenship, Contribution to e-conference

in order to stay viable in the long term. While there is no "one size fits all" approach on how to encourage strong leadership and joint problem solving, participants agreed that establishing trust between all involved stakeholders is the key ingredient for building successful partnerships. Nurturing mutual respect, open dialogue and understanding of the strengths and weaknesses of different stakeholders is thus imperative when building multi-stakeholder partnerships for ICT-enabled development projects.

Part III:
Concluding Possibilities

The report touched upon a range of issues — the importance of multi-stakeholder partnerships; the need for targeted capacity development; the role of good governance in nurturing an environment that can foster the responsible and effective use of ICT for development. Readers who are interested in learning more about ICT-enabled development projects can consult the "Suggested Further Readings" section of this report.

This report focused on three key questions that served as the foundation for the e-discussion. The section below summarizes some of the main points made during the debate:

1. How can ICT advance economic and social development?
   - While governments and development institutions often launch ambitious e-government strategies, the question of how to best execute these strategies often does not garner enough attention. Developing comprehensive and workable strategies for ICT for development initiatives will thus be crucial.
   - Enhanced knowledge sharing and better consultation and partnership mechanisms with local civil society and private sector representatives could contribute to the development of implementation guidelines.
   - Awareness of local contexts and support for home-grown projects are crucial to success.
   - Designing innovative financial mechanisms that promote access and use of ICT in commercially less attractive regions and among the poor could greatly enhance ICT's contribution to development initiatives.
   - Attracting more private sector investment and establishing new multi-stakeholder funds could further ICT-enabled development.

2. Why does governance matter for ICT for development to be effective?
   - A sound and transparent regulatory and legal framework for ICT for development will foster trust in and access to ICT applications.
   - There are multiple ways in which ICT could be used more effectively to foster better governance in development, such as a tool for promoting and monitoring transparency, fraud prevention, and fighting corruption.

- Limited organizational and human capacities of stakeholders remain key obstacle to more frequent use of ICT as a tool to promote transparency and good governance.

3. What role can multi-stakeholder partnerships play in ICT-enabled development?
   - Multi-stakeholder partnerships can facilitate dialogue and mutual understanding between various stakeholders.
   - Good communication and knowledge sharing are two essential ingredients of successful multi-stakeholder collaborations.
   - In multi-stakeholder partnerships for ICT-enabled projects there is often a need for strong leadership. For the private sector working in ICT for development collaborations, such leadership can help firms to adjust to local settings and help build trust among constituents.

More broadly, experiences from the participants suggests that there is great willingness to work together to promote and sustain ICT-enabled development activities. The challenges of integrating ICT into development initiatives are complex and require new thinking and capacity development among all relevant stakeholders. Local governments, firms and communities, as well as practitioners have to be equipped to design, implement and disseminate ICT applications in an effective and sustainable manner. It is especially important to promote trust, not only for the use and dissemination of ICT applications, but for the sound collaborations of involved stakeholders. Collaboration between the business community, civil society organizations and government agencies is often fragile, and necessitates that partners trust the others in their daily cooperation.

The concluding sentiment of the e-discussion was that although there are no easy solutions to building effective and sustainable ICT-enabled development initiatives, it is important to expand efforts to harness ICT for development. Continuing to exchange lessons and experiences of successful and failed initiatives will be crucial to further advance ICT for development. It is imperative to learn from others and build on those lessons with innovative ideas.

Suggested Further Readings

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Further Links

- Development Gateway ICT Portal: http://www.developmentgateway.org/ict
- E-Government: http://go.worldbank.org/6WT3UPVG80
- Global Alliance for Information and Communication Technologies and Development (GAID) http://www.un-gaid.org/en/about/mission
- Global Information and Communication Technologies (GiCT): www.worldbank.org/ict
- Global Knowledge Partnership: http://www.globalknowledge.org/
- infoDev: http://www.infodev.org/en/index.html
- Internet Governance Forum: http://www.intgovforum.org/
- Knowledge for Development: www.worldbank.org/wbi/knowledgefordevelopment

- Organization for Economic Co-operation and Development: ICT: http://www.oecd.org/topic/0,2686,en_2649_37441_1_1_1_1_37441,00.html
- United Nations Information and Communication Technologies Task Force: http://www.unicttaskforce.org/
- United Nations Millennium Development Goals: www.un.org/millenium
- International Telecommunications Union: http://www.itu.int/net/home/index.aspx
- World Summit on the Information Society: http://www.itu.int/wsis

Appendix: E-Discussion Description

Background

The international development community is increasingly recognizing the role of Information and Communication Technologies (ICT) as an enabler of broad-based social and economic development. This has given rise to efforts to utilize ICT to achieve a variety of development objectives, including poverty reduction, extension of health services, expansion of educational opportunities, and access to government services. ICT is also key to economic development on the national and individual levels, potentially improving countries' positions in the global economy and raising individual levels of income.

To strengthen such efforts, the United Nations launched the Global Alliance for ICT and Development in 2006 as "a platform for an open, inclusive, multi-stakeholder cross-sectoral policy dialogue on the role of information and communication technology in development." Previous examples of multi-sector technology collaborations are the many public-private partnerships that have initiated small-scale local efforts to large international ones. The lessons of these partnerships are important for the success of future collaborative efforts. Specifically, how can they be made successful and sustainable for all of their participants?

Objective

This global e-discussion "ICT for Economic Development" aimed to contribute to the current debate about ICT for development by providing a forum where participants can learn from a wide variety of individuals, institutions and countries. The e-discussion brought together ICT leaders, practitioners and users from diverse backgrounds to discuss what ICT for economic development means, how ICT can be harnessed more effectively for economic and social development, and what roles different institutions and stakeholders can play.

The e-discussion focused specifically on the role of the private sector, as many ICT for economic development initiatives are undertaken by com-

panies, often in public-private partnerships with governments, universities and civil society organizations. Participants, led by expert moderators and commentators, explored experiences and best practices, as well as learned about the particular challenges and opportunities that result from corporate involvement in the ICT for development area. The two-week e-discussion concluded with participants exploring the possibilities for building multi-stakeholder partnerships for ICT for development.

Agenda

Week 1: October 23–27, 2006

1) ICT and National Economic Development
   - How important has ICT become for economic development?
   - How does it generate growth on a national level?
   - How can ICT contribute to enhance competitiveness and improve investment climates?

Research has shown that the use of ICT contributes significantly to the growth of emerging economies. India is the foremost example - the success stories of its high-tech companies such as Infosys, Wipro and Tata Consulting are well-known. Part of this growth results from training of computer scientists and engineers, which has been fostered by government agencies and, to a smaller degree by large-scale corporate programs such as the Cisco Networking Academy. New jobs have been created, foreign direct investment has increased and national economies have grown as a result of these investments. What can be learned from such success stories? Can they be replicated? How can the wealth created be distributed in a more equitable manner?

2) ICT for Individual Socio-Economic Development
   - How can ICT best be harnessed to foster individual economic well-being and prosperity?
   - What barriers stand in the way of ICT for development on a personal level?

- How can they be overcome?
- What is the role of social entrepreneurship in this area?

There are many examples of how ICT has helped individuals in developing countries raise their level of income. One of the primary examples is e-choupal in India — a program that allows farmers to check the prices of their crops via the internet to assure maximum leverage on the local market. Another example is the use of ICT to broaden the application of microfinance loans, especially for poor women. The question remains if and how such ICT applications make a meaningful difference in the lives of project recipients and truly lead to individual economic prosperity. Furthermore, as many of these efforts are supported by corporations in search of new markets for their products and services, tensions arise between such corporate objectives and the needs of the individuals participating in these programs. Is social entrepreneurship a possible solution to these tensions?

Week 2: October 30–November 3, 2006

3) Corporations and ICT for Economic Development
   - What is the particular role of corporations in the ICT for economic development area?
   - What are their objectives and contributions?
   - What can we learn from already existing ICT projects in which corporations collaborate with other sectors?
   - What works and what does not and why?

One of the most ambitious ICT for economic development programs was Hewlett-Packard's e-Inclusion program, which ran from 2000 to 2005. The program, which began in Costa Rica and expanded to India and South Africa, aimed to generate both socioeconomic benefits for local recipients, as well as returns for the company. A brief analysis of e-Inclusion, and its demise, will highlight the particular challenges, including ethical ones that can arise from corporations entering public-private partnerships with governments, non-profit organizations and other institutions.

4) Multi-stakeholder Technology Collaborations
   - What other institutions participate in the ICT for economic development area?
   - What are the opportunities and obstacles in regards to multi-stakeholder technology collaborations?
   - What concrete steps are necessary to create such collaborations and make them work for all parties involved, including the people who are supposed to benefit from them?

Moderators[1]

Week 1 October 23–27, 2006

- Prof. Zlatko Lagumdzija and Prof. Tarik Zaimovic — Center for Management and Information Technologies at the University of Sarajevo, Bosnia Herzegovina
- Michelle Selinger — Cisco Systems
- Janine Firpo — Sevak Solutions
- Mirza Hajric — World Bank Group

Week 2 October 30 - November 3, 2006

- Debra Dunn — Global Citizenship at Hewlett Packard
- Paul Falchi — Talk Free
- Paul Braund — RiOS Institute

Week 1

Prof. Zlatko Lagumdzija graduated from the electro-technical Faculty University of Sarajevo, Bosnia Herzegovina (BiH) where he got his Ph.D. in Group Decision Support Systems (DSS). Currently he teaches as a full-time

1. Biographies were provided by the moderators and the World Bank does not guarantee their accuracy.

Professor in the areas of Decision Support Systems, Management Information Systems (MIS), and Reengineering trough ICT and Strategic usage of IT. Prof. Lagumdzija wrote a number of books and published articles in the area of MIS and competitiveness trough IT, as well as the DSS and GDSS. He also is a director of the Center for Management and Information Technologies at the University, and Head of Faculty MIT Department. Professor Lagumdzija has served as a guest lecturer at a number of different universities and business schools throughout the world and has participated in many international research studies.Throughout his political career, Professor Lagumdzija was one of the first Bosnia and Herzegovina (BiH) political leaders who started the reconciliation and peace building process in BiH. His postwar transitional leadership was especially strong while he was working as Prime-minister and Minister of Foreign Affairs in the first non-national party-based government. In this capacity he led the most important changes in BiH since the country's first democratic elections in 1990. He has also played a key role in BiH's transformation from a postwar country to an EU accessions candidate, and is responsible for most of the dramatic changes that BiH has achieved thus far. Finally, among other world leaders, Professor Lagumdzija is a full member Club de Madrid as well as the Word Academy of Art and Science.

Prof. Tarik Zaimovic is currently working as a Teaching Assistant at the Economic Faculty University of Sarajevo, where he is teaching a course in Management Information Systems, as well Management of information technology (IT). During his work at the University Mr. Zaimovic was in charge of establishing BiH's Distance Learning Center as part of the World Bank Global Development Learning Network and for creating the first Distance Learning studies at the University of Sarajevo.
Mr. Zaimovic also works with the United Nation Development Program as a portfolio manager of the Information and Communication Technologies for Development Portfolio. He is in charge of a number of projects such as the Information and Communication Technologies Forum – ICT Forum, e-Readiness Assessment Report, CISCO Networking Academy Support Program, Policy, Strategy and the Action Plan for the BiH's national ICT strategy, e-Legislation Reform Project, e-Government for State Government, and more. Tarik is also the Program Coordinator of *Early Warning Systems*

for BiH, a political and economic quarterly aimed at independent assessments of a number of different indicators of the current situation in BiH. Mr. Zaimovic is the author of numerous books and articles in the area of MIS and competitiveness through IT, as well as the author and editor of *National Policy, Strategy and the Action Plan for the Development of the Information Society in BiH (National ICT Strategy)*. He also served on the management board of largest telecommunications operator in BIH.

Dr. Michelle Selinger is Global Education Strategist for Cisco Systems' Corporate Citizenship group. She provides advocacy and leadership for the development of Cisco's social investments in education worldwide, as well as advising on technology and education with governments engaged in a national education transformation agenda. She joined Cisco in 2000 after many years as a secondary classroom teacher and as a teacher educator in both open and traditional universities. Michelle has a wealth of experience in Public-Private Partnerships in education (PPPEs), focusing on technology. She was one of three private sector individuals involved in establishing *Imfundo: Partnership for Technology in Education* at the UK Department for International Development and co-authored the inception report in 2001. She led an evaluation of the Cisco Networking Academy Program in 11 countries and spent a year as Regional Manager for the Program in the Middle East and Africa. She is currently Chair of the Academic Advisory Board for the World Economic Forum's Global Education Initiative which focuses on PPPEs and spent 3 years working as education strategist on the launch initiative in Jordan. Michelle was also a member of a UNESCO working group on the role of PPPEs.

Janine Firpo is President of Sevak Solutions, a nonprofit company that she co-founded to promote inclusive systems for the delivery of financial services to the world's 1.7 billion urban and rural poor. Janine's current work is a direct outgrowth of the leadership position she held for five years as Director of Global Multisector Initiatives at the Hewlett-Packard Company. Prior to joining Hewlett-Packard, Janine worked as a consultant focused on successfully integrating information technology into emerging markets. Through her business, SEMBA Consulting, she developed strategies and implemented systems that brought information and communications tech-

nologies to schools, governments, and businesses in developing countries. Her client list included the World Bank and the United States Government. Janine brings over 24 years experience in technology, international development, and consortium building to her efforts. As the Director of New Media for Random House Publishing, she was involved in targeting early stage Internet companies for partnerships, investments and acquisition. She was also involved in the early days of CD-ROM development as both Vice President of Product Development at A.D.A.M. Software and as Higher Education Evangelist for Apple Computer. She began her career as an assembly language programmer before the days of the personal computer. Janine holds a masters degree in Marine Biology and Computer Science from the University of Florida and a bachelor degree from UCLA. She also serves on the Board of WaterPartners, a non-profit that seeks to ensure that everyone in the world can take a safe drink of water.

Week 2

Debra L. Dunn left Hewlett Packard (HP) in June of 2005 after 22 years to catch her breath and increase her focus on the challenges of economic development, poverty alleviation, environmental and social sustainability and the bridge building between sectors that is necessary to tackle them. Since then she has been focused on promoting social entrepreneurs and the social ventures they lead. For the last 3 years of her career at HP Debra was Senior Vice President of Corporate Affairs and Global Citizenship. In that role she had leadership responsibility for HP's global citizenship efforts. These include corporate social and environmental responsibility, government and public affairs, corporate philanthropy and HP initiatives aimed at providing appropriate, technology based services and solutions to emerging markets and underserved populations. Through the efforts of Debra's team, HP received widespread recognition and numerous awards globally for leadership in Global Corporate Citizenship. Previously, as vice president of strategy and corporate operations, Dunn was responsible for corporate-wide functions, including corporate strategy, corporate development, corporate communications and brand management, corporate philanthropy and government affairs. Debra holds a bachelor's degree in comparative economics from

Brown University in Providence, R.I., and a master's degree in business from Harvard School of Business in Cambridge, Mass. She serves on the Boards of the Skoll Foundation and Global Giving and the Faculty of Sustainability.

Paul Braund is Executive Director and co-founder of RiOS Institute. He is an award-winning industrial designer who has developed numerous patents. He has worked in technology research and development in Silicon Valley, and has consulted with startups, multinationals and government agencies such as the EPA and NASA. However, his favorite work is in education, for which he was awarded an Environmental Pathfinder Award. He holds an MA/MPhil in Industrial Design (Engineering) from the Royal College, London. His thesis title was Design in the Next Economy. Currently, he is completing a book, *Worlds By Design*. Paul has spent the past five years working on social development and finding appropriate technology transfers for developing countries, particularly in communications technology. He has supported and represented the UN/World Bank at conferences and various fact-finding trips and workshops in developing countries, while maintaining independent work with numerous NGOs, small community groups and academic institutions who are helping to bring more human-centered innovations to development.

Paul Falchi is the CEO of Talk Free, which is empowering small businesses in developing countries with VoIP technologies and services. Paul has held in senior management positions in telecommunications and Internet services for the past 20 years, with a specialization in emerging markets. He was the VP of Sales/Marketing and President/COO at utility.com, an idea lab! Company, and the CEO of Winamore, a telecom/IT consulting firm serving enterprise companies working in Moscow, Russia. He also founded Golden Telecom, Russia's largest telecom company (listed on the NASDAQ). Prior to that he was the Director of Strategic Planning and Vice President of Marketing at Sprint. Paul has undertaken management consulting in Russia, Argentina, Dominican Republic, Czech Republic, Ukraine and Mexico. He is the former treasurer and board member of the International Telecommunications Society.

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Business Competitiveness & Development

WBI's Business, Competitiveness and Development Team

The BCD team at the World Bank Institute addresses the need for a deeper understanding of the role of business in society, working to integrate responsible practices as vital components of corporate strategy, and highlighting their importance to all stakeholders in relation to poverty reduction, good governance and competitiveness.

By building capacity across sectors to facilitate effective multi-stakeholder partnerships, the program demonstrates the value of business as a development partner. For example, by planned training for NGOs in China on engaging with business, and working with the food industry to forge a global alliance to fight malnutrition. The program offers training for business on such issues as corporate responsibility, accountability, transparency and anti-corruption strategies. Recently, over 1,100 private sector representatives in Latin America participated in the course "Corporate Responsibility and Sustainable Competitiveness," learning, exchanging views and best practices, and developing action plans.

As part of initiatives to strengthen those institutions that can deliver sustainable private sector development, we are working with business associations, including programs to support business ethics, and social and environmental accountability in Russia, and HIV/AIDS workplace prevention programs in Tanzania and Ethiopia. Country-focused activities are supported by regional and global programs to capture and disseminate cutting edge ideas and knowledge.

The full range of program activities, from in-depth workshops and courses to broader cross-sectoral forums, is supported by careful use of technology to facilitate dialogue and learning, including online and videoconferencing components.

For more information, please contact

Mr. Djordjija Petkoski
Head, Business, Competitiveness and Development Team
World Bank Institute
T +1 202 473 7226 • F +1 202 676 9874
dpetkoski@worldbank.org

www.developmentandbusiness.org

RiOS
INSTITUTE

About RiOS Institute

RiOS Institute (Research and Innovation for Organizations and Societies) applies design innovations and social science research to better harness Information and Communication Technology for Development (ICTD). Our work catalyzes action by bringing together diverse groups of innovators and decision makers and providing them with a feedback loop on what really works.

RiOS Institute is based in the San Francisco Bay Area, with offices in Berkeley and Silicon Valley. Local activities include a collaboration with the School for Information at the University of California, Berkeley, to promote ICTD and social entrepreneurship. In addition, we are working with under-resourced communities in Silicon Valley to support microenterprises, improve education and promote cultural tolerance. Internationally, together with BCD and other partners, RiOS is finding ways to make better use of ICT to spread awareness about HIV/AIDS.

RiOS workshops teach participatory design in a discovery-based, hands-on way. Applying RiOS methodology of human-driven design and research enables ICTD practitioners to increase the impact and ensure the sustainability of their projects.

RiOS Institute is a partner of the UN's Global Alliance for ICT and Development, and the US representatives of the World Summit Awards, a global contest to select and promote the best e-content applications.

For more information, please contact

Mr. Paul Braund
Executive Director
RiOS Institute
T 415.939.4929

www.riosinstitute.org