ACCESS, EMPOWERMENT & GOVERNANCE
CREATING A WORLD
OF EQUAL OPPORTUNITIES WITH ICT

Edited by Rinalia Abdul Rahim, Daniele Waldburger
and Gabriele Siegenthaler Muinde

Global Knowledge Partnership (GKP)

About this book

Are Information and Communication Technologies (ICT) a fast track to making poverty history? Or are they increasing existing inequalities leading to the exclusion of entire peoples and populations from the new society presently being built? Drawing on their considerable knowledge and experience leading experts examine the potential and actual role of ICT in meeting major development challenges such as fighting poverty, promoting gender equality, fostering participation in political processes, increasing aid effectiveness, etc. Their conclusion: ICT can be a unique and powerful platform for promoting sustainable human development, provided that the focus is not on technology but on the people who use it. Also in the book: Many examples of innovative projects which successfully use ICT to advance human development.

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PART I

Introduction

Foreword

Making the difference: creating a world of equal opportunities with ICT

The information revolution is not about technology, it is about people. This is increasingly recognised and has led to the convergence of major global development initiatives. Today, there is a strong correlation in the quest for an inclusive and equitable information society and the effort to achieve the Millennium Development Goals (MDGs).

This book argues that Information and Communication Technologies (ICT) can play a decisive role in both. Drawing on current research, learning and experience from concrete projects, the authors show that ICT provide an overarching enabling platform for development processes. Because of their generic and transformative power, ICT can not only contribute to the achievement of specific development objectives in areas such as health or education, but are also key enablers of sustainable human development in a more general sense.

The authors – all leading experts in their field – leave no doubt that the power of ICT can most effectively be harnessed through participation and cooperation of all stakeholders and all sectors of society – government, civil society and the private sector. Only by combining their particular competencies and resources can the massive roll-out of innovative ICT-based services and the scale-up of development interventions be achieved which are necessary to make a lasting developmental impact.

Since its foundation in 1997, the Global Knowledge Partnership (GKP) has been committed to building cross-sectoral partnerships among all stakeholders. Its major goal is to foster effective, people-centred and innovative use of ICT for development (ICT4D) and facilitate mobilisation of investments at local, national and global levels. Today, with some 90 institutional members from over 40 countries, GKP is the leading international multi-stakeholder network committed to harnessing and unleashing the potential of ICT for sustainable and equitable development.

With this book GKP further delivers on its promise to make available to a wider audience the considerable knowledge, insight and expertise of its members. Advancing public debate on ICT4D, influencing policy and regu-

latory frameworks and promoting the exchange of knowledge among all stakeholders has been a strategic concern for several years. For example, in 2001 the "GKP Recommendations on Issues of Bridging the Digital Divide" were developed specifically for the G8 Digital Opportunities Task Force. Since then there has been a series of publications on various important ICT4D issues such as Internet Governance or ICT for Poverty Reduction. The most recent book published in 2004 ("ICT4D – Connecting People for a Better World") documents the highly successful ICT4D Platform at the World Summit on the Information Society in Geneva 2003. (For an overview of GKP publications see http://www.globalknowledge.org/publications)

As part of its strategy, GKP also acts as the convener of multi-stakeholder activities for sharing knowledge and building partnerships at the local, regional and international levels. In addition to raising awareness among decision makers about the enormous potential of ICT4D, events such as the vibrant ICT4D Platform at WSIS Geneva, the GKP Forum at WSIS Tunis, the Global Knowledge Conferences and the GKP International Forums provide platforms for members and partners to share experiences, develop collaborative programmes and to keep abreast of important trends and innovations.

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Editors' introduction

Meeting global development challenges

by Rinalia Abdul Rahim, Daniele Waldburger and
Gabriele Siegenthaler Muinde

> *We (…) declare our common desire and commitment to build*
> *a people-centred, inclusive and development-oriented Information*
> *Society, where everyone can create, access, utilise and share infor-*
> *mation and knowledge, enabling individuals, communities and*
> *peoples to achieve their full potential in promoting their sustainable*
> *development and improving their quality of life (…).*

<div align="right">
Declaration of Principles
World Summit on the Information Society (WSIS), Geneva 2003
</div>

The information revolution presents a tremendous opportunity for development. This is reflected in the accelerating convergence of global development initiatives, particularly the World Summit on the Information Society (WSIS) and the UN Millennium Project. They recognise that Information and Communication Technologies (ICT) can play an important role as enablers for human development and poverty reduction.

This book examines some of the linkages and synergies between the various initiatives. It is divided into three parts:

Part I sets the stage by briefly outlining the broader context of ICT for development (ICT4D).

Part II identifies a number of key challenges (e.g. up-scaling, poverty reduction, etc.) which confront the global development community today and discusses in detail, how ICT can contribute to meet them.

Part III looks at the role of ICT in achieving specific (sectoral) development objectives, for example in the area of education and capacity building, health

or gender. It also discusses lessons learnt from successful cross-sector partnerships. These are increasingly recognised as a key mechanism for making ICT for development work, particularly on a large scale.

At the end of each chapter in Parts II and III readers find one or more examples of concrete ICT4D projects and programmes. Most of them have been implemented by members of the Global Knowledge Partnership (GKP). They impressively illustrate the sheer breadth and variety of ICT4D today. And they show that ICT can make a real difference in people's lives if used in innovative and people-centred ways.

Towards a common approach

The increasing convergence of once separate development agendas is encouraging. They nurture hope that a common understanding of the nature and scope of the central challenges and opportunities in development will emerge around which political will and action can be mobilised.

As the chapters in this book show, some building blocks for a common approach are already in place. Thus, the discourse on ICT has shifted its focus away from mainly technological issues to an emphasis on the human and development dimensions of information and communication technologies. As a result, the definition of ICT has been broadened to include not just digital technologies such as computers and the Internet but also more traditional technologies such as telephones, radio and television. At the same time there is growing agreement among actors that ICT should not be viewed in terms of their economic potential alone, but rather as an overarching enabling platform for building an inclusive and equitable global information society.

As is argued on the following pages, ICT can not only make a significant contribution to achieving specific development goals in individual sectors such as health or education. Because of their generic and transformative power they can also help meet a number of key challenges:

- Scaling up: ICT can facilitate the scale up of development investments and initiatives, both in terms of planning, implementing and monitoring a great number of interventions simultaneously as well as in terms of broadening access to essential services.
- Poverty reduction: ICT can significantly contribute to poverty reduction by facilitating the efficient, scalable, affordable and pervasive delivery of goods, services and information flows between people, governments and firms and by enhancing empowerment, opportunity and security.
- National policies: ICT are not only an economic sector with significant potential of its own. ICT can and should also be made part of broader national development policies because of their cross-cutting and transformative nature.

- Civil society participation: ICT can facilitate the strategic involvement in public debate and policy formulation of a diverse range of actors from social movements to local entrepreneurs, civil society organisations and researchers, public policy makers, political analysts and journalists, students and teachers.
- Good governance: By improving efficiency, transparency, accountability and participation, ICT can contribute to realising fundamental principles of good governance.
- Harmonisation: ICT can help increase aid effectiveness by facilitating the coordination of all different actors and the sharing of information and knowledge.

Integrating ICT in broader development strategies

However, as all authors are quick to point out, the use of ICT does not automatically lead to desired results. In order for them to foster development goals, they must be employed where relevant, appropriate and effective. The focus should not be on technology but on the people and how they use the technologies. ICT need to be firmly aligned with and anchored in broader development and poverty reduction strategies. The starting point for any policy discussion on the role of ICT for development must be how they will contribute to the broader end of poverty reduction and sustainable development, not simply how much they will increase access to ICT.

Although important strides have been made in making ICT a part of mainstream development discourse, there is still a long way to go. Especially on the national level (i.e. on the level which owns and drives development and poverty reduction processes), ICT are still undervalued and underutilised as a strategic component. As James Deane and David Souter argue in their chapter, one reason for this is that "there is a substantial paradigm gap in many countries between the perceptions and approaches of national development planners, finance ministries and mainstream sector decision-makers, on the one hand, and ICT/ICT4D specialists on the other." (p. 40) Another is that there is still a lack of reliable evidence which helps to better understand and predict the impact and potential of ICT for development processes.

Validating experiences and building awareness is thus an immediate priority. Equally important, however, is creating a common understanding of ICT for development as well as agreement on the approaches, governance structures and implementation mechanisms for moving forward. Only by combining all actors – governments of developed and developing countries, the private sector, civil society and international organisations – in a broad global network can ICT be scaled up to unleash their full potential for development. This book hopes to contribute to this process.

PART II

ICT and the global development system

Scaling up development initiatives through ICT: potentials and challenges

by Ingrid Hagen and Radhika Lal

Summary

- *Investing in an information society and ICT has meant dramatic growth rates for many developing countries, including among others China and India. It's not the ICT sector itself that is the sole driver behind this growth, but rather, what ICT has meant as a tool to scale up and improve upon development in traditional sectors such as agriculture and health. Their high economies of scale and low costs of replication make it possible for ICT to lead the way to defining new ways of doing things. New approaches are what are needed in the effort to realise the Millennium Development Goals (MDGs).*

- *ICT expand the grasp of development activities and when applied to existing activities, make them more efficient. ICT bring information to a wider audience and enables this audience to share its views. A wider group of stakeholders can then participate in development. ICT can be used to empower and involve citizens in the decisions that affect them, to improve public services delivery and to strengthen democracy. ICT can break traditional information barriers that lead to imperfect competition in markets. By knowing the market prices for inputs and outputs, a farmer can make better buy and sell decisions.*

- *There remain challenges to ICT as a tool to scale up development. One in particular is connectivity, while another is socio-political adaptation. One is physical, the other cultural. Convergence technologies or the mixing of old and new means to communicate – e.g. radio and Internet or newspaper and mobile – have proven to be effective means to reach outside audiences. Handheld devices are on the rise and as they are voice-based, they are well adaptable to poorer and illiterate populations. The information revolution carries with it deep implications for traditional societal structures.*

- *While ICT has now been proven to be an invaluable tool in socio-economic development, many policymakers are reluctant to recognise this. It is not a lack of willingness but more an issue of time, money and understanding. It is time to lower the hurdle to adopting ICT as a tool to scale up develop-*

ment activities at large by creating a better understanding of the relation-
ships between ICT, improving livelihoods, extending participation and re-
ducing costs. This chapter is an effort to outline those relationships.

Introduction

In its report "Investing in Development – A Practical Plan to Achieve the
Millennium Development Goals", the UN Millennium Project recommends
a significant up-scaling of development investments, initiatives and inter-
ventions as a precondition for achieving the MDGs. Up-scaling faces two
main challenges. One is the sheer number and range of interventions that
need to be realised simultaneously. The other is the need to bring a broad
range of essential services to most or all of the population – quickly, equita-
bly and sustainably.[1]

To some extent, the need to scale up arises from the limited impact of
pilot projects, or "islands of excellence" amidst a sea of inertia – small pro-
jects implemented at local or district levels without a measurable impact on
national indicators. In the area of ICT for development, this has led to a
search for ways to up-scale – replicate and/or expand – initiatives and to
identify the more "upstream" factors that can assist in this process.

It is in the nature of things that there will be continuous experimenta-
tion and innovation. Some of the models that are appropriate in a particular
conjuncture will be overtaken by others as new technology choices emerge,
expectations about roles and responsibilities change, and new ways of doing
things are discovered. However, it is also becoming clear that a variety of
solutions and approaches that appear to be unsustainable can be made su-
stainable and effective in the new environment – provided that some of the
key challenges are addressed and there is acceptance of an approach that
allows for a range of solutions and technologies rather than a "one-size-fits-
all". Such an approach can ensure that innovation by grassroots and social
entrepreneurs and local solutions can be nurtured within the context of a
more systematic ICT4D policy and strategic frameworks for scaled rollout
of ICT for development programmes.

The need for systematic mainstreaming and integration is critical as
evidence and analysis suggests. Information and Communication Technol-
ogy (ICT) is a key component of the *development toolkit* that stakehol-
ders in developing countries can use to be better connected to and to par-
ticipate in national and global processes, to respond to challenges and

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[1] UN Millennium Project (2005), "Investing in Development: A Practical Plan to Achieve the Millennium
Development Goals", p. 95.

make use of emerging opportunities, to be empowered and at the same time accountable, and to secure the delivery of key services which ICT make possible on a much more cost-effective basis. Given the potentially high economies of scale, the low costs of replication and a variety of other advantages of ICT, one could ask why ICT has not been more integrated and put at the service of development on a greater scale. There are certainly challenges in many under-serviced areas such as the lack of complementary factors (electricity and other infrastructure services, low levels of general literacy, etc.). However, it also appears to be a question of a *development policy divide* as much as a *digital or development divide* that hinders the further unleashing of ICT's development potential. ICT is often perceived to be competing for development funds. Also, ICT4D integration capacities are still very much work in progress at organisational or sectoral levels.[2] This article seeks to assess the impact of these factors for the scaling up of ICT and non-ICT related initiatives and to discuss ways in which these challenges can be addressed.

What role can ICT play in scaling up and replicating development efforts?

The development goals outlined in national strategies have been signed off by over 150 Heads of State in the Millennium Declaration and agreed to by 191 member states of the United Nations. They have pledged to meet the 8 concrete Millennium Development Goals (MDGs) by 2015. To realise this, there is a need to scale up effective development interventions themselves as well as social and infrastructure investments and activities that will permit other stakeholders to play their parts and contribute to the achievement of these goals.

While the need to scale up development interventions and initiatives is widely recognised, the role of ICT in the context of helping to achieve the MDGs is very much work in progress as far as the majority of development decision-makers is concerned.[3] However, the following can be viewed as some key roles for ICT in this context.

ICT as core infrastructure to facilitate investment and development activities

ICT can be seen as a part of the core set of *physical and social infrastructure investments* that are necessary not only to permit the delivery of various

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[2] See for example: Hagen, I. (2004), "Going beyond a project approach: embedding ICT in support of a wider development context", *Embedding ICT in development, Issue 23*. (http://www.capacity.org)
[3] For some early insights see: World Summit on the Information Society (2003), "Plan of Action". (http://www.itu.org/wsis)

types of services (access to government information and public services) but also to attract private investment and facilitate development activities in various areas of the economy:

> *If every city has a reliable electricity grid, competitive telecommunications, access to transport, accessible and affordable housing for the poor, a water and sanitation system, and access to global markets through modern ports or roads, jobs and foreign investment will flow in – rather than educated workers flowing out. Investing in core infrastructure, human capital, and good governance thus accomplishes several things: • It converts subsistence farming to market-oriented farming. • It establishes the basis for private sector-led diversified exports and economic growth. • It enables a country to join the global division of labour in a productive way. • It sets the stage for technological advance and eventually for an innovation-based economy.[4]*

Investments in ICT can also help reduce the burden of inadequate infrastructure particularly in the area of transportation. Rural areas, where the vast majority of the world's population lives, as well as a significant proportion of poor people who are the target of the MDGs, tend to be greatly underserved by transportation infrastructure. ICT can enable them to save both time and money if they are able to access information and services closer to home.

ICT is increasingly becoming critical for local producers to coordinate activities, avail of national and global opportunities as well as withstand competition in their domestic markets. Survival and growth in these contexts increasingly depend upon their innovativeness, capacity to learn and their effectiveness in using and absorbing technology, which is becoming "embedded" in production, distribution, marketing and planning processes at all levels. Even in the case of the "informal sector", the source of livelihoods for most of the world's poor and for a large percentage of women, ICT can assist with the delivery of social services, with micro-finance, with strengthening coping strategies and income generation thus contributing to sustainable development.

Cost-effective delivery of public and private services
Rural populations, who are typically relatively underserved not only by inadequate infrastructure but also by services, have in various instances actually seen a decline in access to various kinds of services as attention has shifted to more well-to-do customers in urban areas and public services delivered through traditional means suffered from the effects of declining public budgets. ICTs can be particularly relevant in this context since they also

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[4] UN Millennium Project, "Investing in Development", p. 7.

permit low-cost delivery of needed financial, credit and microfinance services that are critical for carrying out and up-scaling development activities.[5]

> *Governments must also invest in the physical infrastructure of the public administration to improve service delivery and reduce opportunities for corruption. Some examples include: • Communication and information infrastructure for all levels of government, including computer and telecommunications services for government offices, public hospitals, land registries, schools, and other public institutions. • Information systems to improve the speed, reliability, and accountability of public sector transactions and systems to share information across branches of government … • Modern technological capabilities for the customs bureau, to speed shipments, reduce smuggling, and control cross-border movements of illegal or dangerous goods. • Modern technological capabilities for law enforcement, including national criminal databases, information systems to improve response times, and adequate dissemination of information to local law enforcement. • Electronic government procurement and logistical systems, for example, to ensure reliable access to essential medicines in government clinics and hospitals.[6]*

In the context of public support services, ICT can facilitate not only needed access but also a scaling up of development activities through permitting *joined-up/integrated* approaches to the delivery of services. Rural areas tend to be particularly underserved if outreach, extension services and delivery are left to each agency/department to undertake separately.[7]

Facilitate more effective use of development resources, opportunities and capabilities

ICT not only permits a more effective use of existing development resources, but can also be used to foster greater accountability, transparency and

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[5] Credit is often unavailable to the poor or only available at very high rates of interest. For example, in various rural contexts, local moneylenders often charge 10 to 15 percent interest per day leading to interest rates of up to 1,000–2,000 percent per year. Even with non-profit microfinance institutions, interest rates can run to 40–70 percent interest per year. Smart cards and voice/icon activated ATMs can significantly reduce marginal cost per customer or beneficiaries for microfinance/saving institutions. See for example: Prahalad, C.K. and Hammond, A. (2002), "What Works: Serving the Poor Profitably: A Private Sector Strategy for Global Digital Opportunity". (http://www.digitaldividend.org/pdf/serving_profitably.pdf)

[6] United Nations, "Investing in Development", p. 115, 125, 135.

[7] Joined-up approaches not only seek to benefit from a more effective use of resources but attempt to make government services more accessible to citizens: "People should not need to understand how government is organised or to know which department or agency does what, or whether a function is exercised by central or local government." UK Government (2000), "e-government – A Strategic Framework for Public Services in the Information Age", London, p. 1. (http://archive.cabinetoffice.gov.uk/e-envoy/ukonline-estrategy/$file/summary.htm)

interaction with citizens. In countries, where traditional media are either effectively controlled or not focused on development issues, the public ends up lacking voice in the local political policy[8] and development processes that shape their lives[9]. Where they are able to get access not only to relevant information but also communication tools, they can more effectively mobilise to articulate their interests and push for social change. ICT can also be used to enhance transparency and accountability of governments, and reduce corruption. The use of ICT to up-scale participation and facilitate tracking is another way that ICT can contribute to transparent use of public resources and aid effectiveness.

Can ICT help up-scale non-ICT projects?

Up-scaling of development initiatives involves action in a number of areas. Additional resources are certainly needed. However, there is also an urgent need to address barriers faced by developing countries, particularly given the sheer size of development opportunities lost. Without this, ICT will not have the effect that is possible. Developed countries can have a major development impact and also assist in releasing resources by opening up their markets. Tying debt relief to achieving the MDGs and investing in developing countries are also key. This is poignantly reflected in the following figures:[10]

Official Development Aid – ODA (2004): .... US$ 78.6 billion
Subsidies agricultural sector to protect
Northern farmers (2002): .... US$ 350 billion

The ownership of the MDGs, up-scaling of development efforts and making more effective use of development resources, ultimately lies with the national governments of developing countries. While there has been much progress in certain areas, a lot more could be done as far as the effective use of existing development resources is concerned.[11]

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[8] For recent focus on development communication in the context of the Poverty Reduction Strategy Papers (PRSP) and the need to secure concessionary development finance see http://informatics.nic.in/try_dispnews.asp?newsid=122&module=oct_4.

[9] The Sustainable Development Network, for example, that was launched by UNDP in the early 1990s linked more than 400 important Honduran civil society institutions. The network played a significant role, strengthening civil society and providing greater opportunities to facilitate better transparency and accountability on the part of the government. (http://www.sdnp.undp.org/it4dev/stories/honduras.html)

[10] SNV Netherlands Development Organisation (2004), "Annual Report 2004". (http://portal.snvworld.org/irj/servlet/prt/portal/prtroot/com.sap.km.cm.docs/SNVdocuments/SNV%20Annual%20Report%202004.pdf)

[11] Transparency International estimates that the amount of financial resources lost due to bribery in government procurement amounts to US$ 400 billion annually worldwide. Though not a one-on-one relationship to developing countries, these figures are nonetheless staggering when compared to 2004 ODA. The March 14, 2004 issue of "TIME magazine" estimates that corruption in one of the countries studied cost over US$ 1 billion over the past three years. These are resources that could otherwise be applied to sustainable development and the achievement of the MDGs.

In 2001, 54 African countries launched NEPAD (New Partnership for Africa's Development). It is an African solution to address African corruption. And it is founded on a peer pressure mechanism by which African countries expose their democratic credentials to a panel of Africa experts. The expectation is that the results of the panel will help countries that score well to attract foreign direct investment and to qualify for macro-economic support from the international donor community. Both of these efforts are expected to enable a country's leadership to strategically plan, reduce debt and to generate capital that can be multiplied for economic goals.

Improving the performance of governing institutions is central for the more effective use of development aid and the achievement of the MDGs. During the past decade, it has been increasingly recognised that transparently functioning institutions that are accountable and responsive to citizens are essential to reducing poverty. When corruption flourishes, citizens become increasingly disillusioned and disengaged. ICTs have become a means to bring governance to the wider public and to increase public pressure for transparently functioning institutions.

ICT can not only strengthen the effectiveness of good governance, but more importantly, they can up-scale good governance by broadening the participation of society in governance processes. They can foster e-democracy, one of the cornerstones of e-governance. Other aspects of e-governance include delivery of public and business services, e-procurement and e-administration. Together, e-governance elements increase transparency, reduce corruption, expand participation in government and increase revenue by reducing the cost of running the government machinery. [12]

Challenges

ICT are not a panacea for all development challenges. The hype is over and we are fully aware of this now. High-flying notions of global access to the Internet have been grounded by figures such as [13]:

• Almost 90% of the world's population does not have access to the Internet.
• Only 1.11% of Africans have Internet access.

The Internet is usually accessed through computers. Computers carry with their use significant acquisition, access, training and maintenance costs. Further, they have to be in relative proximity to a permanent electrical supply. In the end, it is clear that an inclusive information society is not achievable through the new digital media alone as these tools are still financially and physically beyond the scope of the majority.

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[12] For a discussion of ICT and Governance see p. 83.
[13] e-gov (2005), "Public Privat Partnerships", *bimonthly magazine on e-governance, May–June 2005.* (http://csdms.in/egov/Magazinepdf_16.pdf)

The use of computer and Internet technology alone as a tool to support e-democracy is capital intensive and it does not necessarily have the desired impact. Given this, economies of scale are hard to realise and the expectations for up-scaling difficult to achieve. Information kiosks and telecentres often make use of independent computer and Internet media. Scaling up of such initiatives is somewhat more difficult, but not insurmountable. "The scalability of e-governance projects is also a big problem. For instance, VOICE in Vijayawada, Andhra Pradesh, has just five kiosks in the entire district, even after being in operation for four years. It has not been able to scale its operations and make its services available in the interior parts of the district in spite of the fact that these are precisely the areas where the people need these services the most. By failing to meet realistic goals and expectations, the administration further increased the digital divide within Indian society." [14]

In such efforts, one must find the most appropriate means to provide services relative to cost/revenue. The technology mix used as part of this equation is important. Convergence technologies – the mix of old and new media – must be seen as viable means to scale up activities such as e-democracy. Old, or traditional, media such as video, radio and print can expand access by reaching the more marginalised populations. When combined with Internet access points, convergence technologies can open up a world of viable possibilities to engage society at large.

Another emerging technology that has been tried and tested in support of e-democracy is the mobile phone. The United Nations has set the goal of 50% access to mobile telephony by 2015, but a recent World Bank report notes that the global population living within the range of a mobile network is already 77%. In the case of Africa, this figure is nearer to 40%. [15]

For mobile phones to be considered a viable tool in support of expanding democracy, they must first be considered viable technology for communication among poorer populations. Mobile phones have many advantages in a developing country context. They do not require a permanent electrical supply, the user does not have to be able to read or write and they are easily shared or rented. Further, they are an appropriate technology in that they can be used by persons speaking local languages; they are non-technical, graphically intensive and interactive.

The fact that mobile phones are a viable technology for the poor is proven in the market demand for mobile telephony by the marginalised themselves. Poorer populations scramble to make use of mobile phones. In many countries, the number of mobile phone connections has surpassed that of fixed lines. The poor are a viable market for mobile telephony and are defining this market

[14] Barkataky, A. and Kharat, V.T. (2004), "A Comparative Study of e-Governance Initiatives in India".
[15] *The Economist* (2005), 12 March.

themselves. This is completely in line with C.K. Prahalad's "Bottom of the Pyra-mid theory" in which he argues that the poor must become an active market before the mindset shift can be realised to real change, innovation and entrepre-neurialism by the poor.[16] In the case of mobile telephony, technology is creating opportunity for locally owned change and innovation. Open telecommunica-tions markets and competition will help further strengthen the market for mo-bile telephony by ensuring that access costs continue to be reduced.

As a result, mobile telephony joins radio and traditional media as a re-latively low-cost infrastructure that has the power to dramatically impact many development initiatives, including that of e-governance and e-demo-cracy. Mobile telephones, traditional media and convergence media broaden the access of information and knowledge by the poor. This is a major condi-tion to the wider population's ability to influence governance processes that in the end shape their lives.

In this way, ICT can up-scale democratisation efforts by ensuring vibrant and independent media and thereby strengthen good governance. Engaging citizens to partake in their government processes and institutions is one of the most effective means to build local ownership in accountable and transparent government. Better government means more effective use of and attraction of development aid and investment – all precursors to achieving the MDGs.

Can ICT help make non-ICT projects more effective?

Taking the figures compared earlier, 2004 ODA amounted to US$ 78.6 bil-lion, while counteracting agricultural sector subsidies to protect Northern farmers in 2002 was 4.5 times this figure. The graveness of this fact is made stronger when comparing the average daily subsidy for the Dutch cow (more than US$ 2) relative to MDG 1 ("Eradicate extreme poverty and hunger", and specifically "reduce by half the proportion of people living on less than a dollar a day"). Estimations are that 1.2 billion persons live on less than a dollar a day and more than half of the world's population earns less on a daily basis than is expended for a Dutch cow.

In their efforts to join the globalised market, African agricultural pro-ducers and those of other developing regions are not dealing with a level playing field. This is a significant problem given that Africa in particular is a predominantly agrarian society. For less protected markets this is not the case. Market share in technology and textiles moves around the globe, peri-odically settling in countries that are able to realise favourable production/price ratios. Despite inexpensive labour in Africa, African cotton farmers, for example, cannot compete against heavily subsidised cotton grown in the

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[16] C.K. Prahalad (2005), "The Fortune at the Bottom of the Pyramid", New Jersey.

US. This is reflected in the following statement by Mozambique's Minister for Industry and Trade, Antonio Fernando:

> … the efforts made by Africans who depend on cotton have purely and simply been annulled by the subsidies granted by industrialised countries in favour of their own producers. As a result cotton prices on the world market do not reflect the costs of production. Furthermore the difficulty in placing African products in northern markets hits at the income of our farmers, who are working under much more difficult conditions than producers in the developed countries. [17]

There is no guarantee that the lifting of agricultural and cotton subsidies would benefit African farmers, and it is likely that emerging economies like China would reap the benefits immediately, while African agricultural and cotton producers would need to reinvest any immediate gain into improving the quality of products and production processes. Nonetheless, African farmers and producers are working to start this reinvestment process earlier by striving to gain margins in the meantime. They are finding new ways to compete. They are using ICTs to assist them in generating economic development and improve the effectiveness of existing activities. In some cases, local agricultural sector actors are using technology to help reduce processing and production costs and to find new markets for niche products.

In Bolivia, technology is being introduced into traditional agriculture sector projects to help increase margins and improve the economic development of small to medium sized farmers and enterprises. Such projects combine Internet and radio to make available information on prices, volumes, logistics, best practices and intermediate services.

Developing country farmers are faced with many global, regional and national challenges. These challenges are to their very survival as small-scale entrepreneurs – entrepreneurs that together form the vast economic base of many economies. Increasing portions of aid budgets are being geared towards private sector development and catalysing an enabling environment for foreign direct investment. ICTs can be a key quotient in these efforts to improve the effectiveness of efforts to support the private sector and contribute to MDG 1.

How can the pro-poor focus be maintained when scaling up ICT4D projects?

Every day new initiatives are born – as a response to a local need, as a pilot to be tested before the decision to up-scale can be taken, or as an attempt

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[17] *All Africa* (2005), 1 July.

from the outside to provide support to local communities. Whether an initiative lives, or whether the particular approach gets replicated or is overtaken by another is the result of many different factors. In some instances, the particular organisational model finds itself unable to expand or compete with newer approaches even where it was effectively responding to a felt need (e.g. a locally run community ICT4D initiative that was dependent for its revenues on the sale of connectivity is unable to survive in the face of competition from for-profit connectivity shops); in others, it is newer technologies and business models that make it less viable (e.g. mobile telephony combined with pre-paid cards affect the viability of access centers); in yet other instances, for e.g. an e-governance initiative is not able to be scaled up because its success was dependent upon the leadership of a particular person who is not in a position to support replication; in other instances it is the replication and financing policy that is missing, or organisational change and vested interests that have not been factored in. [18]

ICT4D initiatives face particular challenges in terms of replication in comparison to other development projects. Many developing countries do not yet factor in financing of ICT opportunities and strategies within their regulatory environments. This is a challenge for most governments given two items in particular: (i) the fast pace of technological change means that policymaking and regulation on technology is a moving target; and (ii) most innovation with technologies happens at the grassroots and small firms level, far away for centralised government insight and oversight.

In these instances, where it is not possible to allow for a range of initiatives (organisation neutral not just technology neutral), the model that is replicated may leave little room for community-based initiatives or may end up being less responsive to the needs of the poor in terms of the technology or approach that is implemented. [19] Thus it is important to recognise that the poor – and particularly poor women – may be better served by models that explicitly acknowledge their needs and factor in a variety of approaches into the national ICT strategies. [20]

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[18] For a discussion of the regulatory policy, financing issues and other factors related to up-scaling, see: Gerster, R. and Zimmermann S. (2005), "Up-Scaling Pro-Poor ICT Policies and Practices: A Review of Experience with Emphasis on Low Income Countries in Asia and Africa". (http://www.gersterconsulting.ch/docs/Upscaling_ProPoor_ICTPolicies_Practices.pdf)

[19] For example, if computerisation of land records involves centralisation of the data without it being accompanied by user-friendly and broad-based access points, it can have unintended detrimental effects for the poor, often making it more costly for them to acquire the new digital records. Further, online approaches may appear to be more cost-effective and may indeed be more desirable for well-connected urban populations. However, they are unlikely to work for rural populations that are better served by a mix of technologies and a combination of ICT and non-ICT based approaches.

[20] For example, replication should not involve a one-size-fits-all approach. Although historically community-owned infrastructure has been important in telecommunications (e.g. in the USA in the case of both telephony and electricity), in more recent times there has been a shift away from focusing on public sector and community based approaches.

Technology costs themselves may appear to be a major factor working against extensive scaling up of models even where the ICT4D initiative is effective and may in the longer term be more cost-effective than an initiative that does not mainstream ICT4D. New technology options, in particular wireless technologies, may be helpful in permitting existing community-based models to be viable and scalable.

Which critical factors need to be taken into account when using ICT for up-scaling/replicating?

As indicated earlier, the scaling-up of development initiatives using ICT raises particular challenges. The speed of technological change and the costs of broad-based telecommunications infrastructures are two such challenges. At the same time, critical factors for development making use of ICTs for up-scaling are often the very same as those for development activities not making use of ICTs. For example, some form of local ownership in a development project, programme or policy, is central to any chance for sustainability – regardless of ICT being a component or not. However, in the case of ICT ownership may need to be catalysed among local stakeholders as such actors are often unfamiliar with the potential of new and old technologies. Sensitisation and training in appropriate technology become central elements to real local ownership of a development activity using ICT. It is such nuances in critical factors that are pointed to here.

Ownership

The introduction of some combination of ICT for the purpose of up-scaling a development activity or to increase its efficacy is often initiated or carried by an individual or small group of individuals as part of a larger organisation. An organisation can be a grassroots NGO, private sector company or public body such as municipal or central government. Sometimes, these persons constitute what is considered to be the ICT unit of an organisation. In any case, they create the momentum and energy needed to delve into the innovations offered by ICT.

As the development activity is scaled up or made more effective through ICTs, it is very important that ownership broadens within the organisation – beyond the original handful of champions. The ownership of the ICT component must be backed increasingly by those in leadership functions. This is for the long-term success and sustainability of the activity. The ICT champion at the start of the project must remain involved, but must relinquish ownership over time. Without this "embedding", the project will remain a project – inherently short-term in nature until it becomes integrated into a more stable base and becomes an organisational priority.

But this shift in ownership is not straightforward. Overcoming the project stage and integrating experiences into the organisation is a move that

can be very political and difficult. On the one hand, intense ownership is felt by the initiators and implementers who have built-up long-term stakes in "their" project, while other members of the same organisation have often not had an opportunity to develop an affiliation with it. On the other hand, organisational leadership does not often directly see the potential offered by the exploitation of ICT.

Using ICT as a tool to scale up or increase the efficacy of development activities engenders wider organisational change processes. This is relevant for most development projects and programmes. The difference lies in the need to address ICT sensitisation and awareness among a broader group of stakeholders early on, and to use appropriate technologies from the start so as to secure demonstrable and "quick wins".

Multi-stakeholder involvement

Global partnerships in support of development are core to achieving the MDGs.[21] It is widely held that harmonisation or collaboration along lines of comparative advantage means wider positive impact for fewer invested resources. Global partnerships add value. This perceived value has always been an important understanding in any international work, whether stemming from the private, public or non-profit sector. Consequently, it is impossible to pick up today's newspaper or this week's *Economist* without noting examples of global partnerships. What is new is the increasing importance being placed on the need to make such partnerships multi-stakeholder.

With 90 percent of technological innovation stemming from the private sector in both developed and developing countries, the ICT for development market is a field that is ripe for multi-stakeholder partnerships. One can even argue that without cross-sectoral participation, the chances for success and sustainability in scaling up development initiatives are limited.[22]

But is this not the same for development activities which do not make use of ICT? Take the case of HIV/AIDS drug development. Private sector invests heavily in R&D and in its own capacity to bring such innovations to the market and to thereby grow market share. ICTs are different in that they represent assets which have value in and of themselves and which can be reworked and used in ways that multiply their economic value. Unfortunately, one of the dimensions of poverty is the inability of the poor to have access to ICT assets so as to be able to draw increasing economic value from their use. This point is eloquently argued by Hernando de Soto: "As an asset, the poor must have structured access to ICTs in the development process."[23]

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[21] MDG 8: "Develop a global partnership for development".
[22] For a discussion of cross-sectoral partnerships in ICT4D see p. 108.
[23] Hernando de Soto (2000), "The Mystery of Capital: Why capitalism triumphs in the West and fails everywhere else", New York.

As noted by *The Economist*, "an increase of 10 mobile phones per 100 people boosts GDP growth by 0.6 percentage."[24] This shows the importance of infrastructure, even though such quantitative indicators – while a criterion for measuring poverty – say little about how infrastructure is used.

How ICT assets are applied is the process by which they gain true value. The roles of public, private and non-profit stakeholders in this process determine the level of added value that can be realised. Each one of these stakeholder groups has a comparative advantage to bring to the table as part of the process of using ICTs to scale up or make development initiatives more effective. The private sector has a technical and entrepreneurial advantage while the non-profit sector carries the socio-economic agenda. Both are in a good position to pilot and experiment with applications of ICT in socio-economic and political processes. The public sector has the responsibility of facilitating an enabling environment in which both can flourish and to scale up learning from on the ground experiences to the national level. ICTs lend themselves well to this combining of roles and creating cross-sectoral approaches.

Capacity development

The majority of project owners, especially after the process of up-scaling has begun, are sector specialists. For example, they are farmers and farmer associations, teacher training institutes, headmasters' networks, etc. They are not technical ICT specialists nor do they have much awareness of the potential of ICT. Given the lack of exposure to and experience with any form of ICT, whether old or new, there is a clear need to introduce awareness and understanding of the opportunities and shortcomings of ICT as a tool in development. To do this, the right skills base needs to be developed in the types and uses of ICTs.

However, as ICTs are used to scale up or improve efficacy of existing development initiatives, the capacity requirement goes beyond the individual skills base. Capacity development increasingly becomes an issue of organisational, sector and national levels. Despite the growth of the ICT sector itself in many developing countries, it can still be challenging to find good skills in ICTs. It is exactly this base that is needed to ensure that ICT for development are locally-owned and sustainable. It is important to note that international partnerships furnish an excellent opportunity to complement local skills.

Alongside the organic growth in ICT skills capacity needs, there is also a growth in the need for softer skills such as project management, marketing and lobbying, financial management, strategic planning and more. These are important for change management processes. The introduction of ICTs to support a development project or programme – to scale up or to improve – is a change management trajectory. The introduction of ICTs is an investment in new po-

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[24] *The Economist* (2005), "Calling across the divide", 10 March.

tential and innovation. Such processes need strong leadership and process co-ordination so as to ensure that the ICT component's potential is maximized and that it becomes "embedded" or owned by the broader organisation.

Demand responsiveness

To be sustainable, ICT for development activities must respond to local demands and offer opportunities for development that are workable in the local context. In this, they are no different from other development initiatives. Demand-responsiveness is often more obvious when introducing an appropriate technology into an existing development project or programme. This is the case because the existing initiatives typically already have a good definition and means of interacting with end-users. They already associate with the "consumers" – policy-makers, doctors, teachers, farmers. By bringing ICTs into on-going development activities, it is possible to bring the ICT activity close to the "market" and therefore make it both relevant and demand-responsive.

ICT can also improve on demand-responsiveness by enabling communication with a broader set of consumers. The right mix of ICTs can be used as a very effective communication tool to leverage participation. For example, women are prominent stakeholders in social change processes as they comprise the larger percentage of disadvantaged groups. This is mirrored by the priority given to women in the MDGs. Despite the important role women play in livelihoods and economic development, men continue to dominate decision-making, capacity development and content development. Women have fewer opportunities to participate in a manner adapted to their needs, priorities and possibilities. The low level of literacy among women and their workload are bottlenecks to their participation in development processes. Given the inclusive potential of ICTs, communication technologies can offer women a more meaningful position in socio-economic and political processes.[25]

However, ICT can easily create another barrier to women's participation in society if there is not special attention paid to addressing women's needs to ensure that opportunities offered by ICT for development are taken towards gender equality. In particular, there is a need to proactively stimulate analysis of end-user needs – specially women's – within all development activities. This should be done as part of project design. For example, specific methods enabling women to make use of a project's services need to be looked at such as adapting opening hours or making certain timeslots available only to women.

Policy environment

To increase opportunities for a wider development impact through ICT, activities need to be embedded in an enabling environment. Here, the wider

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[25] For a discussion of the role of ICT in promoting gender equality see p. 144.

aim is to impact on the formulation and implementation of ICT for development-friendly policies at the sector and national levels. What are ICT for development-friendly policies? Simply put, they are ones that stimulate an environment in which the cost of ICT can be made affordable, access to it made broad-based and a focus on the use of ICT for development, or other economic pursuits, can flourish.

Information and communication technology is often seen as an independent market that should be stimulated as a sector or for the economic returns it is able to bring in.[26] It is not unusual for a Ministry of Communications official to strive to add thousands of jobs in the ICT sector during his/her term. However, ICTs are also tools to be mainstreamed in development initiatives. They need to be made affordable at the sector level in terms of policies (Sector-wide Approaches, SWAps) as well as at the project level. National ICT strategies strive to pull together sector-based ICT needs and those of the ICT sector itself under a policy umbrella. In any case, ICTs have a dual role; they are both front-line and supporting. Clearly the landscape of policy-making actors is complex, only to be made more so by the very important role of the national regulatory authority.

The public sector has a challenge in terms of ICT for development-friendly policy. It also needs to generate policies that are demand-responsive. It is often the case that initiatives making use of ICT for development are relatively small-scale and demonstrative. Development through ICTs is often visible in project form. Many of these activities are owned by NGOs and the private sector; others by public bodies themselves. The experiences and lessons learnt of these projects must enter into the policy-making dialogue. It also has to be recognised that there cannot be just one single approach.[27] Only in this way will policies be grounded in practice and respond to demand and local conditions. As a result, there is a pressing need to make the policy dialogue around ICT multi-stakeholder in character.

In efforts to up-scale development activities through ICTs, policy-making must also pay close attention to the gap between the rich and the poor. In liberalised environments the direction of investment tends to favour urban populations, which offer better return on investment. Urban bias in all sectors becomes especially acute with liberalisation. In many instances this has meant that rural areas – which are more difficult to serve in general because of lower population densities, higher infrastructure costs and relative-

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[26] In a number of countries, telecommunications is still perceived as a cash cow with returns being secured through high licensing fees, control over strategic assets and lack of openness to the introduction of new technologies that might compete with existing ones. While in some instances ICT finances social expenditures, keeping costs higher than they might be otherwise works against the broad-based deployment of ICT for development.

[27] For example, least-cost subsidies available through universal access funds set up to finance ICT access and roll-out in underserved areas are typically made available only to the private sector.

ly lower levels of income – tend to become even more underserved. ICT can be useful in reducing the exacerbation of rural impoverishment, which typically leads to depopulation of rural areas. The ideal policy environment for relatively stress-free use of ICTs in development is one in which ICT is recognised as a tool for rural development: facilitating the provision of services, enabling rural populations to be connected and attracting investment; it is one where private companies and communities are given incentives to connect rural areas at affordable rates, and broadcast policy is favourable to rural and community-owned radio.[28]

Choice of technology

The introduction of ICTs as a tool to support up-scaling or improve project efficacy often has greater success, if there is a clear and timely demonstration effect. That is, introducing ICTs is a leap in the unknown based on experiences elsewhere. Given this, their introduction should quickly furnish some evidence – "quick wins" – that can help reinforce the original motivation. Quick wins are highly reliant on the type of technology selected. The project should not be about pushing the most interesting technology, but about using the most appropriate technology or technologies. Mostly, appropriate technologies consist of the combination of ICTs that can serve the development objectives of the project in a timely and affordable manner. The development objectives are the first priority and the technology is identified to best fulfil these objectives. Only in this case will the demonstration effect be timely. Given that the palette of technologies is rapidly changing, the appropriateness of a technology changes over time as well. The initial choice is not a lifetime commitment but needs to be monitored as new innovations become available, feasible and viable.

For example, online databases and portals are based on the "pull" technology of the web. They require significant investment and even the best-designed systems sometimes fail because of the time, effort and cost involved for the user in travelling to a telecentre, getting online or paying for a print-out, even if the service is free and the information is excellent. Given the time required in setting up such databases and keeping them up-to-date, there should be a "push" component to the information delivery scheme whereby the investment in creating information can be leveraged by using it as the basis for active information delivery via radio, print or e-mail.

When considering the costs of technologies, it is important to consider not only the initial capital expenditure but all relevant running costs such as access, licenses, maintenance, etc.

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[28] For a discussion of the role of national policies to foster development see p. 48.

Conclusion

ICT may appear to be yet another rising policy priority that – like many before it – has been pushed from the "centre" without sufficient concurrent resources. It is only natural that many policymakers from the North and the South see ICT as an issue that competes for investment together with mainstream development topics such as private sector development or civil service reform. This chapter has aimed to nuance this thinking and bring about awareness and understanding of the role of ICT as a tool to scale up development initiatives and to make them more effective. ICT can actually improve the reach and quality of development work, meaning that more can be achieved for every unit of resources invested.

There remain some barriers to full-scale implementation of ICT in support of development in areas such as those highlighted in this chapter. Democratisation processes are essential to fighting corruption and entail the participation of a widening population. Access to a variety of information and knowledge is central to market development in agriculture both in the formal and informal sectors. These activities require connectivity in rural areas which remains a challenge to applying ICT to scale up development initiatives. But the challenge is being overcome. This chapter has also pointed to the potential of evolving new technologies such as wireless and handheld devices to meet this challenge and their "natural fit" among more illiterate and impoverished populations.

Social change goes hand in hand with the introduction of ICT for development. This is another challenge alongside the physical challenge of infrastructure. The simple participatory nature of ICT and their ability to flatten hierarchy with the click of a mouse means that ICT transform the way of working and how we work together. We not only need new skills sets as individuals, but as family units, communities, organisations and institutions: introducing ICT engenders change management. The factors that need to be considered are much the same as those confronting development work at large and include things like demand-responsiveness and ownership, multistakeholder processes and policy environments. The difference evolves as one goes beyond the name of these factors and investigates what underlying points need to be considered if an ICT for development intervention is to succeed. This chapter has defined some of the nuances behind these factors specific to ICT.

In sum, we have tried to address some of the stickier issues facing ICT as a tool in scaling up development in this chapter. By doing so, we hope to have helped to bridge the development policy divide that hinders further unleashing of ICT's development potential in a globalised world.

Illustrative example

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

Situs Addressing Initiative: geoinformation for sustainable development in Africa

Type of Activity:	Initiative
Organisations involved:	Swiss Agency for Development and Cooperation (SDC), United Nations Economic Commission for Africa (UNECA), Environmental Systems Research Institute, UN-HABITAT
Start – End:	Project launched in 2005 – ongoing
Area covered:	Africa

Summary description:

The Situs Addressing Initiative is about highlighting the benefits and method of optimising a functional physical addressing system in Africa. Such a system refers to the precise location of any spatial object (e.g. thoroughfare, property, etc.), using a system of identification. A poor or absent addressing system is an obstacle to effective development. Without it, there is limited ability to manage land and assets, govern transparently or collect revenues. The initiative aims to help implementing a functional and standard addressing system in African countries by using geoinformation data. Information and communication technologies (ICT) – from earth observation and communication satellite systems, to mapping programmes and database systems – play a crucial role in implementing such addressing systems. Some major objectives of the initiative are:

• Propose a multi-purpose addressing system that can be used by various stakeholders including the general public, private organsations and businesses, as well as postal and delivery services;

• Speak to the challenges that countries could face when implementing an addressing initiative; and

• Provide a series of recommendations and standards to assist countries to establish or improve on their addressing project.

Key success factors:

• The right combination of technologies is central to effective buy-in among actors participating in the initiative.

Key challenges:

• Despite the clear link between an addressing system and many aspects of development, it is often overlooked.

• Priority-setting among the stakeholders is a significant challenge.

Anchoring ICT in poverty reduction strategies

by James Deane and David Souter

Summary

This chapter focuses on the issues involved in prioritising information and communication technology in national poverty reduction strategies (PRSPs). It seeks to explain what PRSPs are, and how Information and Communication Technologies (ICTs) have been and could be integrated into them. It also examines how current mainstream development thinking views ICT in relation to poverty reduction, and how this is likely to influence the prioritisation of ICT into poverty reduction strategies. Finally, a series of arguments is put forward to make a case for embedding future ICT debate and action firmly within the context of broader development strategies, including PRSPs.

Poverty reduction strategies (formally known as poverty reduction strategy papers) grew out of a concept articulated by World Bank President James Wolfenssohn in the mid 1990s called the Comprehensive Development Framework (CDF). The CDF envisioned developing countries drawing up their own development strategies according to their own experience and priorities, a process that was to involve all sectors of society and particularly the poor. This concept envisaged developing countries shaping their own poverty reduction strategy papers (PRSPs) – in effect country strategies within which all development action by all development actors would be framed.

At the Annual Meetings of the World Bank Group and the International Monetary Fund (IMF) in September 1999, it was agreed that nationally-owned participatory poverty reduction strategies should provide the basis of all World Bank and IMF concessional lending and for debt relief under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative.

From their inception, PRSPs were supposed to be designed according to four principles: to be country-driven, comprehensive in scope, partnership-oriented, and participatory. As of January 2004, more than

34 PRSPs had been developed,[1] and there are now a total of 70 PRSPs if "interim", first stage and second stage PRSPs are included.[2]

Many civil society organisations (CSO) welcomed the development of PRSPs, seeing in them the opportunity for a more inclusive and participatory approach to development, and a decisive move away from the language and practice of structural adjustment programmes.

The record of five years of PRSPs however has been mixed. On the one hand, many regard PRSPs as a major improvement on policy making processes that preceded them and continue to positively engage in the process. Many civil society organisations, however, and some governments have complained that consultation and participation in their development has often been limited and tokenistic, that the strategy development process has continued to be heavily influenced by World Bank technical staff, that fundamental issues of macro-economic policy have been "off limits" to discussion, that public debate has often been very limited or nonexistent, and that the explicit link to HIPC qualification means that the process of PRSP design is not genuinely country-driven. In short, critics argue, PRSPs have not been country driven, comprehensive, partnership oriented or participatory. Their credibility has, in consequence, been questioned.

Nevertheless, there is a growing debate over whether a broader conception of poverty reduction strategies is now necessary and whether such strategies might supplant the more specific World Bank conceived PRSP process.

PRSPs and ICT: experience and conclusions to date

Both PRSPs and the Millennium Development Goals (MDGs) within whose context they are framed have their origins in donor-defined organisations and processes. PRSPs originated within the World Bank; the MDGs evolved from a series of International Development Targets developed by the Organisation of Economic Development (OECD) in the 1990s. It is not a surprise therefore that most analysis of the experience of ICT in PRSPs comes from donor organisations.

For the last five years, most donor organisations have increasingly acknowledged the importance of ICT in development, but equally stressed that they should be perceived only in the context of a broader development strategy. These are the words of a 2003 OECD report:

> *Information and communication technologies (ICTs) can play a key role in development and poverty reduction. ICTs can help promote*

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[1] Oxfam (2004), "From 'Donorship' to Ownership? Moving Towards PRSP Round Two", *Oxfam Briefing Paper* 51.
[2] See http://www.worldbank.org/poverty/strategies.

economic growth, expand economic and social opportunity, make institutions and markets more efficient and responsive, and make it easier for the poor to obtain access to resources and services. It can also make it easier to make the voices of the poor heard in the decisions that shape their lives.

But ICTs can only become an effective tool for development and poverty reduction if they are an integral part of a broader, more comprehensive national development strategy. The donor community can help developing countries realise the full potential of ICTs for development, but only if their own ICT programmes and strategies are more clearly focused on the Millennium Development Goals. Donor agencies need to ensure that their ICT programmes and strategies are better adapted to the specific needs and circumstances of individual developing countries and to become better informed through more information sharing and more rigorous analysis of recent experience of ICT-for-development programmes.

The benchmark for proposals and priorities that emerge from WSIS must be how they will contribute to that broader end of poverty reduction and sustainable development, not simply how much they will increase access to ICTs.[3]

The G8 Digital Opportunities Task Force (DOT Force), reporting in June 2002, argued for a similar approach. A key recommendation was to "mainstream ICT, not only within project planning and design, but within development strategies, both nationally and internationally".

Donors have, according to the OECD, treated ICT in three main ways:
• ICT as a tool/means that helps achieve development and poverty reduction goals, including education, health, macroeconomic and budget management, gender equality and poverty monitoring;
• ICT as a sector in itself which needs to be developed, including through the support of ICT infrastructure development;
• ICT as an overarching platform for development and poverty reduction, that requires enabling strategy, policy and regulatory regimes.[4]
The OECD undertook a substantial review of ICT in January 2003. Its research scanned national priorities for poverty reduction and sector priorities

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[3] OECD (2003), "Integrating Information and Communication Technologies in Development Programmes", *Policy Brief, OECD Observer.*
[4] See http://www.oecd.org/dataoecd/15/56/34662729.pdf; OECD DAC (2001), "Digital Opportunities for Poverty Reduction. Addressing the International Digital Divide".

in all 34 PRSPs (at the time) to analyse how ICTs were discussed. It found that in the 34 analysed PRSPs, 13 countries (Albania, Azerbaijan, Cambodia, Cameroon, Chad, Georgia, Ghana, Mali, Mongolia, Mozambique, Niger, Rwanda and Sri Lanka) defined or positioned ICTs as a strategic component for poverty reduction and discussed them as an independent item in their PRSPs. The remaining countries had not included ICT as an independent strategic component, though some mentioned telecommunications sector development as an "important factor for rural/agricultural development" or as "one of the components of the infrastructure for economic growth." According to the OECD again:

> The term "telecommunications" is used in most cases and the terms "ICTs" and/or "Information Technology" are rarely used. However, those terms are more frequently used in recently developed PRSPs. The number of countries that see ICTs as a strategic component for poverty reduction increased from four to eleven between March 2003 and August 2003. The number of countries that see ICTs as a sector/tool to promote development increased between August 2003 and January 2004. Three countries (Tanzania, Uganda and Yemen) do not mention ICTs in their PRSPs.[5]

PRSPs and MDGs: who prioritises what and where?

Throughout the five year experience of PRSPs, there has been a tension surrounding where development priorities are set – through the national poverty reduction process or at an international level. Much of the debate and analysis and many of the recommendations concerning the role of ICT in poverty reduction have taken place at the international level; less at the national level which shapes PRSP processes. The past few years have been crowded with international conferences and events designed to increase the focus of ICT in development strategies.

Poverty reduction strategies are not, of course, the only or even a leading organising principle for development strategies in the 21st Century. The overriding framework for all development action is set out in the Millennium Development Goals (MDGs), first and foremost of which is the goal of halving poverty (the number of people living on less than a dollar a day) by 2015. Poverty reduction strategies are the principal means by which the international community plans to meet this goal. Increasingly these have re-

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[5] OECD (2004), "Information and Communication Technologies (ICTs) in Poverty Reduction Strategy Papers as of January 2004".

commended the formulation of ICT strategies within the context of national poverty reduction strategies.

The World Summit on the Information Society (WSIS) was explicitly designed to galvanise international action around ICT and development. It argued that "national e-strategies should be made an integral part of national development plans, including Poverty Reduction Strategies". However, national input to WSIS was largely articulated by ICT sector ministries and stakeholders, rather than the presidencies, finance and planning ministries, or development sector ministries that are principally responsible for implementing development strategies.

The MDGs, originally developed by the OECD countries in the late 1990s, were adopted in 2000 by the entire international community at the UN Millennium Summit as a common set of targets to be achieved by 2015. ICT is specifically highlighted in the Millennium Development Goals as a priority under Goal 8, whose final target calls on governments and donors, "in cooperation with the private sector, [to] make available the benefits of new technologies – especially information and communication technologies". However, this target has not been prioritised or given a high degree of attention by donors and multilateral institutions.

The UN Millennium Report, edited by Jeffrey Sachs and prepared for UN Secretary-General Kofi Annan to map a strategy for achieving the MDGs, acknowledges the potential importance of communication technologies, and makes two explicit recommendations. The first is the creation of a volunteer corps, under the auspices of the United Nations Information Technology Service (UNITeS), to train groups in developing countries in the uses and opportunities of the Internet and information technology. The second is a strategy for building digital bridges, which urges governments to review their policies in order to remove regulatory and pricing impediments to Internet access, to make sure people are not denied the opportunities offered by the digital revolution. The report also argues that PRSPs will continue to form the main plank of development prioritisation for the foreseeable future, though Professor Sachs has suggested that such strategies will not be successful unless they shift from a series of donor priorities to reflect genuine developing country priorities.[6]

The report of the Commission for Africa, published in March 2005, argues that developing country governments have been more accountable to donors and development organisations than they have to their own people. It argues that, unless this changes, little else will be accomplished. Its principal recommendations focus on the need to build developing country

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[6] UN Millennium Project (2005), "Investing in Development: A Practical Plan to Achieve the Millennium Development Goals", New York.

government leadership, and government accountability to citizens. The report also calls for a major new effort to build Africa's infrastructure, suggesting an annual £20 billion investment in roads, railways and telecommunications.[7]

ICT and development policy

The field of Information and Communication Technologies for Development (ICT4D) is sometimes suspected of being a development fad. Regardless of the fairness or otherwise of this particular claim, the days of development fashions and fads may themselves be dated. The original purpose of the OECD in defining in the late 1990s what became the Millennium Development Goals was to bring together the conclusions of a host of international conferences on different development issues into one holistic framework. That framework was explicitly designed to provide a stable and consistent environment for the development of a series of nationally focused, nationally driven strategies of which PRSPs were to become the most important.

In other words, the framework for development assistance for the next decade and beyond is to be a series of country driven processes within which all development actors, and all sectors, will be operating. ICT is either highlighted within these, in which case the sector will be a major national priority, or it is not, in which case it won't.

In one sense, therefore, we should be careful not to start with a false assumption about ICT in development. If the recommendations of reports such as that of the UN Millennium Project or the Africa Commission are implemented, the decision whether ICT will be a major development priority will no longer rest principally on how many conferences, papers or other initiatives take place at a global level, nor on whether papers like this argue effectively for their importance. It will rest on the degree to which the case is made at a country level that ICT offer a relevant, evidence-based strategy for developing country governments to employ in reducing poverty in their countries, and that there is sufficient demand from their citizens – particularly those living in poverty – for such technologies.

In this sense, those advocating high priority for ICT in development strategies will increasingly need to make their arguments within developing countries and within the context of a national development framework rather than to donor or international development organisations.

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7   Commission for Africa (2005), "Our Common Interest – Report of the Commission for Africa", New York.

A critical issue here is the place of ICT within development. The starting point for any national policy discussion on this should, logically, be national development objectives, not ICT; discussion should focus on "development (including use of ICT)" rather than on "ICT for development" as such. Achievements should be measured by developmental outcomes, not IT inputs; by reductions in poverty or in HIV infection rates or by improvements in agricultural productivity and farm incomes; by the extent to which ICT impact on society rather than by the number of website hits or cybercafé users.

The past decade has seen a period of scepticism about the developmental value of new technologies, succeeded by a period of enthusiasm (leading up to the first session of the World Summit on the Information Society in Geneva, 2003). At times, this enthusiasm has been uncritical. A great deal of faith has been placed in the potential of ICT to address development problems which have proved intractable, some of it naïve. Technological change has been extremely rapid, and relatively little research has been completed into developmental outcomes, distributional impacts or the barriers that constrain the achievement of desired objectives from ICT deployment. Policy design and implementation concerning ICT has not been evidence-based in the same way as it is in agriculture, health or education. This in turn is leading to renewed scepticism within the donor community.

The accumulation of evidence, however, now puts us in a much better position to understand the impact and potential of ICT in the development process. As more empirical experience is accumulated, it is becoming possible to make a more mature judgement of the potential role of ICT in delivering development outcomes and to focus on areas in which that potential has been demonstrated on the basis of experience rather than anticipated through hope or conjecture. Policy design and implementation can and should become more evidence-based. In a sense, the point at which they do can be seen as the point at which ICT can be said to have been truly "mainstreamed".

Mainstreaming, as it is understood today, is in reality a two-way process. It requires ICT to be integrated into national development planning and implementation, so that they can contribute more effectively to the achievement of national development goals; but it requires also that ICT's contributions should be subservient to the sectoral or mainstream goals set out in national policy and determined by processes of multi-stakeholder and/or democratic consultation and engagement. In this context, as noted earlier, PRSPs are no more than a special type of national development strategy; and ICTs are among a number of inputs and contributors to their fulfilment. They have no special status, and ICT advocates should not expect them to override the principles outlined above, i.e. that development planning should be country-driven, comprehensive in scope, partnership-oriented, and participatory.

There are some specific problems associated with framing ICT purely or even principally within the context of PRSPs. One of the greatest weaknesses of ICT policy making over recent years has been its articulation principally in technical and technological terms, not processes. From this perspective, ICT is seen as primarily functional: concerned with improving the quality and administration of service delivery. However, some ICT, particularly broadcasting and perhaps mass telephony technologies, can make information more accessible to people and more easily shared, so potentially enabling people to have a greater voice in their own development or empowering those with access to them to achieve more successful outcomes.

There is an historic tension here in interpretations of the role of new technologies, which has been neglected of late and which particularly concerns aspects of ICT such as computerisation and the digitalisation of communications which change the relationship between the state and its citizens. Governments have been and often remain reluctant to prioritise processes which empower citizens and potentially weaken their hold on power, but in reality the processes of change enabled by ICT can both weaken and strengthen the power of the state. This empowerment potential of ICT means that it cannot be simply equated with sectors such as water and sanitation, agriculture or education. But ICT enable those in a position to make use of them, whether state or citizen, business or consumer, democrat or demagogue.

In fact, experience to date has been that ICT have been very weakly integrated into national development planning. There is a substantial paradigm gap in many countries between the perceptions and approaches of national development planners, finance ministries and mainstream sector decision-makers, on the one hand, and ICT/ICT4D specialists on the other. This is manifest in the content of both national development and national ICT strategies. Few of the former (whether or not they are PRSPs) pay significant attention to ICT or engaged ICT expertise in their design. Equally, few of the latter are rooted in agreed national development programmes or have been designed with the extensive involvement of mainstream development experts.

Bridging this paradigm gap is not simply a matter of bringing ICT specialists into national development planning. It requires two-way engagement between mainstream and ICT sector specialists. The latter tend to emphasise the potential contribution that ICT can make but underestimate the human and other resource constraints involved and lack full understanding of the priorities of mainstream sectors such as health and education. Mainstream development specialists, on the other hand, lack expertise in the capacity and management of ICTs, and may equally underestimate the potential contribution they can make to resolving their development problems. Their expertise needs to be brought more effectively

together. In achieving this, each group needs to understand the other's requirements and priorities and to think more deeply about the limits as well as the potential of ICT deployment.

One critical issue here is the contextualisation of ICT within an understanding of information and communication flows. This may require some repositioning of the way development planners think about the role of ICT. It is not technology that determines human behaviour, but human behaviour that determines how technology is used. Future thinking about ICT deployment in development needs to focus much more on established information and communication patterns and flows, and about the information and communication preferences of target beneficiaries – to focus on poor people, one might say, rather than on good technology. Where ICT are integrated into PRSPs and other development strategies, this should be done on the basis of solid evidence about what information and communication channels people want, how they are likely to be used, and what impact their development is likely to have – not least on the distribution of livelihoods assets between women and men and between different economic, educational and other status groups. Unless existing information and communication flows are wholly inadequate, it should build on what exists rather than seeking to replace them.

Another requirement may be a more sophisticated understanding of the differences in utility of different ICTs. Broadcasting, for example, provides opportunities for widespread dissemination of news and general information (for example, concerning weather or health promotion), and (through interactive programmes) for improving political accountability and promoting debate and dialogue in society. Telephony, evidence suggests, is valued primarily for its immediacy in emergencies and for social networking, especially within the family; far less as a tool for information gathering.[8] It is essentially a democratic medium, requiring few skills, increasingly accessible in all locations, usable for different purposes as individuals choose. The Internet is far less accessible at present, and requires skills which are often poorly distributed, but has high value as an information and networking resource for opinion-leaders and others who can access and use it effectively. Information technology is primarily a tool for administration – improving service delivery or programme management – rather than for individual citizens.

At present, most discourse on ICT in development lumps these different uses together because they share common technological characteristics (not least digitalisation). This aggregation – particularly the inclusion of

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[8] Detailed research on the impact of telephony on livelihoods in India, Mozambique and Tanzania has recently been undertaken with funding from DFID. It will be published in Souter, D., Scott, N. et al., "The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction" (forthcoming).

broadcasting in discussion of ICT – has been a useful corrective to earlier telecommunications- and computer-focused analysis. However, it may have also become misleading. If communication flows are more important than technologies, as argued here, then much more attention needs to be paid to how ICT use relates to non-ICT that serve similar purposes: to the relationship between broadcasting and print media, for example; to that between telephony and face-to-face communications (with family members, extension workers, opinion leaders and peer groups) or postal services; to that between administration and service delivery through electronic means and human interfaces such as clinics, schools and agricultural extension services. A change of emphasis in this direction would also, beneficially, place more stress on the continuity between pre-ICT behaviour and that following ICT deployment, rather than on the discontinuities which are emphasised by a technology-based approach.

A more disaggregated view of ICT's contribution would also help to integrate ICT in development activities at a more local, more specific level. However integrated ICT may be with mainstream development objectives in national strategic thinking, implementation can only be effective if it is genuinely adapted to local context and engages directly with local stakeholders, above all target beneficiaries. However empowering ICTs are believed to be strategically, they can only be empowering in practice if they are desired and used by individuals and communities, and if their use is (at least relatively) equitable. Strategic approaches to ICT deployment, including national development programmes such as PRSPs, should embed stakeholder/beneficiary consultation and impact assessment in implementation planning.

However, to be truly valuable, such local or activity-specific assessment needs to go deeper than demand within the target beneficiary community. It should also address issues of human capacity to use and maintain ICT facilities; of complementary resources such as the quality and reliability of power and communications infrastructure; of sustainability and scalability; and of the likely distribution of benefits between target beneficiaries and others within the community. This last is particularly important and often sadly neglected. The capacity to use ICT resources directly is poorly distributed, and access alone can easily empower (and advantage) the more prosperous over the poor, the more educated and literate over the less educated and non-literate, landowners over landless, men over women, the established over the marginalised. These distributional impacts are hugely important in determining development outcomes. An ICT-driven intervention which benefits one community at the expense of another can look positive if its impact is assessed only in respect of target beneficiaries, but negative if a wider perspective is adopted.

As well as emphasising communication patterns, local approaches should also emphasise information needs. Smallholders, for example, do not

need as much information as can be provided about (say) soil fertility or rainfall patterns; they need access to interpretation of the information that is available, guidance on how to use their land and other resources most effectively to maximise productivity and income. Agricultural extension services cannot be replaced by direct access to the Internet, least of all by direct access to raw unreferenced facts; their effectiveness can, however, be enhanced by tailored information services, including locally-relevant interpretation, which strengthens the expertise and success rate of extension service advice. Once again, mainstream expertise lies at the heart of determining how ICT can be most effectively deployed in achieving developmental outcomes.

The last few paragraphs have focused on some of the issues arising in local implementation of national strategies such as PRSPs. Although a different tier of development decision-making, this is, of course, the tier that is most relevant in determining final impact. National policy approaches must ultimately be judged by what they achieve on the ground.

The role of national ICT strategies is significant here, but should be treated with a certain amount of caution. National ICT strategies have been widely advocated, notably at WISIS, but are viewed with increasing scepticism within the donor community. As noted above, they are often poorly linked with national development strategies, and designed primarily by ICT/ICT4D specialists rather than those from the mainstream development sectors in which action is proposed. Many have been uncosted and unprioritised; some little more than bids for donor funding. The quality of ICT strategy development needs to be greatly improved if they are to be integrated effectively into development strategies such as PRSPs. In particular, if integration is to be real, the determination of objectives for ICT investment has to be led by those that will use that ICT investment in pursuit of their objectives: by education, health and rural development strategists, for example, rather than by ICT technicians.

Lessons, also, must be learnt from past experience. At present, many of the lessons that could be learnt from experience to date of ICT4D activity are being missed. Much of the published evidence is anecdotal and uncritical, often derived from project managers or enthusiasts. Much assessment focuses exclusively on target beneficiaries rather than the wider community with which those beneficiaries interact. Policymaking needs to be informed by more independent research which looks at impacts on a larger scale (on the society within which target beneficiaries live and work, on regional and national outcomes, on the deployment of national sectoral resources), at behavioural impacts such as communication flows, at developmental outcomes, and at trends which can reveal much about sustainability and scalability. Lessons, crucially, need to be learnt from failures as well as from successes. Without such upgrading of the quality of understanding and analysis of ex-

perience to date, national policies are unlikely to integrate ICTs in development strategy as effectively as they could or should.

Conclusion

This article has reviewed the relationship between ICT and national development policies, including PRSPs. It suggests that the linkages between national development approaches and ICTs are weak, and that ICT approaches are, in many countries, poorly integrated within national development thinking. This applies to PRSPs as it does to other national development strategies. It stems to a substantial degree from a paradigm gap between mainstream development specialists and those primarily concerned with ICT4D. Where PRSPs and similar documents are concerned, it is compounded by differences in perspective between the governments and other stakeholders of developing countries, on the one hand, and donors and multilateral institutions, on the other, which have made the implementation of such documents more problematic than had been hoped.

The article suggests a number of ways in which the quality of ICT engagement with national development planning could be improved. These include explicit attention to bridging the paradigm gap between development and ICT specialists; a stronger focus on information and communication needs and flows rather than the potential of technology, on outcomes over inputs, on users over uses, and on the distributional impact of ICT at both national and local levels; more disaggregation of ICT and contextualisation of ICT interventions; and more effort to understand and analyse the experience in ICT deployment to date through research which provides a sounder basis for evidence-based policy formulation and implementation.

The authors recognise the limitations of this approach. Nationally driven development strategies, particularly PRSPs, are heavily government focused and governments are often reluctant to invest in strategies that are likely to provide a greater voice to poor people. Furthermore, mainstreaming can lead to a loss of visibility (the mainstreaming of gender issues in development for example has sometimes led to a deprioritisation and a loss of political momentum around women's rights). Nevertheless, while those who argue for the central role of information and communication as being a key pillar of effective development policy should be at the forefront of development debates, the treatment of ICT within development policy has to be firmly embedded in a broader development strategy.

Illustrative examples

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

Information for Development (i4d): building awareness among policy-makers for the role of ICT in development

Type of Activity:	Initiative
Organisations involved:	GIS Development, National Institute of Smart Government, Hivos
Start – End:	Publication series launched in February 2005 – ongoing
Area covered:	International

Summary Description:

Information for Development (i4d) is an initiative aimed at building understanding and awareness for the great potential of information and communication technologies for development (ICT4D), in particular for the achievement of the Millennium Development Goals (MDGs). Many governments as part of their poverty reduction strategies are deliberating how to include ICT and in what capacities, but there is still much uncertainty and confusion on the part of policy-makers.

i4d answers to this need. Among other things, the initiative produces the i4d MDG Series 2005, a series of monthly magazine devoted to ICT and MDGs. It is intended to provide a much-needed platform for exchange of information, ideas, opinions and experiences, both inside and outside the ICT4D sector. Each goal is taken up one by one and the challenges that agencies, governments and donors confront are discussed. In addition, concrete applications of ICT4D are presented. i4d's online venture (http://i4donline.net) hosts a range of additional up-to-date and interactive features that supplement the news content of the print version, and also allow for reader interaction via discussion.

Key success factors:
- Combination of print and online media makes it possible to reach a wide audience;
- Focus on information and knowledge need of policy-makers.

Key challenges:
- Demonstrate and argue ICT4D in a manner that is consistent with mainstream development and economics discourse;
- Presenting complex technological and developmental issues to a non-expert audience in ways they can understand.

Computers in Development Programme: Combating poverty with savings and microcredits in Bangladesh

Type of Activity: Programme
Organisations involved: PROSHIKA

Start – End: 1986 – ongoing
Area covered: Bangladesh (57 of 65 districts)

Summary description:

PROSHIKA's Computers in Development Programme (CDP) has been striving to improve the socio-economic climate for both the urban and rural poor of Bangladesh. This effort dates back to 1976 with the introduction of microcredit, making Bangladesh one of the first developing countries to make widespread use of small-scale financing mechanisms. Microcredit can help the poor to increase income, build viable businesses and reduce their vulnerability to external shocks. It can also be a powerful instrument for self-empowerment by enabling the poor, especially women, to become agents of economic and social change.

Prior to the introduction of computers to PROSHIKA in 1986, the organisation maintained a microcredit portfolio of US$ 1 million. The forty staff members found it difficult to coordinate this portfolio and to actively engage in business development. The introduction of computer systems was a key contributing factor to scaling up PROSHIKA's microcredit portfolio and to making it more efficient. It is now managed by four persons and has grown to encompass US$ 800 million. Over 1.5 million women and 1 million men in 23,000 villages and 2,070 urban slums profit from PROSHIKA's expanded microcredit capacity. The Computers for Development Programme has been able to realise this through introducing information systems in support of:
- Accounting, credit and savings management;
- Human resource planning; and
- Programme monitoring of client's loan, disbursement and payment schedules.

Key success factors:

Central to the initiative's success has been an ability to adapt to the new way of working. Introducing ICT is not limited to the technology, but there is an important component of organisational change.

Key challenges:

A particular challenge is to ensure there is adequate building of ICT capacities among staff and end-users.

ICT for Agriculture in the Chiquitano region: integrating small farmers into the wider economy

Type of Activity:	Programme
Organisations involved:	Apoyo para el Campesino-Indígena del Oriente Boliviano (APCOB), International Institute for Communication and Development (IICD)
Start – End:	2003 – ongoing
Area covered:	115 communities in Bolivia

Summary description:

Indigenous farmers in Bolivia are often not part of the country's mainstream marketing loop so both they and their products (honey, sustainable wood products, handy crafts, medicinal plants) miss out. To help these farmers, Apoyo para el Campesino-Indígena del Oriente Boliviano (APCOB) wants to provide access to ICT and market information. The project is being developed in close collaboration with the indigenous farmers and government officials. This in turn encourages the farmers to participate in local development planning and decision-making.

Key features:

The project combines Internet access through information centres in the larger communities, voice radio access in isolated communities and a series of radio programmes. A new feature in the project is to explore the possibilities of connecting rural information centres to the Internet by means of microwave links, solving problems of absent or low quality fixed telephone lines.

Key challenges:

The target group represents the poorest people in remote rural areas. The level of organisation among local communities is very low.

Using ICT as a catalyst for sustainable development: the role of national policy

by John K. John, Mahendhiran S. Nair, Puvan J. Selvanathan and Mudiarasan Kuppusamy

Summary

The changing state of the world – socially, economically and environmentally – casts a compelling backdrop against which the Millennium Development Goals (MDGs) seek to enlighten and address global developmental issues. Previous frameworks and paths which led the developed world to economic prosperity are no longer open, applicable or relevant to the majority of developing nations seeking opportunities for self-betterment. The ICT Revolution, however, may deliver such opportunities, but only if harnessed within desirable and achievable models of growth specific to the needs and wants of individual developing countries. To rationalise the opportunity ICT may offer a developing nation, it is necessary to identify new global role-models in the vein of the aspirants themselves: nations who by effort of visionary policy and nurturing of critical conditions have realised tremendous growth which can be demonstrably attributed to proactive ICT-related initiatives. This chapter studies the framework for growth in Malaysia over the past 40 years, revealing lessons of how ICT opportunities were leveraged upon to place the nation squarely on a path toward achieving its MDG targets and becoming a Knowledge Society.

Introduction

Since the breakdown of Socialism and the fall of the Berlin Wall, the juggernaut of globalisation and the WTO Seattle riots; the battle against terrorism since 9/11, and the force of tsunamis and hurricanes which show little respect for economic prowess, the world has endured unprecedented discontinuity. Some nations have been liberated, others remain torn, and yet others equate pre-emptive strikes with self-defence. This drama frames the paradigmatic and life-changing effects being brought about by the information and communication technology (ICT) revolution. Against this backdrop the United

Nations adopted eight Millennium Development Goals (MDGs) setting clear targets for reduction of poverty, disease and environmental degradation, within a global compact, before 2015.

Jeffrey Sachs, Special Adviser to the UN Secretary-General on the MDGs, in evaluating the likelihood of achievement of the MDGs, contends that current poverty reduction strategies are inadequate.[1] He further proposes that the one-size-fits-all fiscal and economic remedies, benchmarks and measures advocated by the International Monetary Fund (IMF) are anachronistic and can be dangerous; and that an apparent incoherence exists between stated development objectives and the manner in which development assistance is offered. He suggests specific elements must inform any aspirant strategy that in themselves are tailored to achieve the MDGs in a cohesive, coordinated manner. One element in particular is the need for differential diagnosis to "identify the policies and investments that the country needs in order to achieve the MDGs" which will necessarily differ from country to country. This view is shared by the authors – that several less and least developed countries (LDCs) will not achieve the MDGs by 2015 if left to face the challenge alone, without the benefit and assistance of ICT, and without a suitable model for relative comparison of their achievements and progress. Conversely, if national strategies are properly conceived with appropriate milestones, many LDCs have a better than equal chance to break their cycles of poverty, destitution and underdevelopment. The authors, basing a case upon the actual experience of development in Malaysia over the past 40 years, and arguing from a developing country perspective, believe that certain African nations can not only achieve equivalent development but may themselves become models for the rest of Africa.

Such development is neither simplistically linear nor solely infrastructure-based. Rather, the process is first underpinned by foundation conditions to establish the minimum, basic and necessary infrastructure and "Infostructure" (the non-physical mechanisms regulating and channeling a digital or virtual environment). These are critically supplemented by catalytic driver conditions to seed, spawn and nurture entrepreneurial spirit and enterprise that may leverage upon the ICT revolution to deliver economic growth and create wealth.

An appropriate metaphor to illustrate the symbiosis between these different conditions is that of a sailboat and its crew. *The physical construct of the vessel – its rudder, hull and sails; GPS and communication system; and emergency generator and distress equipment* – equates to the foundation conditions necessary to take to the sea. Driver conditions required for a sea-

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[1] Sachs, J.D. (2005), "The End of Poverty", New York, pp. 270–280.

worthy vessel would include the *competence* of the crew; the *leadership* of a captain; the *goal* of a known destination; and, importantly, the *skill* to navigate with favorable winds. To extend the metaphor, many winds have blown over underdeveloped sailboats and crews. Industrialisation, a powerful wind that accelerated developed nations over the past two centuries, has seemingly left a developing flotilla in need of tugs and salvage in its wake. However, a new ICT-powered wind may allow developing sails to balloon this time around. This does not ignore or subsume agendas to deliver basic priorities – food, shelter and good health – nor the need for political stability and good governance, nor the support of a critical mass of local private sector contribution. It is to ensure explicit convergence of these factors with any ICT initiative that every developing nation needs a specific plan for MDG achievement with international assistance; and a national plan for sustainability thereafter. If comprehensive foundation conditions are laid, driver conditions can be nurtured through an ICT-driven Knowledge Strategy allowing nations to "leapfrog" and meet MDG targets and sustain development.

This chapter is organised as follows: *Section 2* discusses the impact of ICT on socio-economic development; *Section 3* exhibits key performance indicators for Malaysia and selected African countries to identify a problem statement; *Section 4* profiles the policies and strategies which Malaysia employed to leapfrog stages of socio-economic development and be today ranked the 24th most competitive nation in the world[2]; *Section 5* draws lessons from the Malaysian experience that may offer possibilities for some African states, and identifies policy imperatives needed to develop both foundation and driver conditions for competitiveness and sustainable development.

The impact of ICT on socio-economic development

The impact of ICT on development at the micro and macro levels has been widely debated. Studies by Becchetti et al.[3] and Criscuolo & Waldron[4] have shown that ICT increased the productivity, efficiency and market reach of firms all over the world. Other studies by Dewan and Kramer[5], Brynjolffson

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[2] World Economic Forum (WEF) (2005), "Global Competitiveness Report 2005–2006".

[3] Becchetti, L., Bedoya, D. and Paganetto, L. (2000), "ICT investment, productivity and efficiency: evidence at firm level using a stochastic frontier approach", *CEIS Working Paper,* No. 126.

[4] Criscuolo, C. and Waldron, K. (2003), "Computer network use and productivity use in the United Kingdom", Centre for Research into Business Activity and Office of National Statistics.

[5] Dewan, S. and Kraemer, K.L. (1998), "International dimensions of the productivity paradox", *Communications of the ACM,* Vol. 41, No. 8, pp. 56–62; Dewan, S. and Kraemer, K.L. (2000), "Information Technology and Productivity", *Management Science,* Vol. 46, pp. 548–562.

and Hitt [6], Kraemer and Dedrick [7], Hernando and Nunez [8] and Kim [9] showed that ICT do contribute positively to productivity and economic growth in most developed countries. ICT can also benefit the socio-economic development agendas of less developed and developing countries in the following ways:

- Providing cheaper, higher quality communication to marginalised communities; empowering them; and reducing inequalities between these communities by increasing access to education, training and employment opportunities at a fraction of prevailing costs.
- Enabling easier access to information, and a wider market reach, for farmers and small traders in poorer regions; and reducing transaction costs by removing "middle-men" and other intermediaries.
- Reducing red-tape and corrupt practices via electronic public delivery systems and e-government initiatives; boosting the ability to monitor and respond quickly to hunger, poverty and other socio-economic problems via public programmes.
- Raising public awareness and disseminating educational programmes on medical and social problems that plague poorer regions; and facilitating exchange of knowledge and information by medical personnel in rural and urban areas (telemedicine).
- Fostering closer interaction, cooperation and collaboration between national stakeholders; the ability to tap into the collective intelligence of the global community to raise the innovative capacity, enhance wealth sustainability and prevent environmental degradation (forming virtual Research & Development [R&D] clusters and innovation networks).

Nair and Kuppusamy [10] and Nair et al. [11] showed that while developed countries have benefited from the ICT revolution, most developing and less developed countries have fallen behind – revealing a disturbing trend that the digital divide and the competitiveness-gap have widened over the last decade.

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[6] Brynjolfsson, E. and Hitt, L. (2000), "Beyond computation: information technology, organisational transformation and business performance", *Journal of Economic Perspective,* Vol. 14, No. 4, pp. 23–48.
[7] Kraemer, K.L. and Dedrick, J. (2001), "Information technology and productivity: results and policy implications of cross country studies", in Pohjola, M. (ed.), *Information Technology and Economic Development,* Cambridge.
[8] Hernando, I. and Nunez, S. (2002), "The contribution of ICT to economic activity: a growth accounting exercise with Spanish firm level data", Banco de España, Research Department, pp. 1–37.
[9] Kim, S.J. (2003), "Information technology and its impact on economic growth and productivity in Korea", *International Economic Journal,* Vol. 17, No. 3, pp. 55–75.
[10] Nair, M. and Kuppusamy, M. (2004), "Trends of convergence and divergence in the information economy: lessons for developing countries", *The Electronic Journal of Information Systems for Developing Countries,* Vol. 18, No. 2, pp. 1–32.
[11] Nair, M., Kuppusamy, M. and Davison, R. (2005), "A longitudinal study of the global digital divide problem: strategies to close cross-country digital gap", *The Business Review*, Cambridge, Vol. 4, No. 1, pp. 315–326.

All is not gloomy for the inadvertent laggards, as there are role-model nations from the developing world that have broken away from the cycle of poverty and despair. These countries have not only met some of their MDG targets, but also raised their global competitiveness. The rise in these model nations' standards of living was not solely attributable to pervasive ICT infrastructure. Rather, a key springboard providing them the opportunity to leapfrog to higher stages of socio-economic development was comprehensive, integrated, holistic strategic planning to establish a Knowledge Society underpinned by ICT that enhanced foundation and driver conditions within their societies. The case of Malaysia, one such role-model developing nation, is discussed in the coming sections.

Trends in Malaysia and selected African states

This section examines the trends of five socio-economic indicators for Malaysia and eight African countries. The indicators used reasonably capture developments pertaining to an ICT-based economy; and the African nations selected are representative of other countries in Africa at differing stages of development.

Figure 1: Real GDP per capita (PPP) [1975–2004]

(Data Source: WDI Online, Wold Bank)
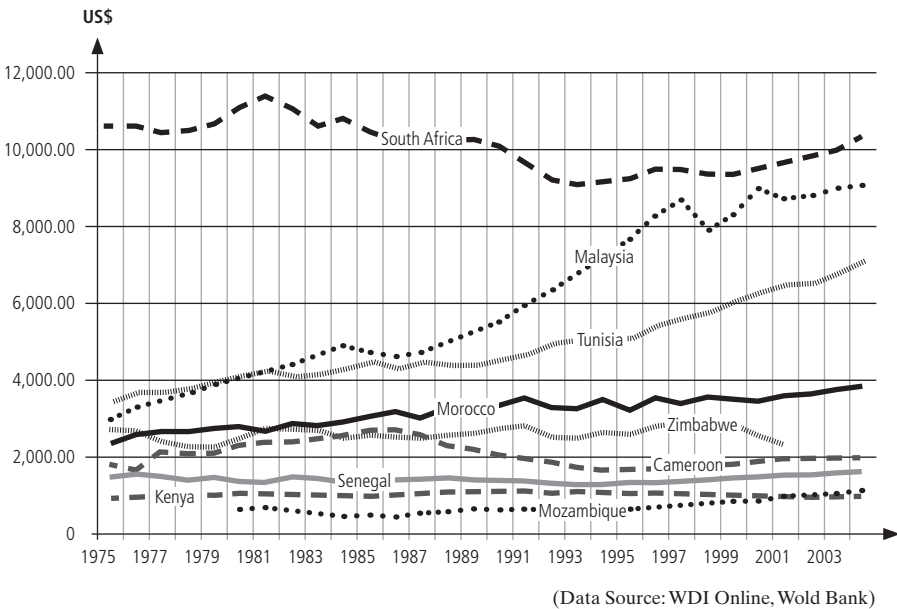
Figure 1 shows the per capita real gross domestic product (GDP) from 1975 to 2004 (under purchasing power parity). From the figure, we observe that in 1975,

South Africa had the highest per capita real GDP of US$ 10,617. From 1981 to 1999, the per capita real GDP of South Africa was on a downward trend. From 2000 to 2004, the GDP was on the rebound, increasing to US$ 10,366. Tunisia and Morocco were the second and third fastest growing African countries. Most of the other African countries had very low per capita real GDP in 1975 and the rate of per capita real GDP growth over the sample period was negligible. In some African countries it has been on a downward trend. On the other hand, Malaysia recorded the highest per capita real GDP growth over the sample period – from US$ 2,998 in 1975 to US$ 9,032 in 2004.

Figure 2: Network Readiness [Index 2003]

Web/Telecom Index

(Data Source: United Nations, 2003)
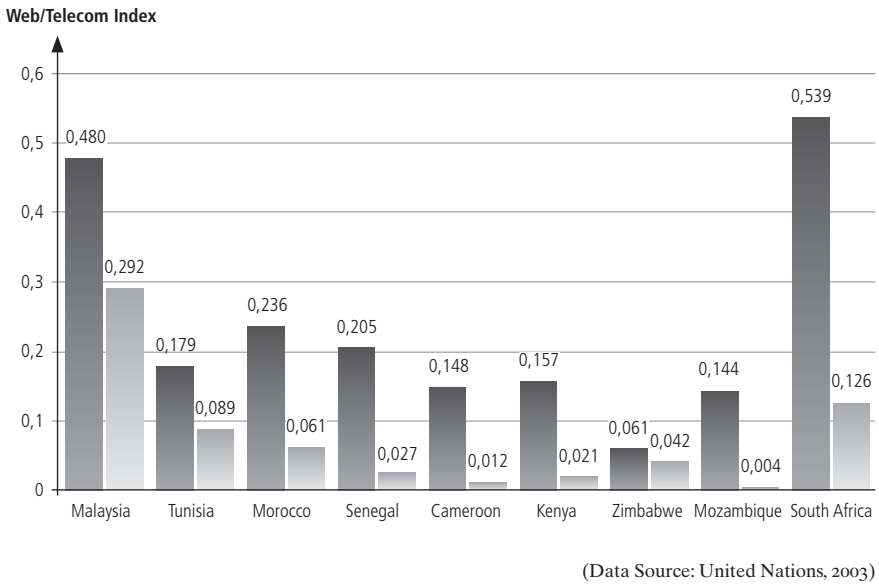
Figure 2 shows the network readiness of the sample countries. The network readiness consists of two measures. The first measure is the Web Measure Index (WMI), which measures the presence/absence of electronic facilities/ services and the sophistication level of the national portals and the websites of government ministries/departments. The second measure is the Telecommunication Infrastructure Index (TII) which is the weighted average of the following six indices: PCs/1,000 persons, Internet users/1,000 persons, Telephone lines/1,000 persons, Online population/1,000 persons, Mobile phones/1,000 persons and TVs/1,000 persons. On the WMI, South Africa registers the highest score. On the other hand, Malaysia records the highest score on the TII. The WMI and TII scores for the remaining countries are significantly lower than that of Malaysia and South Africa.

Figure 3: Percentage gross enrolment in tertiary institutions [2002/2003]

Percentage
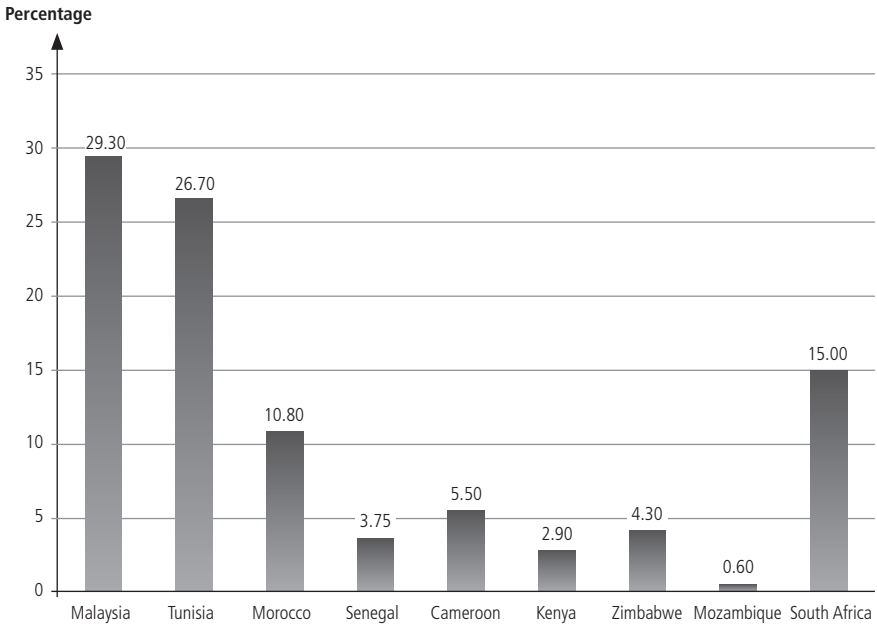
(Data Source: WDI Online, World Bank)

Figure 4: Human Development Index [2003]

Human Development Index

(Data Source: http://www.undp.org)
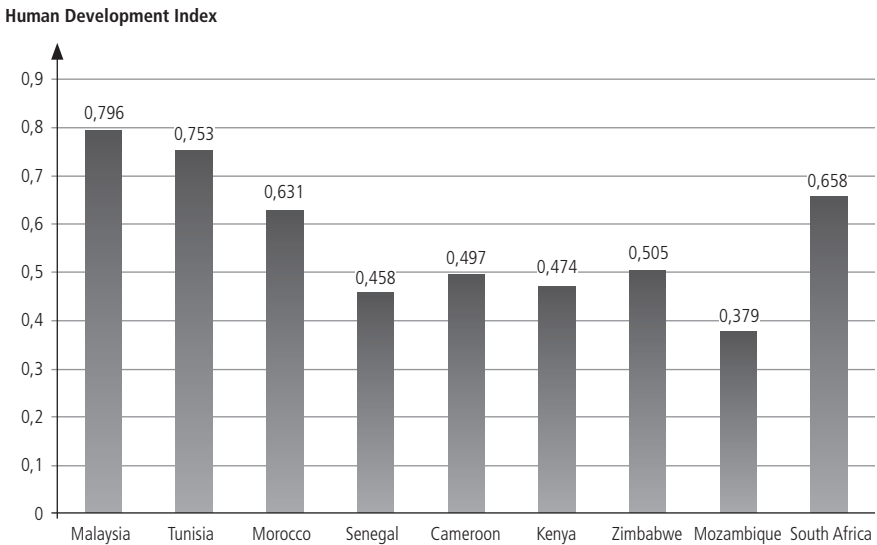
The proportion of the population in the sample countries that have tertiary education and the Human Development Index (HDI) [12] are given in *Figure 3* and *Figure 4,* respectively. From these figures, we observe that Malaysia leads the pack, followed by Tunisia, South Africa and Morocco. The remaining countries register significantly lower values for the tertiary education and HDI. The life expectancy of the people in these countries is given in *Figure 5*. This figure shows that Malaysia and Tunisia have the highest life expectancy of 73 years, followed by Morocco, with a life expectancy of 69 years. The remaining countries register a significantly lower life expectancy, with Zimbabwe recording the lowest life expectancy of 39 years.

Figure 5: Life expectancy in years [2003]
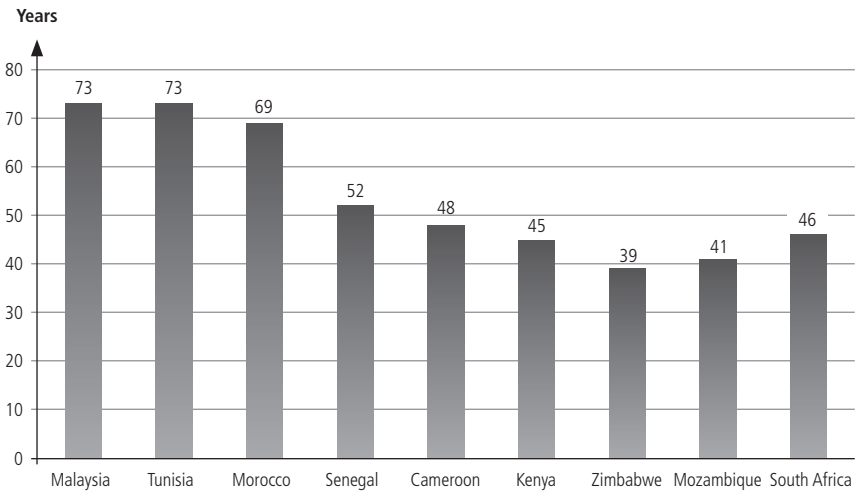
(Data Source: WDI Online, World Bank)

From the empirical results, Malaysia seems to be the most successful developing country in meeting not only the targets set forth in the MDGs, but also in its preparedness for the global knowledge economy. In the next section, we will examine the policies and strategies that have helped Malaysia achieve the MDGs and knowledge economy targets.

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[12] The Human Development Index (HDI) is a comparative measure of poverty, literacy, education, life expectancy and other factors for countries worldwide.

The Malaysian GEM (Growth with Equity Model)

The Malaysian economy evolved in three distinct phases over the last 40 years. This development experience may be termed as: an early *imitation* phase; leading to an *integration* phase; and being now poised for an *innovation* phase.

Independence (1957) and the New Economic Policy

In 1960 Malaysia was a nascent economy, comparable to many peer nations in Africa. Agriculture was the main contributor to wealth of this newly independent country with per capita real GDP of US$ 450. Since the 1960s, Malaysia's socio-economic development strategies have been guided within 20-year Outline Perspective Plans (OPP), the progress of which are monitored, reviewed and aligned as necessary within 5-year national development plans. OPP I was developed in 1970 and informed by significant socio-political disturbances in 1969. A key agenda of OPP 1 was the overarching New Economic Policy (NEP: 1971–91) – a 20-year agenda to achieve growth with equity. This policy aimed for national and multiracial unity by focusing on two strategic targets: the eradication of poverty; and the elimination of racial segregation based on social and economic function and geography.

Vision 2020 and the National Vision Policy

In the 1980s under the visionary leadership of Dr. Mahathir Mohamad, Prime Minister, Vision 2020 was promulgated to transform the nation into a major regional industrial manufacturing hub. Consequently, Malaysia rose to become the largest producer and exporter of electronics and electrical (E&E) components and products outside of the US and Japan. In 1991, the New Economic Policy (NEP) was succeeded by the New Development Policy (NDP: 1991–2000) to inform Outline Perspective Plan II (OPP II) with an enlarged vision of achieving equitable catalytic economic growth for all races. The NDP was designed to be the foundation upon which Malaysia would achieve developed country status by 2020.

To boost national competitiveness and resilience in the face of globalisation, technological explosion and market liberalisation, a further 10-year policy was initiated. The National Vision Policy (NVP: 2001–2010) nurtured conditions (driver conditions) to allow realisation of a knowledge-driven society by 2020. Central to this policy was the development and implementation of key programmes to create environments conducive to building national capacity in science, technology and innovation.

The National IT Council and the National IT Agenda

The strategic role of ICT became clear shortly thereafter. The 2nd Industrial Masterplan (IMP2: 1995), with a focus on cluster development, recognised the

role of ICT in facilitating *productivity-driven* growth leading toward a *knowl-edge-driven* economy. The challenge to „informatise" Malaysian society was then initiated by the Government forming a National Information Technology Council (NITC: 1995), which delivered a National Information Technology Agenda (NITA: 1996). Chaired by the Prime Minister, the NITC was focused on the NITA specifically formulated to transform Malaysia into an information and knowledge-driven economy. The three strategic objectives of NITA are to develop *People, Infostructure and Applications,* and it remains the main catalyst for the diffusion, adoption and integration of ICT in all sectors of the economy. To achieve the objectives of NITA, the Government established foundation conditions *(Infrastructure / Infostructure)* and nurtured driver conditions *(Incentives, Intellectual Capital, Institutions, Innovation, Integrity and Interaction/Networking),* also known as the 7i-Framework. [13]

Foundation conditions

ICT infrastructure prior to the 1990s provided only basic telephony to most people in urban areas. During the 1990s, access to fixed-line services expanded to a wide segment of the population nationally. Newer, more cost-effective ICTs further enhanced digital connectivity across the nation, with widening of connectivity directly attributable to the following government-led initiatives:

- Privatisation of the state-owned telecommunication provider, Telekom Malaysia, in 1990 improved the quality and reach of the telecommunication service.
- Opening-up of the mobile phone and the Internet industry to five new entrants in the mid 1990s increased competition within the telecommunications sector. This resulted in improved levels of service and lower costs for customers.
- ICT connectivity in rural areas was intensified between 2000 and 2003. In 2000, 33 pilot community-based Internet Centres were developed nationwide (12 of which were in rural areas); with an additional 31 Internet Centres established across the nation between 2001–03 [14]; and a NITC Strategic Task Force experimented with a Public-Private Partnership model for another 13 pilot projects nationally [15].

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[13] Nair, M. and Kuppusamy, M. (2005), "Innovation and competition in the information economy: leap-frogging strategies for developing countries", *World Forum on Information Society: Digital Divide, Global Development and the Information Society, 14–16* November 2005, Tunis, Tunisia.

[14] Economic Planning Unit (EPU) (2001), "The 8th Malaysia Plan: 2001–2005", Prime Minister's Department; Economic Planning Unit (EPU) (2003), "The Midterm Review of the 8th Malaysia Plan: 2001–2005", Prime Minister's Department.

[15] John, K.J., Lim, K.J., Ramachandran, R., Ahmad, R., Nadarajah, K., Chong, S.C., Jeyasooriah, D., Sulaiman, M.A., The, O.G., Surendran, B. and Tew, S.T. (2004), "Regional Human Development Report: The Malaysian Case", Unpublished Manuscript (materials from this document used for the Regional Human Development Report: Promoting ICT for Human Development in Asia).

A physical tenet of NITA is Malaysia's Multimedia Super Corridor (MSC). The MSC delivered world-class ICT infrastructure at a development cost of approx. US$ 19 billion over an area of 800 sq km. to encapsulate new twin "cybercities". Putrajaya is the new administrative capital of Malaysia (a "paperless" government city); and Cyberjaya, a city for converging new technologies. Both lie on an axis between Kuala Lumpur and the new International Airport. The MSC programme first phase attracted leading technology-based organisations to relocate into Malaysia to develop customised next-generation multimedia technologies, innovative content and service delivery. The second phase (2003–2010) expands the MSC to other cities nationally; and the third phase (2010–2020) expects an MSC-type environment to be prevalent throughout Malaysia.

Driver conditions

Incentives: These physical development initiatives were supplemented with incentives to raise the level of ICT adoption and acceptance nationally such as abolishing sales tax on PCs and components, granting of accelerated capital allowance for PCs and ICT equipment, tax rebates of US$ 105 (RM 400) for PC purchases, and a scheme allowing contributors to the Employment Provident Fund (EPF) to withdraw savings to purchase PCs and ICT.

Intellectual Capital: Beyond hardware and technology, the Malaysian government recognised the high priority for human capital to sustain and develop a knowledge-based economy. Several initiatives were undertaken over the last two decades to reduce the knowledge-gap between segments of the population, increase the proportion of educated workforce, and create an ICT-savvy society:

- The literacy gap between the sexes was reduced from 83% male / 68% female in 1980 to 97.2% male / 97.3% female in 2000.
- Investment in education increased from 7.5% of GDP in 1980 to 17% of GDP in 2003. Primary education is mandatory; and both primary and secondary education is free of charge.
- ICT learning environments were introduced in primary and secondary schools: in 1999 12,000 schools were equipped with PCs and Internet[16] and by end-2005 all 18,000 schools will have ICT-enabled learning. Rural schools were linked to the Internet using Very Small Aperture Terminal (VSAT) and Wireless Loop Technology (WLT). The MySchoolNet portal was established to enable teachers and students to source educational material and information.

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[16] Economic Planning Unit (EPU), "Midterm Review".

- To increase manpower in the ICT sector, a Multimedia University owned by Telecom Malaysia was established in 1996.
- The number of universities, university colleges, polytechnics and colleges were increased over the last decade. There are 11 public universities, 10 private universities (4 run by Government-led private sector), 7 public university colleges, 10 private university colleges, 20 polytechnics, 34 community colleges and 282 other private institutions of higher learning. The tertiary education sector was opened, with 4 foreign universities having established campuses in Malaysia.
- Greater emphasis was given to Science and Technology (S&T) education at the tertiary level under The 8th Malaysia Plan (2000–05) with 60% of graduates in 2005 expected to be in S&T area.[17]

Institutions: To facilitate connectivity, diffusion of information and knowledge, and business operations a strong institutional framework is key to sustaining development in an ICT-supported economy. To address these challenges the Government created a regulatory environment with new multimedia convergence laws in 1998. The Malaysian Communications and Multimedia Commission (MCMC)[18] was established with oversight on the following:

- *Economic Regulation* – promotion of competition, prevention of anti-competitive conduct, compliance to rules and performance quality/service.
- *Technical Regulation* – efficient frequency spectrum assignment, development and enforcement of technical codes and standards, and the administration of numbers and electronic address.
- *Consumer Regulation* – empowerment of consumers, protection of consumers rights, dispute resolution, affordability and availability of service.
- *Social Regulation* – content development and content regulation.

Nair et al.[19] have argued that for ICT to contribute to economic development, a legislative environment should be in place to support communication, commerce and trade in the digital medium. Malaysia is a leader in the developing world with a comprehensive legal architecture for the digital economy introduced over the last eight years to facilitate infostructure development.[20]

- *Digital Signature Act (1997)* – Facilitates e-commerce and secure online transactions through the use of digital signatures.

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[17] Economic Planning Unit (EPU), "The 8th Malaysia Plan".
[18] See http://www.mcmc.gov.my.
[19] Nair, M., Kuppusamy, M. and Davison, R., "A longitudinal study".
[20] Economic Planning Unit (EPU), "The 8th Malaysia Plan".

- *Computer Crimes Act (1997)* – Provides for offences relating to the misuse of computers; it aims to clearly define activities such as cyber fraud, unauthorised access, interception and illegal use of computers.
- *Communications and Multimedia Act (1998)* – Provides a framework to cater for the convergence of the telecommunications, broadcasting and computing industries.
- *Telemedicine Act (1997)* – Provides a framework for licensed medical practitioners to provide tele-medical services.
- *Data Protection Act (2002)* – Aims to address matters pertaining to privacy, authentication and protection of personal and companies information that are used in formal business and social transactions.

Innovation: Malaysia has prioritised innovation for economic development and new wealth creation, with the Government as the main driver of innovation in the country. In the early 1960s government investment in R&D was in the agricultural sector; in the mid-1980s a greater proportion of R&D funding was channeled into science, engineering and medical areas. From 1985–2005, under a government programme for Intensification of Research in Priority Areas (IRPA), competitive bidding for research funds was promoted among government research institutions. By 2000, 32% of IRPA was earmarked for new and emerging areas such as optical technology, chemical technology, software design technology, nanotechnology and precision engineering.

During the mid-term review of The 7th Malaysia Plan, three new research grants were mandated. By the end of 2000, a total of US$ 56 million (RM 214 million) had been allocated collectively under: the Industry Grant Scheme (IGS) established in 1997 to foster cooperation among the private sector, universities and research institutes in undertaking joint research projects for industrial commercialisation of research ideas; the MSC Multimedia Grant Scheme (MGS) for innovation of application of ICT; and the Demonstrator Applications Grant Scheme (DAGS) to enhance ICT for content and community development. Over the years, various steps were taken to strengthen collaboration and cooperation between government, private sector, research centers and institutions of higher learning.

Private sector contributions to R&D and the nation's innovative capacity have increased over the years (US$ 196 million in 1995; US$ 255 million in 2000); with 90% in applied research concentrated in areas such as electronics equipment and components, transport equipment and petroleum-based products. Increased Private Sector R&D activity was driven by fiscal incentives provided by the Government including double-deductions on R&D expenditure and Investment Tax Allowances (ITA) of up to 100%.

Integrity: "Foreseeing the Internet Age in improving the performance of governments, the Malaysian Government in 1997 adopted a bold vision of effecting dramatic, sweeping changes through E-Government."[21] This cross-ministerial, cross-sectoral, and top-down initiative sought to strengthen the public sector by advocating greater efficiency, productivity and transparency. In the years since, civil society has mirrored the same principles through Internet-publications such as www.malaysiakini.com, opening and channeling political and societal debate through ICT.[22]

Interaction and Networking: The Malaysian Government has encouraged and fostered cooperation and collaboration with technology-leaders (firms and institutions) internationally, providing Malaysian firms the opportunity to acquire new and advanced technologies from across the globe. The Government also promoted various fiscal and non-fiscal incentives for Malaysian firms, researchers and institutions of higher learning to be a part of the global innovation network. The Multimedia Super Corridor (MSC), besides delivering world-class infrastructure, is a compelling option for leading international technology organisations to locate in Malaysia to develop and innovate next-generation multimedia technologies. By 2003, 836 companies had earned MSC-status, of which 66% were Malaysian-owned companies and the remainder foreign-owned.[23] In 2003, MSC companies invested more than US$ 2 billion in the MSC.[24] Approximately 26% of the investment was spent on R&D. As of May 2003, the MSC had a 17,854-strong workforce, where 86% of the jobs were classified as knowledge-intensive jobs and 87% of these knowledge workers were Malaysians.[25]

Conclusion: lessons from Malaysia

Key strategies and policies adopted by Malaysia which have helped it meet its MDG targets and raise its global competitiveness are:

Strategic long-term planning

Malaysia has enjoyed unwavering political stability since independence in 1957. General elections every 5 years have returned a *grand coalition* under the Barisan National (National Front), composed of several parties reflect-

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[21] Rais, M. and Khalid, N. (2003), "E-Government in Malaysia", Malaysia.
[22] Abdul Rahim, R. and John, K.J. (2000), "Access, empowerment and governance in the information age", National Information Technology Council (NITC), Malaysia.
[23] MSC-Status is accorded to companies with a proven or demonstrable commitment to furthering the goals of the MSC. These would include companies focused on R&D, IT, content development, etc. MSC-status companies enjoy long-term tax incentives; fast-tracked processes.
[24] MSC.COMM (2005), "Capitalising on the MSC".
[25] Economic Planning Unit (EPU), "Midterm Review".

ing the multi-cultural make-up of the country. Such continuity has allowed long-term planning, goal-setting and meaningful programme impact evaluation – activities rigorously carried out by the Economic Planning Unit within the Prime Minister's Department. Being entirely public sector-driven, the planning process was insulated from sectarianism and parochialism remaining instead focused on the greater national interest.

Comprehensive development agenda
In addition to operating expenses for ministries and departments, annual government budgets have consistently allocated funds (capital expenses budgeting) for development programmes within every 5-year plan; this foresightedness has proved integral to long-term economic planning.

Integrated ICT development
With the setting-up of the NITC and MSC, the Government acted upon its realisation of the potential of ICT, and the prospect of transforming the nation into a knowledge-society. ICT now inform all aspects of development in Malaysia, driving to achieve ubiquity of ICT of the same standard and quality as the MSC throughout the nation.

Government-led / private sector-driven development
Government-linked institutions have been periodically created and developed to realise social agenda objectives. Some institutions have since been privatised, driving the economy in their own right through various policy and market-led models for national development. Currently about 30% of the Malaysian Stock Exchange is owned and operated by Government-linked private sector companies.

Foundation conditions for MDG growth and development
After independence the multiracial make-up of Malaysian society required that a conscious effort be made to distribute the fruits of development and growth to ensure national unity and societal harmony. The Government took an uncompromising view to define the framework of distribution, which can now be directly related to MDG targets, and continues as foundation conditions defining the Malaysian quality of life and standard of living.

Driver conditions for FDI-driven absorption capacity and capability development
The accelerated pace of Malaysian development in the 1980s and 1990s is unambiguously attributed to Foreign Direct Investment (FDI) attracted by a very favourable investment environment. Nonetheless, such investment was coupled with technology-transfer arrangements to build local capacity and capability. The quantum and quality of driver conditions (infrastructure,

innovation, etc.) today result from leverage upon those and ongoing technology transfers.

In conclusion, the 2005 UN General Assembly was convened to measure progress on an agenda of global poverty, development targets and institutional self-reform. Sadly, lofty ideals issued in various guises over the past 60 years were tested and found wanting in the „reality" department, leaving little room or reason for renewed hope in the developing world. The MDGs have been a powerful wind of change that has carried some developing sailboats some way since they were first declared; yet the filtering and funneling of what the promises might mean in and to different world camps suggest even this wind may pass the stranded flotilla of most needy sailboats. In particular the attempted backtracking on commitments by the most reactionary legacy power systems suggest more learning and response is needed to address the build-up of waves and storms which wreak havoc in ignorance of political expedience as was the case for Louisiana in the face of Katrina. The levees for development must be shored-up today. A continent away, seemingly in both time and place, Africa and its children demand access to opportunity, not simply the promise of hope. The unencumbered plasticity of ICT can offer that opportunity and the prospect of surfing the wave of change. The Malaysian experience is a stepping-stone, and step-up, and step-over to accelerated development. "We the Peoples" for whom UN Secretary-General Kofi Annan spoke at the Millennium General Assembly in 2000, in every shade from black to blond, are bound to find a way forward if our will remains to "Develop a Global Partnership for Development" – the full circle of MDG 8.

Illustrative example

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

Government-Investor Network: fostering private sector investment through dialogue

Type of Activity:	Intranet-Platform
Organisations involved:	Swiss Agency for Development and Cooperation (SDC), State Secretariat for Economic Affairs Switzerland (SECO), Nicaraguan Government and private sector, Global Clearinghouse, others
Start – End:	2003 – ongoing
Area covered:	Nicaragua (pilot); all developing countries

Summary description:

The Government-Investor Network (GIN) is an Intranet-based platform aimed at improving the capacity of governments to foster open government-investor dialogue on investment and business opportunities. As a customised service, the Network aims to improve the business environment of developing countries and mobilise private sector investment from both domestic and international sources. The platform is in line with the UN Monterrey Consensus which recognises the critical need of private sector investment.

Key features

A basic prototype of the GIN has been developed in Nicaragua. Eventually, the initiative aims to allow governments of any developing countries to
- enhance government capacity to track investor sentiment, perceptions of investment impediments and investor views of possible remedies;
- facilitate government policy consultation with the private sector;
- facilitate investor feedback on reforms, including adoption of global codes and standards, allowing governments to assess potential benefits and trade-offs for the country.

Key success factor:
- The political will of the government and the involved officials to work with the private sector is a precondition for success.
- The government must have (or be willing to build) the capacity to be open about problems, and have the insight and willingness to work openly, creatively and with energy in defining new partnerships and solutions.

Key challenges:
- Overcome financial constraints

Participation in development processes: can ICT make a difference?

by Anriette Esterhuysen

Summary

This chapter argues that when we examine the relationship between state and non-state actors, we need to evaluate the strengths and weaknesses of each, and the value they bring to the partnership between them. It looks at the three aspects of the policy process: policy formulation, implementation (or delivery) and monitoring. With regard to all three it asserts that participation and partnerships have optimal results when they combine the strengths that different sectors bring to the task of development delivery, rather than replacing one sector (with its limitations) by another (with its own limitations).

In specific terms, Information and Communication Technologies (ICT) can be used to foster the participation of non-state actors in state-led development processes in four main ways:
* *As tools in development planning and policy formulation, through knowledge sharing, raising awareness of the goals and progress of the policy process, and facilitating communications and data management.*
* *Using ICT in implementation, making policy documents and targets accessible and informing the media, citizens, communities and organisations, of the steps involved in policy implementation.*
* *Dissent, dialogue and debate: ICT as a tool can be used by media and by activists to challenge the state, and other non-state actors involved in development processes.*
* *Partnering with the media: partnering with various media is central to civil society organisations (CSOs) and community voices making an impact in developing planning and implementation.*

At a broader level the depth and reach of participation that is achieved through the use of ICT will depend on preconditions that have nothing directly to do with ICT, such as political will, freedom of expression, good governance, accountability and delivery.

Introduction

This chapter discusses the participation of non-state actors, including civil society organisations (CSOs), communities, individual citizens, academics, and private sector organisations, in state-led development processes. Within this broad area, the chapter focuses on CSOs, and on the role played by ICT in their networking, advocacy and lobbying activities. This refers to the use of a wide range of old and new ICTs to enhance participation and transparency in policy processes, as well as its capacity to facilitate networking and the sharing of knowledge among actors operating outside and beyond the state's boundaries.

The United Nations report on the Millennium Development Goals (MDGs) asserts that in order to achieve development goals, there is need for strategies that are locally formulated and owned, with participation from relevant constituencies, including civil society organisations and the private sector. Referring specifically to CSOs, the report maintains that "they represent important segments of the population in a manner distinct from government as they directly reflect – and respond to – the needs of a broad range of communities".[1]

Four ways in particular are highlighted in the report as potential CSO contributions to achieving the MDGs:
• Publicly advocating for pressing development concerns
• Helping design strategies to meet each target
• Working with governments to implement scaled up investment programme
• Monitoring and evaluating efforts to achieve the Goals.

The report suggests that CSOs can mobilise and build public awareness around the Goals, share best practices and technical expertise with governments, and deliver services directly. To be able to do all that, they need:
• Political freedom
• Clear institutional roles
• Ways of partnering to implement programmes and, in some cases,
• Training and financial resources.

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[1] UN Millennium Project (2005), "Investing in Development: A Practical Plan to Achieve the Millennium Development Goals", New York, p. 126.

Participation and partnerships: strengths and weaknesses

When examining the relationship between state and non-state actors (with a focus on CSOs among the latter), we have to evaluate the strengths and weaknesses of each and the value they bring to the partnership between them. We will examine the issue in relation to the three aspects of the policy process: policy formulation, implementation (or delivery) and monitoring.

Policy formulation

In many developing countries calls are made to allocate more powers and control over budgets, policies and projects to central government at the expense of local tiers of government and CSOs. State officials frequently operate on the assumption that bigger is better, that formal deserves more attention than informal, that management and control on a large scale automatically imply the ability to shift resources and priorities to benefit poor constituencies, and that centralised planning has greater impact than local level planning and implementation.

The concern with the need to redistribute resources and allow planning to address the legacies of underdevelopment is understandable, but centralisation and state control give rise to problems. They tend to shift power upwards, away from people and structures closer to the ground. They empower an expanding non-elected and unaccountable bureaucracy, which is needed to administer affairs and transmit policies from the upper echelons of power to lower levels of implementation. They make the incorporation of local inputs – which of necessity are diffuse, unsystematic and context-specific – difficult. They create filters through which the concerns expressed by the grassroots become marginalised. They encourage the formulation of large-scale policy frameworks that are usually removed from practical constraints of implementation at the local level, and therefore can make even the best policy intentions unviable.[2]

Particularly problematic is that centralisation and state control subvert the logic of participatory democracy where it matters most: at the level where intended beneficiaries, people and communities are located. They replace it with a logic that is based on the nature of the central state as a complex of structures, with a distinct mode of operation, which usually serves to exclude popular participation, regardless of the intentions of politicians.

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[2] Useful critiques of state-centred large-scale development planning and calls for a focus on local and contextual knowledge are found in Escobar, A. (1995), "Encountering Development: The Making and Unmaking of the Third World", Princeton University Press; Scott, J. (1998), "Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed", Yale University Press; Flyvbjerg, B. (2001), "Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again?", Cambridge University Press.

CSOs and other non-state actors can help state and development agencies avoid these problems by playing an active role in policy formulation (and not merely in service delivery, meeting goals set by others). They can contribute to ensuring that the voices and concerns of marginalised people are reflected in the content of the policies, as well as in the means chosen to implement them, and in the ways used to monitor policy and evaluate its impact. Their potential role in the latter two stages is outlined below.

Policy implementation

In addition to the problems associated with policy formulated away from the grassroots, there are issues related to delivery and implementation as well. Some of these include:

- A general perception among many development actors of the limitations of the state as a vehicle for social change, due to its inability or unwillingness to be consistently accountable to its citizens. At the same time, there are also questions about the accountability of CSOs, as opposed to that of elected representatives in government, or membership organisations such as CBOs (community based organisations) or trade unions which represent very specific constituencies.
- Lack of state capacity in many developing countries to implement projects on the ground, due to administrative and financial constraints. Note for example the fact that the South African government repeatedly underspends in key development sectors.[3]
- Recognition of the comparative advantage of CSOs in local level delivery. A 1998 World Bank evaluation noted that CSO involvement in development projects contributed to the projects' success, by providing opportunities for poor communities to participate.[4]
- Serious concerns over the economic inefficiencies of state delivery mechanisms have also been expressed by international institutions and local stakeholders, especially with regard to bloated bureaucracies in many developing countries and inefficiencies of central state control over development.

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[3] In her budget vote address to the National Assembly in April 2005 the South African Minister of Agriculture and Land Affairs provides an explanation for under-expenditure: "With the respect to the department, under expenditure was due to vacancies and the scarce skills human resources especially in the fields of veterinary services, economists, soil scientists and engineering. Underspending in the provinces that impacted negatively on the Department of Agriculture, on the other hand, was poor planning, lack of skilled human resources and delays in filling vacant posts. As a result there were delays in filling some of the critical posts resulting in underspending of personnel funds and programme funds transferred to the Provinces." Budget Vote address by Minister for Agriculture and Land Affairs, Ms Thoko Didiza, National Assembly 7 April 2005. (www.info.gov.za/speeches/2005/05040809151001.htm)

[4] World Bank (1998b), "NGOs in Bank-supported Projects and Operations Evaluation Department Review". (http://lnweb18.worldbank.org/ESSD/sdvext.nsf/66ByDocName/TheRoleofNon-ProfitOrganisationsinDevelopmenttheExperienceoftheWorldBank)

- CSOs do not represent a recurrent cost for the state, and they frequently manage to raise funds to match state contribution.
- CSOs' participation in development processes can achieve a greater degree of continuity, which the state cannot provide in contexts of political change (as a result of change of government) or political instability. But CSO involvement can also be fragmented, as argued below.
- While evaluation, learning and impact assessment always present a challenge, it is usually easier to integrate them into CSO implementation processes than into state-led processes.

Having identified the limitations of state action and the relative advantages of working with CSOs, we must realise that the purpose of participation and partnerships is precisely that of combining the strengths that different sectors bring to the task of development delivery, rather than replacing one sector (with its limitations) by another (with its own limitations). The state has a direct role to play in delivering services and creating an enabling environment for the work of other actors. The nature of the relationship is likely to be collaborative when state and CSOs share goals and strategies. They may work together well even if they adopt different strategies, as long as they share the goal of comprehensive service delivery, in which case their strategies must be complementary.

A crucial issue to consider here are the weaknesses of CSOs in the areas of service delivery and development interventions, which include the following:

- The local focus of CSOs and their context-specific work makes it difficult for them to implement programmes on a large scale. NGOs and CBOs usually do not have a uniform approach. Putting in place uniform standards would help standardise outcomes, though the approaches adopted for reaching those outcomes and meeting standards may vary because of local conditions and needs. In fact, it is often the context-specific innovation which is the greatest strength of local level community or CSO lead implementation. Forcing up-scaling of such initiatives runs the risk of eliminating the customised characteristics of the implementation process which lead to its success in the first place.
- Lack of coordination with stakeholders and with other CSOs can lead to the duplication of services and fragmentation of delivery.
- CSOs have difficulties in guaranteeing the continuity of their inputs.

Monitoring

In a democratic political system, civil society organisations can be a force for holding the government accountable to its constituencies, giving people greater control over their lives, and embarking on new forms of democratic experimentation. Holding regular elections ensures that citizens can choose

the party that best represents their general interests, but it does not allow them to monitor and have an impact on the day-to-day performance of government in specific areas of concern. They have no institutional channels through which to voice ongoing concerns, express preferences, and force the state to deal with their grievances. A large, diverse and active body of civil society organisations can supplement elections by developing additional mechanisms for popular participation in governance.

This is not to deny the right of elected government to claim a popular mandate for its policies, but rather to point out that the popular will can be expressed through different channels. Multiparty elections are one such channel and others alongside it must be explored. In this sense elections are a necessary but not sufficient condition for democracy. Political systems in which no additional channels for popular expression exist are democratic in name only.

To summarise the relationship between state and non-state actors in development, we have to pay attention to three overall aspects, which allow some space for negotiation and determine the nature of the partnership and its effects:

- The degree of goal coherence between the state and CSOs (the extent to which they strive to achieve the same substantive goals, not just the rhetoric they use).
- Room for negotiation over issues such as the methods to be used or the processes to be put in place to achieve the goals (implying that state and non-state actors operate as partners without one dictating to the other).
- Direction of influence (who is trying to influence whom, and who is successful? For example, CSOs can ensure that a project design includes participatory needs assessments).[5]

The ideas above are offered as a general guide for cooperation between national governments and local and international CSOs, in order to achieve shared developmental goals. Using these guidelines as a basis, we will examine their relevance in the area of ICT for development, a topic not explicitly included in the MDGs. The only mention of ICT is found in MDG 8: "Develop a global partnership development."[6] MDG 8 relates primarily to matters of trade, tariffs, debt, employment, and collaboration with the private sector with particular mention to two areas: ICTs and pharmaceuticals. It is significant, and disappointing, that mobilising the potential of ICTs for development (including achieving the other seven MDGs) is considered a subsection of partnership, particularly partnerships with the private sector.

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[5] Fowler, A. (2000), "Civil Society, NGOs and Social Development: Changing the Rules of the Game", UNRISD, Geneva.
[6] For the MDGs see http://www.un.org/english/milleniumgoals.

While ICT for development is clearly a terrain that lends itself to private sector involvement, MDG 8 fails to recognise the importance of international communication networks such as the Internet as a global public good and a basic infrastructure. Access to information and the means to communicate underpins all development efforts.

A paradigm for ICT support of CSO participation in development processes

When discussing developmental challenges we have to keep in mind that they are complex and cannot be addressed effectively by a single one-size-fits-all solution. But there is one common denominator that consistently enriches development processes and contributes to their sustainability: participation, at all levels, from policy formulation to implementation and monitoring.

A paradigm is needed where policy formulation and implementation is influenced by the perspectives and voices of the communities and citizens concerned. When used creatively and carefully, ICTs can facilitate the strategic involvement of a diverse range of actors from social movements to local entrepreneurs, civil society organisations and researchers, public policy makers, political analysts and journalists, students and teachers.

In specific terms, ICTs can be used to foster the participation of non-state actors in state-led development processes in four main ways:[7]

- **ICTs as tools in development planning and policy formulation:** State and non-state actors can make use of ICTs to support policy formulation through knowledge sharing. They can ensure a transparent and inclusive policy-making process by inviting comment on draft policy and using a mix of traditional and new communication technologies to raise awareness of the goals and progress of the policy process. They can also use ICTs to facilitate communications and data management among the people most actively involved in drafting the policy.
- **Using ICTs in implementation:** Old and new ICTs, from radio to interactive websites and databases, can be used to make policy documents and targets accessible. Informing the media, citizens, communities and organisations of the steps involved in policy implementation, enables them to play a monitoring role. They can come forward as active participants through, for example, transparent tendering and procurement processes.

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[7] This categorisation is inspired by an unpublished discussion document on poverty reduction strategy and ICT4D by Kitty Warnock developed for the BCO (Building Communications Opportunities) alliance in July 2005.

- **Dissent, dialogue and debate:** Processes that do not provide opportunities for the expression of dissent are not truly participatory. ICTs as a tool can be used by media and by activists to challenge the state, and other non-state actors involved in development processes.
- **Partnering with the media:** From radio to television to print, partnering with the media is central to CSOs and community voices making an impact in developing planning and implementation.

Using the above framework let us now explore how ICTs can support participation in greater detail with reference to specific examples.

ICTs as tools in development planning and policy formulation

This can be initiated both by state and non-state actors, with the support of international development agencies. It can extend to many areas, such as research and participatory drafting (using online resources, libraries and reports, learning from experiences across the globe, communicating with other people working on similar issues, forming discussion lists and sites containing information, analysis and opinions, exchanging drafts, comments, and editing and writing documents jointly online). Other related activities may include conducting surveys and interviews online, keeping databases and making them accessible to analysis, and so on.

All of the above are processes that can be undertaken by each organisation and group of people regardless of the sector with which they are affiliated. The creation of information resource pools on development issues, such as the library of the Institute for Development Studies at Sussex, UK[8], or the Centre for Civil Society at the University of KwaZulu-Natal[9] in South Africa are cases in point.

Needless to say, the dissemination of news, updates, analyses, reports and information can be done without using sophisticated ICTs. The rise of the Internet did not create this exchange of information and analysis, but it has made it easier, cheaper, faster and more efficient. It reduced dramatically the circulation time of information: from the identification of the information to be collected, to the gathering of raw data, to its processing and analysis, dissemination, debate and incorporation into written policy (implementation is another matter, though).

New ICTs potentially make the policy process more transparent, by allowing the policy community (within the state and outside its boundaries) to get access to and evaluate the data used for making policy, by being able to disseminate and comment on successive drafts, and by incorporating a wide

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[8] See http://www.ids.ac.uk/ids/info.
[9] See http://www.ukzn.ac.za/ccs.

range of views from different stakeholders. This is true for communication within and between state structures, as well as non-state actors. It can be done within each sector and between them. The more people at large join the process, for example by sending comments and making other inputs on draft government policies, the better.

We must realise of course that sophisticated ICTs and even plain technology requires resources that are not readily available in many developing countries: electricity, phone lines, computers, for starters, and also a degree of organisation, literacy and communication skills. But they are not an insurmountable barrier.

The participatory budgeting (Orçamento Participativo) process in Porto Alegre, Brazil, was perhaps one of the most inspiring examples of using ICTs for participation in development planning in a way that was linked to innovative public access to the Internet in poor neighbourhoods. [10] CSOs can play a role in facilitating access to ICTs as well as training people in their use, together with community activists. In the case of the Porto Alegre participatory budgeting an example is the work done by CIDADE to support the process through training and awareness raising. [11] Business can donate equipment and support training, and so on.

An in-depth case study on Internet use in participatory budgeting in Ipatinga in Brazil makes it clear that the added value of using ICTs in public participation should not be underestimated. [12] The research team concludes that Internet use increased not just the number of people who participated in the budgeting process, it also facilitated the inclusion of young people who had previously not participated at all. The study explores how the use of the Internet impacted on the outcomes of the participatory budgeting process. For example, as a result of the increased participation of young people interacting with the budgeting process from schools and telecentres, officials were overwhelmed by a demand for skateboarding ranks.

ICTs has been used innovatively in several countries in Africa to facilitate inclusive policy making processes specifically in the area of ICT policy. For example, in Kenya a network made up of people from the media, the private sector and CSOs, KICTANeT (Kenyan ICT Action Network), convened an online discussion to gather public comment on the draft Kenyan National ICT Policy. "The forum was open to all members of the public who could access the Internet, and included representatives from gender groups, youth, the private sector, civil society, academia and the media. Using the

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[10] For an overview of the process see http://www.goethe.de/br/poa/buerg/en/framebag.htm.

[11] See http://www.ongcidade.org/site/capa/capa.php.

[12] Ash Institute, Kennedy School of Government (2003), "Internet use and citizen participation in local government: Ipatinga's interactive participatory budgeting". (http://www.ashinstitute.harvard.edu/Ash/Ipatinga_ITG_Case.pdf)

Internet made the process more inclusive, allowing KICTANet to 'capture comments' from groups based outside of the capital Nairobi." [13] This initiative emerged from support for national policy advocacy implemented by the Association for Progressive Communications (APC) as part of the CATIA [14] (Catalysing Access to ICTs in Africa) programme. APC's local partner, policy advocacy animator, Alice Wanjira, said that the online forum resulted in better draft policy.

It also adds to the news value of the policy process. More people know about it and care about the outcomes.

Using ICTs in implementation

How can ICTs be used in the implementation of development processes and in service delivery? An essential component of implementation is making the content of policy known to all those involved in service delivery and in the actual implementation, both within government and in civil society and other sectors. CSOs can play a role in the use of ICTs in order to make policy documents accessible, and highlight the links between stated policy goals and implementation guidelines, concrete schedules, targets and key performance indicators. This can be done very simply, and in multiple formats once the information is readily available on the Internet. Policy implementation schedules can be published online in formats that can be easily printed out, translated, and repackaged in plain language that will encourage the media to make use of it.

Another possible use of ICTs would be to disseminate information about policy and encourage people to play a role in its implementation by giving them concrete information on who is doing what or how one can volunteer or work for a relevant project.

CSOs can help assure greater transparency by advertising tendering and procurement procedures, tracking the awards of contracts, encouraging small businesses and community-based contractors to bid for potential tenders, and helping them meet the requirements (forms, documents, plans). New and old ICTs can be used to disseminate such information and allow people to take part in the tendering process. A remarkable initiative of this nature is Internet for Accountability in Colombia. Two NGOs, Colnodo, a member organisation of APC, and Transparency for Colombia, are using ICTs to support transparency at local government level. Colnodo developed an open source software platform to facilitate transparent procurement for

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[13] Finlay, A. (2005), "Spits and spurts: ICT advocacy and the media in Africa – the CATIA experience", Open Research, CATIA. (http://africa.rights.apc.org/?apc=he_1&x=1976879)
[14] CATIA is a three-year programme of the Department for International Development (DFID) in close collaboration with other donors and role players (e.g. Sida, IDRC, CIDA, USAID and Cisco). (http://www.catia.ws)

small municipalities. Starting with just a few municipalities in 2003, they recently signed an agreement to roll out the platform (based on the Action-Applications[15]) to 500 municipalities. In exchange for signing a commitment to transparency, local municipalities receive the tools and support needed to implement the system.[16]

Collecting feedback from potential beneficiaries and communities and forwarding it to agencies in charge of policy implementation would allow them to incorporate input from those directly affected, and improve the manner in which implementation meets their needs. This can be done not just through the Internet, but through using mobile phones and text messaging.

ICTs can also be used to support partnerships for delivery (between state, business and civil society organisations), to facilitate cooperation among different state structures, to communicate between implementing agencies and allow them to share lessons among themselves and with their intended beneficiaries, and to monitor and evaluate progress and the success of development projects (on an ongoing basis while implementation is still in process), and to draw lessons that will be incorporated in future projects.

From dialogue to protest: using ICTs in monitoring and debating development

Much of what was said above applies here as well. ICTs can be used to encourage debate and to disseminate news and information about ongoing development projects, to invite and compile comments from actual, potential and intended beneficiaries, create discussion forums to evaluate in a critical manner what has and has not been achieved, and generally encourage debate about development policies, service delivery and participation.

Through the creation of mailing lists, websites dedicated to input and other such means, ICTs can assist members of affected communities to voice their concerns and transmit these to those in charge of the formulation and implementation of policy (within and outside of the state). It can allow researchers and other stakeholders to pull together disparate strands and weave them into a comprehensive understanding, review and critique of the practice of development, with a view to forging a better alternative.

The use of ICTs allows civil society organisations and other non-state actors to bridge over (but not eliminate) a range of diversities, in order to ensure a dialogue and, where suitable, facilitate coordinated development efforts. Thematic diversity does not prevent a fruitful exchange across different concerns, and social movements and activists have used e-mail lists to

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[15] ActionApps is an open source data management system developed by the APC. (http://actionapps.org)
[16] APC News (March 2004), "Internet to improve local government transparency and accountability in Colombia". (http://www.apc.org/english/news/index.shtml?x=17998)

encourage a debate focused on shared themes. For example, electronic lists such as Debate in South Africa[17] enable actors involved in campaigns around health, water, and land rights, the labour movement, research and academic institutions, women's organisations and so on, to participate in a joint forum and advance issues of common concern.

Such a forum also helps transcend geographical boundaries and enable people in different parts of the world to participate collaboratively, exchange experiences and work together for better informed developmental perspectives, which overcome the limitations of having to work only within the boundaries of one country or culture. Electronic archives and search engines make learning easier and more efficient. This is particularly powerful when ICTs allow people to create new networks of knowledge, solidarity and activism in a global South-South dialogue (obviously while welcoming input from the North). The experience of the rich dialogues and debates preceding and following the regional and world social forums is a case in point. An excellent example of online space that provides such new knowledge network is Choike which calls itself "A portal on southern civil societies".[18]

Online forums are relatively inclusive. They are limited to people who are literate and who have access to computer technology, electricity and phone lines (though such access can be gained in community spaces, not necessarily in individual households) but they enable people who might find it hard to speak out in public face-to-face forum to have their say. People who are not confident speaking English, for example, can have the time to draft a message that they feel represents their view.

And of course, it is a much cheaper mode of communication – it allows people who cannot afford foreign travel to be heard across the globe, and it reduces the ability of cliques to control and censor communications. At the same time, online communication platforms are easily dominated by outspoken minorities, and often even just one "loud" individual can undermine participation and people's confidence to speak out. Without sensitive and capable facilitation online forums can easily deteriorate into virtual soapboxes.

Partnering with the media

Media practitioners and CSOs have not always found it easy to work together, despite the frequent convergence in their areas of interest. Convergence of technologies (particularly broadcasting and telecommunications and the use of the Internet as an everyday communications platform used by both the media and many CSOs for interacting with peers and audiences

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[17] See http://lists.kabissa.org/mailman/listinfo/debate.
[18] Choike is a project of APC member Third World Institute. (http://www.choike.org)

and disseminating information) has facilitated greater and more effective collaboration between them. Working together they can raise public awareness (for example in the lead-up to the 2005 G8 meeting in Gleneagles, Scotland) even if such awareness does not necessarily impact very directly on policy decisions. Nevertheless, the impact of the careful and sensitive use of ICTs to raise the voices of individuals for whom every day is a struggle for survival in a way that neither dehumanises them as development statistics nor portrays them as helpless victims. A striking example is the use of images, text and Internet-based audio by Panos London's Global AIDS Programme (working with Médecins sans Frontières) to tell the stories of people living with HIV/AIDS in Zambia.[19]

Alan Finlay of Open Research produced an analytical overview of collaboration with the media in the multi-country CATIA programme in Africa during 2004 and 2005.[20] His key finding is that the media can be "active catalysts for change in Africa, and don't have to be neutral bystanders as the complex ICT landscape on the continent unfolds".

Conclusion

It is important to keep in mind that simply making information available online does not ensure access or participation. Mechanisms for participation have to correspond to the realities of the people who are meant to be included in a process. This means that we have to take into consideration the variety of circumstances and contexts within which people live, and not make assumptions about their ability to access information and provide feedback.

Several important factors need to be considered in efforts to use ICTs to support participation of non-state actors in development planning:

- **The use of ICTs complements and strengthens participation; it is not a substitute for traditional forms of participation.** In the participatory budgeting processes in Latin America significant effort went into public consultations, visits by officials to poor communities, and ensuring that individual citizens were given opportunities to talk to those in power about their daily challenges.

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[19] See http://www.panos.org.uk/extra/zambiahiv_index.asp. The author of this chapter met with one of the Zambian journalists involved in this initiative and was struck by how his personal world visions were transformed by visiting remote drought stricken villages and having face-to-face conversations with people that they had previously just related to as "the rural poor". The experience changed him from someone reporting poverty to someone who is now actively advocating in his work for policy and implementation that can make real changes in people's lives.

[20] Finlay, A. (2005), "Spits and spurts".

- **Genuine and sustained efforts to provide poor communities and citizens with affordable and easy access to ICTs.** Without addressing issues of access, there is no point in using the Internet to support participative planning.

- **Capacity building.** It is needed in order to make use of the tools effectively and to understand how public policy processes work. This can take place formally and informally, through peer support or by integrating learning about using ICTs and policy processes with other capacity development processes.

- **The role of NGOs, CSOs and the media** in raising the concerns of people who are excluded. Care needs to be taken that these intermediary actors do not unintentionally, or intentionally, become gate keepers, by, for example, filtering the flow of either information or resources in a way that prioritises their institutional needs over those of the communities they work with. But the role of advocates and lobbying organisations in conveying the needs of people who are socially and economically excluded should not be underestimated.[21] One of the most empowering elements of ICTs is that they can make this process more transparent by, for example, using technology to let people literally speak for themselves.

At a broader level the depth and reach of participation that is achieved through the use of ICTs will depend on preconditions that have nothing directly to do with ICTs. Participation has to take place in a context in which people believe that speaking out is safe, and it will make a difference that they will be heard.

- **Political will.** In the case of the state, without the political will to implement development processes in an inclusive manner, enhanced participation through the use of ICTs will have limited impact. Participation will also be influenced by the political will of non-state actors involved in development processes. Often, non-governmental organisations assume the role of sub-contractors, a role which can undermine their freedom, and

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[21] Critics of the NGO sector who advocate for donors, governments and development agencies to work directly with grassroots communities tend to overlook two important factors: (1) the impact of the huge power differentials between community based organisations and decisionmakers over policy or resource allocation. NGOs are often able to participate in these relationships in a way that levels the playing field; (2) the fact that community based actors tend to engage in terms of their own immediate interests, which is in fact their strength and the reason why it is so important that they participate. NGOs or CSOs on the other hand are more likely to draw links to broader or macro-level issues and processes. These links are essential to the longer-term sustainability of social justice and development processes. For example, an immunisation programme in one village will not have much impact if government is not lobbied to implement immunisation regionally, if not nationally, and on an annual basis.

even their commitment, to being advocates for the interests of excluded communities.

- **Freedom of expression.** Acceptance of the principles of inclusion, free and active debate between actors, and an engaged and diverse media can ensure that decisionmakers remain accountable to the people they represent, and in that way can help build the political will and public participation without which sustainable development would not be possible.

- **Governance, accountability and delivery.** Without basic good governance and delivery by government on its promises, particularly at the local level, public participation initiatives will remain disconnected from broader issues of development practice and would not become part of development processes in a sustained manner. This does not mean, of course, that we need a "perfect" government before embarking on programmes that use ICTs to enhance participation. Such use, however, must be part of a comprehensive programme of social change to become truly effective.

Illustrative examples

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

ICT Policy Monitor: transparency and participation in ICT policy processes in Latin America

Type of Activity:	Project
Organisations involved:	Association for Progressive Communications (APC), Hivos, International Institute for Communication and Development (IICD), others
Star – End:	2001 – 2005
Area covered:	Latin America and the Caribbean

Summary description:

The project's goal is to enable civil society organisations from the region to engage in ICT policy processes and to promote an information society based on social justice and human rights. It is based on the principle that access to ICTs is a basic human right. It aims to raise awareness amongst civil society actors and provides information, tools and training so that civil society organisations can lobby decision-makers to take into account needs at the time that ICT policy is created and developed. The project goals and objectives are implemented in a similar way to APC's other regional ICT policy monitors (Africa and Asia).

Key features:

- Information resources: The project produces information to facilitate understanding of ICT policy issues and their impact for civil society organisations. The website (http://lac.derechos.apc.org) is an important reference for ICT policy development information in Spanish and has become an important tool for raising awareness in the region. The project team produces an electronic newsletter which reaches approximately 10,000 people.
- Capacity building and resource development: The project implements training workshops at national and regional levels to support advocacy and lobbying in ICT policy processes, in partnership with APC members and partner organisations.
- WSIS participation: The project has pro-actively encouraged organisations to engage with the World Summit on the Information Society, through development of regional and national policy positions, lobbying through national delegations and participation in civil society caucuses.

Key challenges:

- Working at national levels remains a challenging task, especially after the WSIS process and in terms of implementation and follow up processes.

Catalysing Access to ICT in Africa (CATIA): enabling Africa's poor to benefit from information and communication technology

Type of Activity:	Programme
Organisations involved:	CATIA (Component project 1c); Association for Progressive Communications (APC), Trigrammic, Highway Africa, bridges.org.
Start-End:	2004 – 2006
Area covered:	Nigeria, Senegal, Democratic Republic of Congo, Ethiopia, Kenya and Mozambique

Summary description:

The CATIA programme aims to enable poor people in Africa to gain maximum benefit from the opportunities offered by ICT and to act as a catalyst for reform. It supports a package of strategic activities to improve affordable access to the full range of ICTs, from Internet to community radio. It is focussed on the need for ICTs to address social and economic development issues and works to help build capacity across Africa to achieve sustainable change.

Key features:

• The overall objective is to achieve increased access to affordable ICTs in Africa, particularly for the poor and those in rural and under-serviced areas. It aims to stimulate and support accelerated ICT policy and regulatory reform in six countries through supporting existing initiatives and developing the capacity of informed advocacy groups (and individuals) from the private sector, civil society and the media.

Key success factors:

• APC's methodology has a two-pronged approach: regional policy advocacy capacity building, followed by identifying national policy animators for each of the six countries who can then lead advocacy from a national base and by building new or connecting to existing national networks.
• A media analysis was completed for the six countries in early October 2004. The study evaluates the extent and nature of media coverage on ICT issues in target countries.
• Materials in APC's ICT policy training curriculum produced in English, French and Spanish.

Key challenges:

• Implementing the ICT policy advocacy plans across the six countries so that well-informed, lively and inclusive policy debates across Africa take place which can have a real impact on shaping the local policy environment and produce tangible policy outcomes.

Communication Rights Assessment Framework and Toolkit (CRAFT): determining the state of communication rights

Type of Activity:	Publication
Organisations involved:	Communications Rights in the Information Society (CRIS), World Association for Christian Communication (WACC), Communication, Foundation for Media Alternatives (FMA), Planeta Paz, NEXUS
Start – End:	January 2004 – September 2005
Area covered:	International

Summary description:

CRAFT (originally called the Global Governance Project on Communication Rights – GGP) is a flagship project of the CRIS Campaign. Over a period of 18 months, a framework was designed and tested by partners to enable an assessment of the state of communication rights within a given territory. This Framework was applied and validated by means of multi-stakeholder workshops in Brazil, Colombia, Kenya, Philippines and the European Union, resulting in a set of individual national/regional reports. Based on the results and on an analysis of the process, a Handbook on Communication Rights has been published in French, English and Spanish. In addition, a set of advocacy resources are being produced that will enable NGOs and other actors locally to pursue key issues arising from the assessment, at both national and international levels.

Key features:
- The CRAFT resources are being made available to any group, within or outside the CRIS Campaign. The CRIS Campaign will offer support to such application and facilitate linkages transnationally and internationally.

Key success factors:
- The project in most cases managed to bring together a broad coalition of those active in media and communication areas, from academia to NGOs to private individuals. In some cases, it also brought in government and private sector, to focus together on communication rights issues, that are normally "off the radar" of such groups.
- The resultant set of resources is widely applicable, with significant potential for replication.

Key challenges:
- Animating, motivating and resourcing groups to take up the challenge of communication rights, using the Handbook and Toolkit, will require significant effort. Building national and international solidarity around the concept requires time, and a careful highlighting of key issues of wide concern.

ICT as a tool for good governance and good government

by Jerzy Szeremeta

Summary

The ability to characterise government or governance as "good" hinges not so much on the application of ICT, but rather on the intent and capability of the governance processes and government operations to produce public value. With such intent and capability in place, ICT can indeed become a powerful tool. In some respects, ICT offer a unique possibility to transform traditional approaches to governance and government. Today however, although practically all governments use ICT in their operations in some form, that usage more often than not remains shallow. A new agenda for ICT application in government and governance is needed. This agenda should speak to the goal of securing high levels of quality and safety of life. It should support the transition towards knowledge societies. Main items on this agenda are participation, transparency, delivery of social services, knowledge creation and networking.

What makes government and governance "good"?

In discussing ICT as a tool for good governance and good government one has to avoid two extremes. One of them equates good government and good governance with e-government and e-governance. The other denies ICT the ability to impact government operations or governance processes in a positive way. The truth is not even in a balanced view, but rather in understanding the nature of government and governance.

Governments are social institutions that use public resources to translate citizens' needs into collective actions. Public budgets reflect the cost of governments and their operations. The public cannot be and is not indifferent to the cost issue, but tends to be more attuned to the worth of governments to them.

ICT bring to government operations speed, precision, outreach and networking capacity. They revolutionise the way in which information in governments and in relations between the government and the public is managed, transmitted and delivered. This can translate, for instance, into better availability of public information, greater responsiveness of public administration,

better quality of public services and into broadening the loop of those who can benefit from them. In many situations, ICT allow governments to deliver more with less. They make government operations more efficient.

However, the total sum of efficient, well-managed, even ICT-augmented government organisations does not constitute a stable state or guarantee human development. Therefore, the use of ICT in itself does not weigh much when assessing the worth that the public credits to a government. That worth is more likely to depend on the willingness and ability of the government to create public value, i.e. goods and services that match public preferences. While ICT can raise the efficiency in the delivery and the quantity of goods and services that people want, public value at the level of implementation of policies and projects will always relate more to the kind of outputs and less to their quantity. This is so because public value tends to be predominantly created at the level of policy formulation and project design, as an outcome of the governance process.

Governance is the public discourse on the organisation of society. It allows articulation of citizens' preferences. It debates and directs the use of public resources and public power by the government. (It debates performance of business too.) Nowadays, the political systems are designed in most of the world to reflect an active citizenry. The same systems are designed also to protect political and administrative processes from an overly active citizenry. Quite naturally, ICT can augment either side of this design.

The level of well-informed, popular participation is a good measure to evaluate a governance system. Active, developed citizens enhance the legitimacy of governments by articulating their preferences and holding governments accountable for the production of public value. As much as in the case of government operations, ICT are a tool that bring to the governance process speed, precision, outreach and networking capacity. As a communication-enhancing technology, the potentially positive impact that ICT can have on governance – predominantly a communication process – cannot be underestimated.

However, for ICT to play this role, the citizens must be sure of their civic rights and freedoms, of accessibility and openness of the public sphere. If economics, politics, ideology or private interests shift the functions of a public administration away from what the people want, ICT cannot fill this gap. It is pointless to hope that a positive impact can be achieved by simply introducing ICT into situations where governance institutions do not allow for bracketing differences in the status of citizens, where the public sphere is not open and accessible for all or where groups of citizens are denied their voice.

In both instances, more readily then not, ICT would simply replicate the existing structure of public power, skewed as it might be, support it and petrify it. An author warns: "Without strategic commitment [to developmental vision/strategy/programme], the hierarchy will use technology to reproduce

itself. Technological development without [institutional and] organisational innovation will be assimilated into the status quo."[1]

Complex as it is, we know by now how to successfully deploy e-government and e-governance applications. However, the key to achieving the goal of "good" government and "good" governance does not lie in scaling up such applications globally, irrespective of the social, political or economic environment they would be introduced into. The key lies in scaling up – in a culturally sensitive way – developmental agendas focused on high quality and safety of life as well as the creation of respective social structures and institutions. Only then does it make sense to assess where and how the potential of ICT can be leveraged.[2]

> We need to pause and reflect upon the primary purpose of this journey into the future, and for many societies into the unknown. (…) E-government is no panacea for those societies with congenially corrupt and defective political, social and economic systems and structures. It is patently absurd to think that e-government could, and indeed would, transform [a failed state] into an efficient, credible, development-oriented super state. (…) E-government realistically is a function of capacity, capability and political will to break away from an existing condition.

Indeed, as has been concluded by the 2003 UN World Public Sector Report, "E-government should never be developed because it can be done. It should be developed because it is meaningful to do so."[3]

ICT in government and governance – the global picture[4]

E-government enjoys high rates of expansion. However, little progress is being made to use its full potential.

The Web Measure Index, a UN Survey, measures the quality of government presences on the Internet, based on the technical sophistication of the public web sites set up for the sectors with the greatest impact on human development. It does so by rating the availability of information and services online. In the year 2004, 178 out of the 191 UN Member States had a government presence on the Internet. The 25 countries scoring highest for their web presence are listed in the table below.

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[1] Zuboff, S. (1988), "In the Age of the Smart Machine. The Future of Work and Power", Oxford, p. 392.
[2] Aziz, T.A. (2002), "E-government: Impact on Transparency and Anti-Corruption", speech at the World Bank Workshop, 28 January 2002, Washington, D.C. (unpublished).
[3] United Nations (2003), "World Public Sector Report: E-Government at the Crossroads", New York, p. 122.
[4] United Nations (2004), "Global E-government Readiness Report: Towards Access for Opportunity", New York.

Web Measure Index 2004: top 25 countries

	Country	Index 2004
1	USA	1.0000
2	United Kingdom	0.9730
3	Singapore	0.9691
4	Republic of Korea	0.9459
5	Denmark	0.9344
6	Chile	0.8842
7	Canada	0.8726
8	Australia	0.8301
9	Finland	0.8069
10	Germany	0.7954
11	Mexico	0.7838
12	Sweden	0.7722
13	Belgium	0.7722
14	New Zealand	0.7413
15	Malta	0.7375
16	Netherlands	0.7181
17	Estonia	0.6988
18	Austria	0.6988
19	Israel	0.6911
20	Norway	0.6873
21	Ireland	0.6564
22	Argentina	0.6429
23	Columbia	0.6409
24	Brazil	0.6371
25	Japan	0.6393

(Source: UN Global E-government Readiness Report 2004)

It is interesting to observe that counties with high GDP per capita income, good overall educational attainment and commendable achievements in connectivity are mixed in the table with countries that cannot claim such accomplishments. This seems to prove that there is no monopoly on policies that support human development and the use of e-government applications in their support. There is no monopoly on imagination and commitment to meaningful e-government deployment.

It is worthwhile to mention though that the overall quality of government presence on the web is not high. In 2004, out of the 178 countries, 92% provided archived information and 85% provided access to various statistical databases. However, only 37% provided online services or substantive infor-

mation about public services; and, only 21% featured online transactions (two-way interaction). Additionally, most of the two-way interactions as well as a large part of the services did not concern areas with real, direct impact on the well-being of poor or marginalised segments of the population.

The rate of utilisation of online products and services measured by the UN Survey remained low. 64% of countries with a web presence remained in the lowest utilisation bracket (0–33%); and only 10% of countries could be placed in the highest utilisation category (67–100%).

Another useful measure supported by the UN Survey is the E-participation Index. It assesses if the information and tools made available online by the government are conducive to supporting the deliberative and participatory process between government and citizens or among citizens.

E-Participation Index 2004: top 20 countries

Country	Index	Rank 2004
United Kingdom	1.000	1
United States	0.934	2
Canada	0.902	3
Singapore	0.836	4
Netherlands	0.803	5
Mexico	0.770	6 (tie)
New Zealand	0.770	6 (tie)
Republic of Korea	0.770	6 (tie)
Denmark	0.738	7
Australia	0.672	8
Estonia	0.639	9
Colombia	0.623	10
Belgium	0.607	11 (tie)
Chile	0.607	11 (tie)
Germany	0.590	12
Finland	0.574	13 (tie)
Sweden	0.574	13 (tie)
France	0.459	14 (tie)
Malta	0.459	14 (tie)
Austria	0.443	15

(Source: UN Global E-government Readiness Report 2004)

It is noteworthy that the value of the index drops to half of the top value around rank 13-14. It reaches zero soon thereafter. Only 24% of countries

encourage citizen participation via e-government applications on the web and most of them provide limited, low-quality tools to facilitate it. Only 11% of countries allow feedback on public policies, and a mere 6% provide background information on proposed legislation, publicise briefs, other documents or regulatory material as part of the consultation mechanism. An equally low percentage of countries provide a specific feedback mechanism to the government agency in charge and state that the government will take individual submissions into consideration.

Therefore, it is safe to conclude that despite all the politically correct rhetoric, the willingness of governments to use web-based applications to involve citizens in a political dialogue and to provide substantial consultation processes remains limited.

Towards a mature agenda for e-government and e-governance

As can be seen from the analysis above, e-government and e-governance in the world today enjoy remarkable though somewhat shallow expansion. Also, from the point of view of many constituencies, that expansion may seem pointless. Agreement on what is pointless and what is meaningful depends of course on our historic experience with the functioning of social institutions, on the understating of the pattern of change that we are facing, and on the understanding of the adjustment that social institutions must undergo, in order not to hamper progress.

We have positive experiences with settling conflicts in the public arena by democratic means. At the same time we know that today democracies tend to feature small, powerful minorities that use public power and public resources in order to direct – in a non-proportionate way – the developmental opportunities towards themselves, contrary to the interests of those on the other side of the power divide. We have positive experiences with the division of labour in society and with satisfying a large quantity of human needs via the market. At the same time we know by now the market's imperfections and most notably its ability, addiction even, to produce negative externalities that translate into a loss for society as a whole.

"Globalisation" and the advent of ICT are often named as the biggest challenges that any society faces right now. When we are speaking about the introduction of ICT into government and governance, we assume that these will be introduced in an environment dominated by democratic politics and market economics, against the backdrop of a "globalising" world.

Additionally, it is useful to see the future as one dominated by knowledge and to expect various social institutions to transform in order to cope with this new challenge. If we assume that resolving of the tension between societies and the generic skills to mass-produce and mass-utilise knowl-

edge [5] (powered by tacit knowledge, human creativity, ICT and the technique of "shared spaces for knowledge production") is at the core of that new challenge, then a new pattern of change starts to appear. People and information emerge as the main assets of the knowledge society and their limitless development becomes its main goal. Transition has to assure that the whole society becomes one huge space of mass-production and mass-utilisation of knowledge of all kinds (knowledge "to do" – basis of technological innovations, but also knowledge "to be" and "to coexist" – basis of the connective fabric of a society, as well as knowledge "to maintain the developmental equilibrium" – basis of a well-informed consent of citizens in the political process).

Thus, a "mature" agenda for e-government and e-governance would have to respond to all of these challenges. At the local and at the global level, it would have to augment the ability of social institutions to produce a safe world in which people and information can develop without limits; the whole society would engage in knowledge production and utilisation; and, demand would exist not only for technological innovations – a product of the knowledge "to do" – but also for all other kinds of knowledge that would tell us not only what to consume, but how to live and progress as humans.

Some of the most prominent items on this agenda follow:

Participation

If citizens do not demand it, the social institutions of democracy and the market would not change to accommodate a new division of public power and resources or a new framework for the operation of the markets. Without such changes, finding ways for limitless development of people and information may be impossible. Also, much of the future will depend on our judgment as to the human intent in life; and, much of our safety will depend on finding a balance between the unhampered pursuit of the knowledge "to do" and the fabrication of products capable of endangering life directly or via

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5 See also: United Nations (2005), "Understanding Knowledge Societies", New York.

changes in the biosphere. Past experience does not allow us to confidently put this kind of decisions into the hands of a narrow group of politicians, scientists or businessmen. This would be too close to allowing private interests and persons to take risks that have consequences for the well-being of everybody.

Ensuing real participation goes way beyond the support that ICT offer today in conducting elections or in facilitating communication between the electorate and politicians (e-mails).

A platform for e-participation would have to be created (see table on p. 91). Such a platform could be used in any community. It would come with a set of rules and with a toolbox of instruments.

On the side of the rules, such a platform will have to include strict separation of the processes that produce public and private value; guarantee the culture of civic engagement; put in place the rule of law that guarantees civil rights and freedoms; establish rules for information management (e.g. transparency) and the safeguarding of electronic communication channels, so that political or economic convenience does not shut them down; establish and enforce legal obligations for public officials and public administrators to be more attentive and responsive.

ICT come in on the side of the tools, when the rules are firmly in place. When put in the context of appropriate rules, ICT tools and applications can deal successfully with the deficit of deliberative resources from which citizens suffer the world over. They can fill the gap in time and expertise. They can facilitate peer-to-peer consultative processes. This is not about a conflict between direct and representative democracy. This is about lessening the citizens' effort to procure the relevant knowledge in order "to maintain the developmental equilibrium" – the kind of knowledge that is needed for the informed consent of citizens in any form of democracy.

Transparency

The potential of ICT in curbing corruption has been demonstrated in practice. But we should stop looking at ICT-augmented transparency as the main anti-corruption measure. Even in fighting corruption, ICT needs an enabling context: a culture that does not tolerate or reward corruption with high social status; a strong civil society and strong democratic institutions; multiparty democracy; a free press; legal protection of whistle-blowers; etc. But, looking at transparency in this context alone is too narrow.

Much more importantly, transparency – understood as an open, accessible public sphere that gives voice to every citizen – helps the government make correct decisions. It thus lowers the cost and increases the quality of democracy as well as enriches the pool of available, politically useful information on which citizens can creatively reflect in the process of creating the knowledge "to maintain the developmental equilibrium".

Parameters of the platform for participation with the use of e-government applications

	Rules	*Tools*
Public sphere	• Culture of civic engagement • Freedoms • Information management • Safeguarding of electronic communication channels • Separation of public and private value • Attentiveness of public officials / public administration	• Use of ICT for information management • ICT applications for implementation of Internet safeguarding policy
Deliberative resources		• E-government applications aimed at making citizens knowledgeable and skilled • E-government applications aimed at making citizens connected and networked

(Source: UN World Public Sector Report 2003, pp. 85–102)

However, the thought that people need information from the government is very incomplete. People need information that is truthful, accurate, authoritative, de-politicised, certified and released according to agreed standards. As a rule, they need information that relates to a developmental goal or outcome and that does not follow the administrative structure of government departments, but rather represents the holistic essence of information available in the whole government. It must be delivered when and where needed, in appropriate quantity and in a user-friendly way, in direct recognition and in direct response to people's needs.

ICT can play an important role in this process. The dream about a citizen who can log onto an e-government web site and receive, on demand, in no time at all, a truthful, de-politicised, authoritative brief on any politically important subject that s/he can read and understand in under five minutes, that dream is still alive. That this dream is not a reality (yet) cannot be

blamed on ICT. The political context for this form of transparency does not exist anywhere in the world as of today.

Delivery of social services

It seems very appropriate to start the discussion on the use on ICT in the delivery of social services with the opinion of poor people: "People place their hopes in God, since the government is no longer involved in such matters." (…) "The municipal Congressmen are all thieves … they do not solve anything, there are no schools, no health care. They do not vote [on] issues that interest the people. (…) The children keep playing in the sewage."[6] There is little to digitise here and the introduction of e-voting in the municipal council is not going to help.

It is difficult of course to overestimate the importance of public social services in securing the development of people. This depends less on the skilful utilisation of ICT by public administrations and more on the answers to the following questions: Does a society recognise the right of its members to life in its fullness, i.e. to a life filled with opportunities for each person to live out fully his/her creative potential and to employ this potential in productive practical behaviour that builds up high quality and safety of life for all? What is the politically accepted role that a government is supposed to play in providing such opportunities? Is unlimited development of people of highest strategic concern to the society? Depending on these answers and given their pro-developmental thrust, a culturally grounded host of suitable ICT solutions can be leveraged upon. E-government in the area of delivery of social services can then occupy its well-deserved place among the priorities for the future digitisation of public administrations.

Little recognised though is the important issue of privacy. People often do not have another option for obtaining a social service, but to turn to a public office. Increasingly, they have the option of doing this via the Internet. In many parts of the world, however, they remain hesitant to trading electronically their personal data due to the threat of a possible secondary use of such data – documented by well-publicised cases of compromised security of public databases.

Knowledge creation

Across the world, attempts to consciously restructure public administration in order to enable creation and use of knowledge are not documented, and indeed seem rare. At their best, governments have introduced techniques for internal knowledge management (i.e. bringing people and knowledge assets together) and institutional learning. As a rule, they have not changed the

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[6] See http://www.worldbank.org/poverty.

culture and structures to enable mass-production of knowledge within the public administration.

As in any shared space for knowledge production, also within the units of public administration and within public administration as a whole, ICT can add the prefix "mass-" to knowledge creation and utilisation. As mentioned above, the technique to do it is generic and well-tested by now. To achieve knowledge creation in the public sphere would require both "more" ICT as well as making knowledge creation part of public problem solving. This would entail the acceptance that knowledge creation has its own dynamic – it cannot be ordered or administered – and that all employees are creative beings and are the storage medium for tacit and explicit knowledge.

Networking

Transforming public hierarchies into public networks is by and large uncharted water, though arguably, this could constitute the most important ICT application a public administration can build. It is avoided by many civil servants and politicians, as it may have far-reaching consequences for the emancipation of people, along with a shift in control of power and resources. If the use of modern ICT has the capacity to dismantle and build at the same time, arguably, it can achieve the most extensive impact by reshaping human society and by enabling us all – people, governments and businesses – to operate as networks.

People have known networks at least as long as hierarchies. Till now, they have opted for the latter when choosing a preferred form for the organisation of government. Networks are flexible and adaptable, they can react to a changing environment and they can move around people and resources to re-adapt to a task. But they have major problems too, e.g. the difficulty of focusing on the fulfilment of a given task beyond a certain size or level of complexity or the difficulty of coordinating and executing decisions in order to concentrate resources. Modern ICT facilitate communication in human interactions and can potentially benefit both hierarchies and networks. Hierarchies have not been able to use ICT too well as they have threatened their vertical structures. Networks have embraced ICT. They do not eliminate their advantages and are capable of smoothing out their disadvantages. Networks can use them to enhance flexibility and reconfigure capacities. More importantly, they can use real-time processing to reintegrate command and decentralise execution. ICT has converted networks into powerful, efficient forms of social organisation.

It is important to remember though that networked government does not automatically equal good government. But, if issues of transparency and accountability within networks; sound governance of networks; network management skills in the public sector; as well as popular access to ICT are

resolved, ICT in relation to government and governance might become most meaningful by facilitating the creation of networks at the service of public value creation.

Illustrative examples

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

OPEN System: transparent and efficient interaction between citizens and government in Korea

Activity:	Public services
Organisations involved:	Seoul municipal government
Start – End:	Launched in 1998 – ongoing
Area covered:	Capital city of Seoul (Republic of Korea)

Summary description:

The System allows posting online all the consecutive procedures (reception, review, final processing, and whether the application has passed the bottom-up approval system from deputy-director to director to director-general) of cases undergoing administrative processing. Related laws are also shown in detail. This way the general public, including the person who filed an application or complaint, can monitor public administration. This is expected to prevent corruption and increase transparency.

A total of 54 categories of civil applications where corruption is most likely to occur have their procedures posted on the OPEN System. The phone numbers and e-mail address of the department in charge are available on the website so that people can reach the working-level official currently handling the case.

Key features:
- Mapping out the business process and making it transparent
- Pegging progress of an administrative matter to individual performance that can be monitored online

Key success factors:
- System of transparency
- Universal application

Key challenges:
- Building a corruption-free culture around the system
- Independent evaluation of system's effectiveness

Täna Otsustan Mina (TOM): fostering democratic discussion and society state dialogue in Estonia

Activity:	Public platform
Organisations involved:	All units of public administration
Start – End:	Launched in 2001 – ongoing
Area covered:	The whole country of Estonia, 4,000 active participants

Summary description:

TOM („Today I Decide") is the first attempt in Estonia to start discussion between the state and society using the possibilities offered by modern ICT. Transparency of the decision-making process and improvement of the state-society dialogue can be achieved in this way. The key objective is not to provide an electronic service, but to improve democratic discussion. The TOM process may be divided into six parts, from the submission of an idea until its implementation:

(1) Submission of an idea. Many people have good ideas that are not voiced.
(2) After the submission of the idea, others have 14 days to comment on it and the author can defend the idea. There is discussion, from which democratic decisions emerge.
(3) This phase is followed by the editing period. The originator of the idea takes proposals, criticism and pro-arguments into consideration and makes amendments, if necessary.
(4) The idea is voted on. Everybody can vote for or against it. A simple majority endorses the idea.
(5) The person who submitted the idea and those who share the view that it should be implemented sign a document endorsing it.
(6) After signatures are gathered, the idea/proposal moves to the government for processing. The proposal is directed to the public agency to which its area of administration belongs. According to the Public Information Act, the public agency has one month to either start implementation or submit a substantiated answer that explains why the idea/proposal does not merit implementation. The answers are published in the portal.

Key features:
• Group thinking; legal framework

Key success factors:
• A structure of responsiveness; culture of civic engagement

Key challenges:
• Representativeness

DistrictNet Uganda: improving the efficiency and responsiveness of local government

Activity:	Initiative
Organisations involved:	International Institute for Communication in Development (IICD), Ugandan Ministry of Local Government, four Ugandan district-level government offices and 21 sub-county governments
Start – End:	Project launched in 2002 – ongoing
Area covered:	Uganda

Summary description:

Reacting to a growing demand for transparent and more responsive government, Uganda has been pressing ahead with government decentralisation efforts. Historically, local government offices have often had little budget and a limited mandate. The push towards decentralisation is a significant strain on their capacities – human, technical and financial.

DistrictNet is improving the ability of local government offices to be increasingly autonomous, competent and effective. Information and communication technologies (ICT) play a significant role by facilitating voice and data communication among local government offices, electronic data processing in record keeping as well as making financial management and storage more efficient. The project aims to

• Help local government offices standardise and share critical forms and work processes, to allow for comparability and aggregation across districts as input for planning and decision-making;
• Improve financial management by allowing for more reliable and up-to-date revenue/expenditure data;
• Facilitate regular updates and accessibility by digitising documents, reports and files;
• Train local government staff in the ICT and organisational skills needed to improve their work.

Key success factors:

• The project has a positive impact on the government's overall efficacy at the local level.
• Scale-up of the project to address additional district offices together with the Ministry of Local Government is central to the project's broader success.

Key challenges:

It is vital to build relationships with a broader government constituency as projects that involve decentralisation – essentially a shift of power from the centre to local offices – are often politically contested.

Improving aid effectiveness and harmonisation through ICT

by Walter Fust

Summary

New technologies have changed the world, accelerating the speed of information flow and communication channels, and making it possible to provide a large number of people with information. This opens up new possibilities for effectiveness and efficiency in all areas of life, including the working environment. At the same time, Information and Communication Technologies (ICT) also introduce new options for communication. However, these options call for innovative and goal-oriented solutions in order to make them effective.

While development cooperation agencies are committed to improving the effectiveness of their cooperation programmes, they have also expressed their will to harmonise their work in alignment with national priorities and policies. ICT thereby have been recognised as being potentially significant tools in this harmonisation process. Therefore, the Rome Declaration agreed upon by donor agencies in 2003 included a separate article, calling on organisations to exploit the possibilities of an effective use of ICT. This engagement should be followed by a re-affirmation of this endeavour by concrete measures and action.

Experience has shown, that communication and information exchange does not happen automatically when technologies are available. Applications need to be designed to match the needs of the users and to provide real value. Information platforms need to be facilitated and the high standard of value maintained. This might imply the willingness of staff to contribute their own information and knowledge on a regular basis. All of this calls for a conscious approach with harmonisation goals in mind. Principles of communication and knowledge management have to be applied and resources should go systematically into harmonisation efforts. This investment will pay off if the applications make the expected contributions to improving the effectiveness of harmonisation.

The context of harmonisation in development cooperation

Harmonisation and, with it, the effectiveness of development cooperation is an issue that is of major importance to all actors involved because the way in which cooperation is delivered and managed determines if the resources

invested best contribute to the goal of poverty reduction. Many processes and practices in place in the development system carry with them considerable transaction costs for both donor agencies and recipient countries. For example, rough figures show that all donors fund more than 60,000 development aid projects a year, host more than 1,000 missions to monitor the work and have to present 2,400 quarterly reports on progress. The development community addressed this challenge comprehensively at the High Level Forum on Harmonisation in Rome in February 2003, when donor and recipient country representatives as well as the major multilateral development banks endorsed a reform agenda with a wide range of activities in which aid effectiveness could be improved: country strategies, analyses, technical assistance, operations, regional and global initiatives.[1]

Since Rome, the Agenda has been deepened and broadened, and considerable work has been undertaken to concretise the concept of and approaches to harmonisation. Two years after Rome, over one hundred donor and developing countries met in Paris to take stock and commit to further action.[2] The Paris meeting moved the aid effectiveness agenda beyond the general consensus reached at Rome to a practical blueprint for the actors in the development system. Specifically the following remaining challenges were identified:

- Weaknesses in partner countries' institutional capacities to develop and implement nationally owned development strategies.
- Failure to provide more predictable and multi-year commitments on aid flows.
- Insufficient delegation of authority to donors' field staff, and inadequate attention to incentives for effective development partnerships between donors and recipient countries.
- Insufficient integration of global programmes and initiatives into partner countries' broader development agendas, including in critical areas such as HIV/AIDS.
- Corruption and lack of transparency, which erode public support, impede effective resource mobilisation and allocation and divert resources away from activities that are vital for poverty reduction and sustainable economic development. Where corruption exists, it inhibits donors from relying on partner country systems.[3]

To tackle these challenges, some fifty concrete commitments were made and a set of indicators to monitor progress were agreed upon. The commitments

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[1] Rome Declaration on Harmonisation, February 2003. For more information on aid harmonisation and alignment see http://www.aidharmonization.org.
[2] Paris Declaration on Aid Effectiveness, March 2005.
[3] Paris Declaration, par. 4.

concern all the five areas which today form the Aid Effectiveness Agenda: Ownership, Alignment, Harmonisation, Management for Development Results and Mutual Accountability.

Ownership is clearly the key to success for all development processes. It means that developing countries need to exercise effective leadership over their development policies and strategies. When such a leadership is based on a broad national consensus, including the setting of priorities, the country is in a strong position to coordinate cooperation activities at all levels in dialogue with donors, and to encourage the participation of civil society and the private sector. Donors have the responsibility to respect the country's leadership and its priorities. If a country has difficulties exercising such leadership, donors can help strengthen institutional capacities and processes.

Alignment is the commitment of the donors to base their overall support on a partner country's national development strategies, which in many cases is its Poverty Reduction Strategy (PRS). It also means that donors increasingly use the developing countries' own systems and procedures when delivering aid, e.g. reporting frameworks, national procurement systems and financial management systems. Often, these systems still have weaknesses, and for the donors, who are accountable to their constituencies for a sound management of financial resources, it is not feasible to use them. To tackle that issue, it is necessary on the one hand to define acceptable standards of performance and accountability of these systems in mutual dialogue between donors and recipients. On the other hand the development of capacities needs to be at the core of all efforts, because the capacity to plan, manage, implement and account for results is critical if development objectives are to be achieved. Capacity development has to be based on sound technical analysis, and also be responsive to the broader social, political and economic environment. While strengthening capacity development is the responsibility of partner countries, donors can play an important support role. In their own operations, donors should, as much as possible, avoid creating implementation structures that run parallel to the government structures. Another important aspect of alignment is the predictability of financial flows. Where possible, donors should provide reliable multi-year indications of their disbursements. Also, the untying of aid has been identified as an important element of aid effectiveness, and in 2001 DAC donors adopted a recommendation to untie official development assistance (ODA) to the least developed countries (LDCs).

Harmonisation means that the donors' actions are more collectively effective through an increased division of labour on the one hand and har-

monised and simplified policies and procedures on the other. When donors succeed in making full use of their respective comparative advantage at sector or country level, they can avoid an excessive fragmentation or the duplication of activities and the transaction costs that come with it. This implies that, where feasible and useful, donors can make use of common arrangements for planning, funding disbursement, monitoring, evaluating and reporting. In these areas, costs can often be decreased by very practical and pragmatic steps. However, concrete steps will be taken only if the people involved have the incentives to do so. Therefore, both donor and recipient countries agreed in Paris to strengthen incentives for harmonisation, including human resource areas such as recruitment, appraisal and training.

Managing for results means that decision-making, resource management and country programming is directly linked to the desired results and makes use of all the relevant information. It also means that developing countries strengthen the linkages between national development strategies and the annual and multi-annual budget processes. When donors and recipients link their activities to such performance assessment frameworks and introduce a manageable number of indicators that are cost-effectively available, progress can be measured much better than before.

Mutual accountability means that donors and developing countries are accountable to each other for achieving concrete development results. High priority should be given to enhancing accountability and transparency in the use of development resources, so that the commitments made in Rome and in Paris will have a sustained and lasting follow-up. In this context, participatory approaches have to be reinforced, and a broad range of development partners have to be involved when formulating and monitoring national strategies. In developing countries, national policies receive much stronger support when all stakeholders know and understand these policies and have a say in their formulation. And in donor countries, strong support for development assistance is likely to be given by a constituency that is informed and convinced that its financial contributions are used effectively for poverty reduction.

The use of ICT in harmonisation processes

Working environments as well as social processes have changed with the advent of the information society. This is not any different in development cooperation, where communication among practitioners, partners and colleagues around the world has become much faster and cheaper. E-mail is the communication tool number one in offices today. At the same time, the In-

ternet provides information quickly and about any topic, also in development.

However, ICT can be used even more effectively, and the pace of development of new applications, websites and technological gadgets is extremely rapid. The question is, how to improve the effectiveness of ICT within development cooperation and more importantly within the processes linked to harmonisation.

The Rome Declaration explicitly mentions the role of ICT in contributing to the goal of harmonisation and asks for common action:

> *We acknowledge the potential contribution of modern information and communication technologies to promoting and facilitating harmonisation – already demonstrated by the use of audio and videoconferencing facilities in the staff work on harmonisation, the Development Gateway, the Country Analytic Work website, and the early work on e-government, e-procurement, and e-financial management. We commit to further efforts to exploit these technologies.[4]*

Whereas the importance of ICT is highlighted by several different application options, the declaration also implies, that the use of ICTs is not straightforward but needs some conscious effort to plan their effective exploitation. Unfortunately, the Paris Declaration is not clearer on how ICT will be used concretely. Neither does it go into pre-requisites of information sharing, knowledge management or communication. If we are to argue, that sharing information and communication between actors is crucial for harmonisation (with or without ICT), then it will be useful to ask for a concentrated support of communication mechanisms and principles of knowledge management.

ICT are not intended to replace debates, reporting, face-to-face meetings and personal contacts. On the contrary, they can support the processes that go on anyway, and should play a facilitating role. This is particularly true if the users are part of a team or a certain constituency that will meet anyway. However, ICT can be continuous sources of information or communication tools. They can add another scope to reach out to a great number of people, or to make information available for any person who seeks it.

In the planning and successful design of ICT solutions, one has to reconsider some of the communication and knowledge management principles:

1. ICT solutions need to be goal-oriented and demand-driven. This means that the tool should respond to the user's perceived need.

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[4] Rome Declaration, par. 8.

2. The kind of information shared has to be of value to the user; criteria can be who produced the information, if it is up-to-date and if it is complete.
3. The user has to be clearly defined for ICT to meet specific needs. As different levels of access can be determined, certain information may require passwords before being shown.
4. Communication via ICT mostly needs facilitation to ensure quality and functioning, at the same time it is important to create "ownership" among the users.
5. Existing ICT do not automatically respond to specific goals of harmonisation, even if they are geared towards sharing information on development. If the goal is to achieve alignment, avoid duplication, share best practices, facilitate reporting, create transparency or ensure mutual accountability, the platforms used will each have to be very different in design, content and functioning.

The most obvious type of coordinated use of ICT for harmonisation are information platforms. These can be geographic, e.g. a website that re-unites all relevant information on different development related sectors within a country or a region. These information platforms could either be a compilation of relevant data for the interested reader, or else they could be databases that serve as work tools for harmonisation in a given country. Whereas the first lets users find and read interesting documents, the second needs to be absolutely accurate and goal oriented. Looking at the Paris Declaration, development partners will have information needs: to determine who is doing what in different regions and sectors, to avoid duplication, to learn from the experiences of others and also to get information on local governmental policies and management principles, they will need to align their activities. The platform will therefore have to be up-to-date and as complete as possible.

Geographical information systems can make a great contribution to the visualisation of statistical data, needs assessment or results indicators in an effective way. These systems have become easier to use and could also systematically be integrated into shared geographical information platforms.[5]

For an optimal response to the needs of the actors involved in a given local harmonisation process, these platforms are best designed specifically for their use. They can include **d-groups and shared spaces** to exchange reports and evaluations. Experience shows that communication and information exchanges need trust. The value of the effort is a give and take – hence in order to share, the overall value of it should be felt as well.

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[5] For examples of such systems see http://www.povertymap.net; http://www.geodata.grid.unep.ch; http://www.earthwatch.unep.net; http://www.sarpn.org.za.

Managing for results is an area where ICT are crucially important. They provide the necessary tools to all decision makers involved for this kind of management. It can, more specifically, contribute to establish results-oriented reporting and assessment frameworks that monitor progress against key dimensions of the national strategies.

Information platforms can also be thematic, rather than geographic, and involve specialists from all parts of the world, who exchange information about best practices, methodologies and specific novelties. Here the goal will be to reach effectiveness by learning and replicating the lessons learnt in a given field. Discussion groups which could be integrated into thematic information platforms, provide opportunities for networking which should not be underestimated. Networks certainly contribute to mutual learning experiences. At the same time, they also provide possibilities for partnering and common action. Informal exchanges also provide information about potential partners, insights and fall-backs.

Even within agencies, **internal information platforms** facilitate the access to information and the communication between country offices and headquarters, as well as among country offices. The latter especially remains a challenge for many agencies, and ICT can considerably improve this exchange.

ICT of course are key to successful **accountability.** ICT can be used to decisively increase **transparency** at all levels of the development system. The call for accountability is especially strong after disasters, such as the tsunami catastrophe in South and South East Asia in December 2004. Here it will be particularly important to show all interested citizens around the world in what way the countries are cooperating for humanitarian aid and reconstruction. Also, the public wants to monitor, how much of the money that was promised was actually used for helping the victims of the disaster.

Generally, **websites for mutual accountability** should be accessible to the public and they should show what has actually been implemented and not merely what is being planned. These should be internally based monitoring systems that are publicly accessible. Because, and very importantly, a system of mutual accountability also helps to strengthen public support in donor and in recipient countries.

ICT can contribute to transparency at other levels. Already in the planning of national policies, ICT can reach out to the public to inform what is going on. Because of their interactive character, ICT can also capture reactions and inputs from the public, and civil society could play a more active role in shaping its own future, for instance by influencing the elaboration of na-

tional Poverty Reduction Strategies. Information can be made available on **procurement procedures** and criteria.

As shown, ICT can be effective tools for harmonisation. However, to fulfil their role they have to be designed in a conscious way:

1. Information platforms, databases and discussion groups should be designed **specifically to meet the goals of harmonisation** and the needs of the actors who use them.
2. Knowledge management principles should be used and/or studied, including incentives for staff to share their knowledge and information in a regular and conscious way.
3. ICT need to be used for accountability and transparency reasons and monitoring systems should be accessible to the public. United Nations entities and development organisations should create Internet based **publicly accessible monitoring systems** showing their commitments and the results delivered.
4. Effective ICT solutions for harmonisation are costly and time-consuming. **Resources** are needed for information and communication systems that **should systematically be included into sector policies and planning**.
5. **Global networks** that aim at increasing the effectiveness in specific thematic development sectors should be supported and efforts made for institutional learning.

Whereas, the building up of ICT solutions for harmonisation needs some investment from the start, ICT can make a difference in effectiveness and efficiency as well as allow forms of communication and knowledge management that were not possible before.

Illustrative example

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

Russian Development Gateway: coordinating development activities and sharing knowledge

Type of Activity:	Initiative
Organisations involved:	Russian Institute of the Information Society, RosBusinessConsulting, Garant, Russian e-Development Foundation, Rambler, Ministry of Economic Development and Trade
Start – End:	Programme launched February 2001 – ongoing
Area covered:	Russia

Summary description:

The Russian Development Gateway makes use of an Internet-based portal, which went live in March 2001. The Portal has become part of the international network of development gateways and more importantly, it serves as the umbrella gateway to the Network of Development Gateways of the Russian Federation.

Despite the time and resources being devoted to harmonisation of development efforts, the development sector continues to be widely fragmented. Complex countries such as Russia, by virtue of size and the accompanying diversity in terrain and population, face particular challenges in coordinating socio-economic efforts. The mission of the Russian Development Gateway is to serve as a point for interaction and coordination among the major development communities and as an instrument to integrate expert knowledge in the field of development. By harmonising the vast number of actors and activities, the Russian Development Gateway is working to build efficiency and effectiveness in national development.

Key success factors:

Harmonisation is a complex process, and a critical success factor for the Development Gateway is an adequate online environment for collaboration among a broad set of development actors, each with its own goals and objectives, interests and constituencies.

Key challenges:

Given the size and diversity of Russia, it continues to be a challenge to be seen as a core element in development.

PART III

ICT for specific development goals

Relevant lessons learnt from cross-sectoral partnerships in ICT for development

by Paul Greener

Summary

Cross-sectoral partnerships have rapidly gained influence as an approach to sustainable development. This rise has paralleled the explosion in access to information and communication that has been enabled by information and communication technologies (ICT). Partnerships, while not a panacea, have great power to bring complementary resources and skills from different parts of society to innovate, scale up and address the complexity of using ICT as enablers of development and poverty reduction. The concept of cross-sectoral partnership and stakeholder engagement is firmly embedded in the Millennium Declaration, the Millennium Development Goals (MDGs) and the World Summit on the Information Society (WSIS). Beyond the WSIS the critical need will be to expand rapidly the number and scale of implementation-oriented partnerships that put into practice agreed policy frameworks. Such partnerships will require greater involvement of the business and civil society sectors than is currently the case and include local-level activities in developing countries. To achieve this, a commitment is needed to build the capacity of organisations, especially of small businesses and civil society organisations, to broker and enter into partnerships. ICT have been key to enabling and supporting partnerships. Substantial experience exists from the ICT field, as well as others, on the principles and processes of building and maintaining successful cross-sectoral partnerships. These should be systematically integrated into the design of future partnership initiatives in the field of ICT for development (ICT4D).

Cross-sectoral partnerships in ICT4D

Cross-sectoral partnerships [1] involving combinations of organisations drawn from government, international agencies, the private sector and civil society

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[1] For the purpose of this chapter, the term cross-sectoral partnership is used as an overarching term and covers also multi-stakeholder and public-private partnerships.

organisations are increasingly being promoted as a means to address the more intractable challenges of sustainable development and poverty reduction. This chapter looks at this trend, with a particular emphasis on the use of information and communication technologies for development (ICT4D). It takes a look at what cross-sector partnerships are, the principles and processes of partnership formation, and examples in the field of ICT4D.

The rise of the "partnership paradigm" reflects a broadening of the range of people and institutions that are seen – and see themselves – as having a legitimate role and responsibility for sustainable development. This latter trend has emerged in parallel with explosive technological change and the consequent expansion of access to information and knowledge. As a powerful enabler, ICT have contributed to both the need for, and the facility of, building partnerships between organisations in different sectors, at different levels (global, national or local) and in different geographic, cultural and social spaces (see box on p. 110).

Specific forces that drive the move toward a partnership approach are diverse, but include the imperative to broaden the range of resources available, recognition of the synergies that can be attained through cross-sector collaboration and appreciation of the risks that result from failure to consult broadly with different stakeholder groups.

The partnership paradigm received particular attention during the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg where public-private partnerships (PPPs) for development – so-called Type II partnerships – were hailed as one of the key mechanisms for reaching the Millennium Development Goals (MDGs). This echoed the commitment of member states in Resolution III.20 of the Millennium Declaration to "develop strong partnerships with the private sector and with civil society organisations in pursuit of development and poverty eradication." Goal 8 of the MDGs calls for "a global partnership for development" and one of the targets within this goal is a commitment to develop partnerships "in co-operation with the private sector, to make available the benefits of new technologies, especially information and communications technologies". [2]

Paragraph 20 of the Declaration of Principles[3] arising from the first phase of the World Summit on the Information Society (WSIS) in Geneva notes that "Governments, as well as private sector, civil society and the United Nations and other international organisations all have an important role and responsibility… Building a people-centred Information Society is a joint effort which requires cooperation and partnership among all stakeholders." Action lines within the WSIS Plan of Action elaborate on many areas – such as e-strategies,

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[2] United Nations, "UN Millennium Development Goals (MDG)". (http://www.un.org/millenniumgoals)
[3] Declaration of Principles, World Summit on the Information Society 2003. (http://www.itu.org/wsis)

infrastructure roll-out, content and applications, resource mobilisation and evaluation – that will require cooperation and partnerships between sectors, and encourages each member country to "establish at least one functioning Public/Private Partnership (PPP) or Multi-Sector Partnership".[4]

In summary, there is increasing recognition that the scale and breadth of issues involved in achieving the information society goals, the MDGs and the broader mission of the Millennium Declaration require the active participation of all sectors of society.

The contribution of ICT to the creation and running of successful partnerships

While this chapter mainly addresses how a partnership approach contributes to the use of ICT for development and poverty reduction, the reverse also applies – that ICT, in and of themselves, have helped to promote the partnership paradigm in a number of ways. For example:

- Information and communication are crucial to building the organisational capacity required for many smaller organisations to enter into partnerships on an equal footing.
- ICT have promoted a greater spread of information, which has enabled potential partners to both find and communicate with each other.
- Civil society has effectively used ICT to organise and campaign on a range of issues, putting pressure on governments and the private sector on issues such as transparency, corporate social responsibility, human rights and the environment. This has in turn increased the value of entering into partnerships with civil society for some private corporations and governments to increase their legitimacy and license to operate.
- ICT help reduce transaction costs and ease logistical issues for a diverse group of players to work together, especially if they are geographically dispersed.
- ICT have helped promote access to and the diffusion of information across traditional, sectoral, or geographic barriers, thereby providing opportunities for networking and content development, as well as improving the efficiency of a broad range of other sectors such as agriculture, health, education etc.

Source: ITU (2005), Multi-Stakeholder Partnerships for Bridging the Digital Divide: Background Paper for the ITU/Korea WSIS Thematic Meeting on Multi-Stakeholder Partnerships for Bridging the Digital Divide, Seoul, 23–24 June 2005.

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4 Plan of Action, World Summit on the Information Society 2003, section C.8.b. (http://www.itu.org/wsis)

Partnership in ICT and the WSIS process

In the past, the telecommunications sector in many countries was essentially under government control, but widespread liberalisation and privatisation in the last two decades have brought in new players – particularly from the private sector. This trend has been further boosted as new technologies become more mainstream – as for example in the case of mobile phone networks. At the same time, civil society has embraced ICT, inter alia as an operational tool for their own organisation, as a promoter of greater transparency, and as an enabler of more effective development. Broadening the inclusion and participation of non-state actors in policy making forums is now seen as necessary to increase the legitimacy of the policies that result. The World Summit on the Information Society (WSIS) and some of the consultative bodies that resulted from its first phase in Geneva – such as the Working Group on Internet Governance – have therefore deliberately sought wider engagement of development stakeholders.[5]

In the period since the Geneva summit, the WSIS Secretariat has been steadily compiling a database of WSIS-related activities that are being undertaken around the world.[6] By June 2005, this stocktaking exercise had logged some 1900 entries. Almost half of these activities were implemented on the basis of multi-stakeholder partnerships (MSPs).

A closer look at the breakdown of these partnership projects is instructive:

- Over three-quarters of the activities classified as MSPs in the WSIS stocktaking exercise have been driven primarily by the public sector – national governments (more than half) and international organisations, including UN bodies;
- Businesses and civil society organisations have so far taken a less dominant leadership role than is apparent in past partnership experience in other areas of development such as environment and sustainable development, extractive industries, and water and sanitation;[7]
- More than three quarters of the examples in the WSIS stocktaking deal at the national and international levels, with a particular emphasis on policy development and other agenda-setting exercises;

[5] ITU (2005), "Multi-Stakeholder Partnerships for Bridging the Digital Divide: Background Paper for the ITU/Korea WSIS Thematic Meeting on Multi-Stakeholder Partnerships for Bridging the Digital Divide", Seoul, 23–24 June 2005.
[6] *Ibid.,* pp. 10–20.
[7] For examples see: Building Partnerships for Development (BPD) (2002), "Flexibility by Design: Lessons from Multi-Sector Partnerships in Water and Sanitation" (http://www.bpd-naturalresources.org/media/pdfwp1ba.pdf) and the work of the Business Partners for Development Natural Resources Cluster. (http://www.bpd-naturalresources.org)

- There are relatively few examples of implementation at a more local level; and
- There is a heavy weighting of examples based in, or driven by, the more developed areas of Europe, North America and Asia.

While the emphasis on policy-development and agenda-setting is perhaps understandable given that WSIS itself aims at setting a global agenda, the future challenge will be to translate into action the policy frameworks that have been agreed to through cross-sector implementation partnerships that span the range from local to international. This will require more widespread and deep involvement of the private sector and civil society in driving the process; wide multiplication of implementation activities at a local level and the scaling up of these activities; and an increase in the role of cross-sector partnerships in less developed country settings.

A concrete example of such action is the highly ambitious drive of a range of stakeholders, led by the M.S. Swaminathan Research Foundation, to rollout community knowledge centres in the villages of India.[8] This initiative also forms part of a similarly ambitious international commitment to promote connectivity – the "Connect the World" partnership, launched by the International Telecommunications Union (ITU) and some 20 other partners in June 2005.[9]

From a technical and developmental point of view, such a broad up-scaling of accessibility to information is highly challenging. It will need to address complex and interlinked components, for example: the regulatory environment for telecommunications and business; human capacity to make productive use of access to information; entrepreneurial skills; development of relevant and accessible content; as well as the roll-out of connectivity and access to infrastructure.

To succeed, the biggest challenge will be to build and to maintain effective multi-stakeholder partnerships on a scale not seen to date.

To meet this challenge, the lessons already learnt from partnership experience in ICT, and other fields, need to be ploughed back into the design of future activities. Furthermore, a major commitment is needed to help facilitate new and sustainable partnerships and to build the capacity of stakeholders – particularly civil society and private sector partners – to take a leading role in them.

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[8] For more information see p. 120.
[9] For details see http://www.itu.int/partners.

Lessons learnt from cross-sectoral partnerships – conceptualisation, application and principles

The term "partnership" has been used to cover wide ranging forms of institutional collaboration, from formal contracts, to funding agreements, to loose forms of collaboration between parties. Two dangers within the current partnership movement are that the looseness by which the term is used could, over time, breed cynicism in the concept, and that the idea is fast becoming an "end in itself", rather than a "means to an end". Some preciseness as to what is meant by the term is therefore necessary.

The Global Knowledge Partnership understands a cross-sector partnership to be:[10]

A strategic alliance between parties drawn *from different parts of society* (e.g. the public sector, the private sector and civil society), *to resolve key development challenges,* especially those that have not been successfully addressed by single sector approaches. Partners within such alliances contribute from their core competencies and, based on the principles of equity and transparency, combine their resources and competencies in a *complementary and synergistic way that enables them to achieve both their own as well as the overall partnership objectives. Partners thus share both the risks and the benefits.*

This conceptualisation of partnerships has a number of implications for how the partnership is designed, or whether a partnership approach should be used at all. There is now a substantial body of experience in a range of fields that indicate what factors contribute to successful partnerships and the common constraints:

1. Partnerships imply a sharing of resources and, more particularly, a sharing of responsibility for the outcomes. Resources in this sense include funding, but go well beyond to include non-financial elements such as knowledge, skills, credibility, networks, etc. Traditional contractual or grantor-grantee relationships – while legitimate in many cases – do not generally meet this criterion.

2. There must be clear goals for the partnership, sufficient overlap of partners' own individual objectives and sufficient mutual respect and trust between partners to enable them to work together. The process needs to begin by

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[10] For background see: Global Knowledge Partnership (2003), "Multi-Stakeholder Partnerships", *Issues Paper.* (http://www.globalknowledge.org)

establishing a clear and mutually understanding of what the partnership aims to achieve, how it is to get there, and the reasons why a partnership approach is the best way of achieving these ends. Stakeholders from different sectors generally have different perspectives and priorities, and a partnership approach is only indicated when there is sufficient overlap in these priorities for the parties to work together in their own mutual interest. However, there does not need to be complete overlap in priorities, or complete agreement on the goal. Many successful partnerships have benefited from a degree of creative tension between partners. However, too great a distance between the viewpoints of different parties is a warning that the partnership approach may not be the best way to go.

3. Partnerships work best when they mutually reinforce the interests of each of the partners. In other words all partners need to see gains in the things that they hold most dear, in addition to (or, better still, as a consequence of) achieving the overall developmental goal of the partnership. For example, a private company might need to see improved profitability, market positioning, or brand reputation. An NGO may require greater scale, outreach or sustainability in its development operations, or see movement toward a desired social policy direction. A government agency might seek greater public accountability and legitimacy, or greater development impact from its budget allocations.

4. Successful partnerships combine the different strengths of partners in a complementary and synergistic way in order to achieve a specific end. The starting point is a clear articulation of the outcomes required, and of the building blocks that are needed to achieve them in terms of resources, activities, outputs and sequencing. Partners can then be selected based on what they can contribute and their contributions may then be combined in creative ways to generate synergies. Contributions from different sectors, however, need not be restricted to obvious stereotypes. For example, the primary role of the government could be seen as creating a sound enabling environment through its regulatory and policy-making powers. However, governments can and do contribute in many other ways – for example, provision of subsidies from tax revenue to support universal access, contribution of human resources, technical skills and basic infrastructure, development of e-government applications and services, and provision of public legitimacy. NGOs often bring specific skills in both technology and content development, ability to innovate, knowledge of user demand and context, and a capacity to mobilise civil society. Businesses bring their borrowing and investment capacity, and amongst other things their project management, planning, technical and marketing skills.

5. Further to the above, the contributions of each partner should be drawn as much as possible from those things that the organisation does best as part of its core business.

Partnerships are not a panacea and can also come with substantial costs and risks. They are best used where single sector or agency approaches have not been successful or where alliances are established to do something that none of the partners could do on their own. In ICT4D, partnerships are of particular use in the scaling up of pilots and in addressing complexity.

Partnerships for scaling up: The last decade has seen a large number of pilot and experimental projects around the world that have demonstrated the effective use of ICT for development and poverty reduction. At the pilot stage, the projects have often been implemented by a single agency, be it a government, company or NGO. However, scaling up these pilots either though expansion or replication often requires resources and expertise that are beyond the capacity of the original sponsoring agency.

An example of the value of ICT partnerships can be given in the context of microfinance.[11] Scaling up of microfinance in rural areas – the last large untapped market for financial services – requires new business relationships, new business models for delivery and new products and services. Each of these factors is enabled by ICT. However no individual organisation has the resources and expertise to overcome, on its own, the barriers of cost that are implied in mobilising the technology required. Collaboration and partnership in ICT may, therefore, be crucial to scale in microfinance.

Addressing complexity: The complexity of the challenge of ICT as an enabler of sustainable development has increasingly shown the need for a holistic approach in the strategic combination of policies, infrastructure, technology, human capacity, business models, applications and content. For example, a major ICT4D initiative may need to draw on several of the following components:[12]

• Policy and regulations – for example, those pertaining to supportive regulatory environments for telecommunications, freedom of information, transparency in e-governance, political leadership, and broader tax regulations and investment promotion.
• Infrastructure and technology – including universal connectivity, effective technologies for the context, acceptable costs and risks, and supporting infrastructure such as electricity.
• Content and applications – affordable and compatible with the needs and capacity of communities.

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[11] Frederick, L. (2005), "IT Innovations to Scale Up Outreach in Microfinance", Presentation to the 2005 Financial Sector Development Conference: "New Partnerships for Innovation in Microfinance", Frankfurt.
[12] Adapted from Digital Opportunities Initiative 2001.

- Human capacity – both in terms of ICT awareness, skills and maintenance, and more general literacy and education to enable users to make use of applications.
- Enterprise and business models – compatible with sustainability and increased outreach, together with supporting business development and financial services.

Such complex programmes imply the need for bringing together a wide range of resources and competencies to develop complete solutions to specific challenges. In this case, the logic is strong for bringing together stakeholders from across society – government, business and civil society – in both the design and implementation of solutions.

Constraints to successful partnerships: Experience in a number of sectors has identified a number of common constraints to effective partnering, for example [13]:

- Lack of trust and mutual understanding by partners of each other's interests.
- Differences in modus operandi between organisations in different sectors – clashes of organisational culture due to different working methods, accountabilities, divergent objectives, timeframes, use of language and decision making styles.
- Lack of clarity and communication, for example with respect to goals, roles, responsibilities and external accountability.
- Lack of the skills and competencies within one or more of the partner organisations that are needed to build effective partnerships – managerial, technical and attitudinal.
- Hostile external context – political, social and economic.
- Imbalances in levels of power or commitment between different partners.
- Underestimation of time and resources required to build and establish the partnership.

Addressing these constraints requires a realistic estimation of the time and resources required to establish and manage a successful partnership. In many cases the use of external, independent facilitation can speed up the process, or increase the chances of success, and contribute to the building of necessary capacity.

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[13] See for example: World Economic Forum (2005), "Partnering for Success: Business Perspectives on Multistakeholder Partnerships", WEF Global Corporate Citizenship Initiative.

Systematising the process of partnership building

It is perhaps most common for partnerships to develop in a rather ad hoc manner, often beginning with a sponsoring partner who then brings in others on the basis of their existing knowledge and networks. However, a more systematic approach to this process – sometimes with the help of external facilitation – can help to ensure greater clarity in the objectives of the partnership, greater surety that the right players are brought to the table, and clearer agreement between partners on their roles and responsibilities.

A systematic approach to building and sustaining partnerships: a facilitator's role

1. Define outcomes	2. Assist in broad subproject design	3. Assess resource needs and potential partners	4. Finalise partners & examine partner interests
Work with stakeholders to agree on specific, priority, or economic development outcome(s)	Help identify the "building blocks" required to achieve the desired outcomes: i.e. the design parameters of the project	Help define resources & competencies needed to deliver design parameters and identify/assess potential partners who might bring them	Broker introductions and assess underlying interests of the final partners
8. Evaluate	7. Monitor & support implementation	6. Build capacity	5. Broker partnering agreement
Evaluate performance and assist in re-negotiation of partnering agreements where necessary	Monitor partner commitments and provide "fill-in" implementation inputs where required	Where necessary, build the capacity of one or more partners to enable them to meet their commitments	Help broker a negotiated agreement between partners on objectives, roles and responsibilities of each

(Source: Adapted from: Global Knowledge Partnership (2003), "Multi-Stakeholder Partnerships", *Issues Paper.*)

Illustrative examples

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

The Young Nigerians Science and Health Tele-Academy: researching, documenting and delivering health information

Type of activity: Programme
Organisations involved: Youth for Technology Foundation, World Bank, Mgbala Agwa Youths Forum, Microsoft Corporation, LearnLinc, Imo State Government, John C. Ford Program
Start – End: July 2003 – ongoing
Area Covered: Nigeria

Summary description:

The Young Nigerians Science and Health Tele-Academy is a multi-sector partnership led by the Youth for Technology Foundation (YTF). By leveraging the resources and capabilities of partners from local government, NGOs and companies, such as Microsoft and LearnLinc, YTF has established the Owerri Digital Village in Eastern Nigeria. The Village provides a place where young people can communicate with peers and health professionals globally (via distance learning software) and use appropriate ICTs (such as laptop computers, digital cameras, radio and the Internet) to research and document relevant health information. Participants then travel from this digital "hub" with a laptop, digital camera and voice enabled Personal Digital Assistant (PDA), to receive questions and deliver health information to local communities.

Key features:

By bringing together multi-sector partners, the Young Nigerians Science and Health Tele-Academy is benefiting from increased capacity and reach, increased economic power, faster implementation and a greater ability to meet targets. In addition this collaboration has enabled wider community involvement and greater accountability of the programme. Project partners have also worked with other local civil society organisations to mobilise ongoing community involvement and increase youth participation.

Key success factors & challenges:

An initial challenge for the programme was in mobilising the different partners towards a common goal of creating social benefits over and above income generating opportunities. YTF highlighted the importance therefore of ensuring all partners are able to benefit from their engagement in the programme without any conflict of interests.

Communities and the Information Society in Africa Programme Initiative (ACACIA Initiative): empowering poor communities

Type of activity:	Programme
Organisations involved:	International Development Research Centre (IDRC) in conjunction with numerous government, private sector and civil society organisations in Africa
Start – End:	1996 – 2010
Area Covered:	Africa

Summary description:

This multistage programme aims to empower African communities with the ability to apply ICTs to their own social and economic development.

Key features:

ACACIA initiative partners work together on action research programmes to address health, education, environment, agriculture and livelihoods issues. These collaborations aim to develop human capacity, policy outcomes, infrastructure and enterprise solutions and content. IDRC also seeks to network partners in single projects to achieve peer-support and learning.

Key success factors:
- Developing tripartite partnerships that include local civil society groups, which enhance community buy-in, when partnering with the local private sector.
- Partnering of NGOs that lack research capacity with external research groups; partnering with university and research institutions who are ideal partners in making objective market assessments that can be disseminated effectively in the public domain to strengthen policy making, civil society and inform the private sector.
- Working with local government or specialised agencies through pilot initiatives to pave the way for national roll-out and scaling up of projects.
- Working with champions within government.

Key challenges:
- Conflicting timelines and objectives when working with public and private sector partners; institutional delays suffered by other donors that resulted in the frequent delay of co-funded initiatives.
- Less interest by some African country governments in results from research undertaken "outside" the government system by progressive NGOs or research institutions.
- Frequent changes in government leadership and/or focus that negatively impacted the continuity and prioritisation of research and the uptake of research outputs.

Mission 2007: every village in India a knowledge centre

Type of activity:	Initiative (National Movement)
Organisations involved:	M.S. Swaminathan Research Foundation (MSSRF), International Development Research Centre (IDRC), Canadian International Development Agency (CIDA), Ford Foundation and numerous local partners in India
Start – End:	1997 – ongoing
Area covered:	India

Summary description:

MSSRF has begun an ambitious effort to establish Village Knowledge Centres across India. This builds on work begun by MSSRF in 20 villages in Pondicherry, which includes connecting villages via a hybrid wired and wireless network – consisting of PCs, telephones, VHF duplex radio devices and e-mail connectivity through dial-up telephone lines that facilitate both voice and data transfer. The success of these centres has led to the creation of a National Alliance – known as "Mission 2007: Every Village a Knowledge Centre". This movement involves members of the private sector, cooperatives, non-governmental organisations, research and development institutions, women's associations, mass media, and appropriate government agencies in the mission to establish a knowledge centre in each of India's 600,000 villages by the year 2007.

Key features:

• Mobilisation of the collective strengths of a large and diverse range of individual partners.
• Promotion of synergies between existing efforts providing rural ICT projects in different parts of the country.
• Building up of a collective strength capable of achieving an extremely ambitious goal.

Key challenges:

From a technical and developmental point of view, such a broad up-scaling of the community knowledge centre model is highly challenging, including complex and interlinked components that address the regulatory environment for telecommunications and business, human capacity in ICT use and entrepreneurial development of relevant and accessible content, as well as the roll out of connectivity and access to infrastructure. To succeed, perhaps the biggest challenge will be to build and to maintain effective multi-stakeholder partnerships, on a scale not seen to date.

From ICT to digital creation and productivity: releasing the potential of technology for education and capacity building

by Clotilde Fonseca

Summary

Digital technologies can make fundamental contributions to transform education and learning processes. They offer unique opportunities, provided that they are integrated into innovative and rich capacity building environments. Techno-centric approaches, which focus almost exclusively on ICT deployment, connectivity and general access to information, are limited in view and frequently ineffective in terms of human capacity building. A brief review of the tendencies in technology in education programmes over the last two decades shows many of the limitations in concept and practice that these projects have encountered. Most initiatives have been conceived as add-ons to already existing educational programmes and approaches. Few have really been transformative in nature. Transformative technologies in education projects demand rethinking learning processes and implementing technology-enhanced human development processes which promote thinking, problem solving skills, creativity and self-efficacy as well as technology fluency. This is clearly a multidimensional task that needs to be tackled through new strategies and means, particularly through initiatives oriented to children and youth. Releasing the potential of new technologies involves the development of intellectual creative and technological skills and competencies. They need to be introduced in contexts that promote understanding a well as digital creation and productivity. This is a crucial policy and action item for industrialised and developing countries alike.

Introduction

The use of digital technologies to address issues of education, learning and capacity building is one of the great challenges governments, communities and development agencies face today. Although everyone is convinced of the contribution they can make to poverty reduction and education efforts, there does

not seem to be a universally accepted vision, pathway or method to guarantee that they will bring about the desired change. Clearly, digital technologies are a source of development. This is particularly so when they are used as tools to unleash human capacity and creativity while building technological skills and productive potential. Investments in technology and education can provide individuals with better instruments to achieve prosperity. As the UN 2001 Human Development Report made evident, technology needs to be seen as an instrument, not simply as a derivation of economic growth.[1] It is therefore fundamental to understand the nature of these instruments and to envision and plan for the ways in which these powerful resources can be put to better use within human development efforts.

Digital technologies can allow people to explore, create, represent, express and transmit information and share personal productions in different ways. Even though they were originally conceived as mathematical and information processing tools, digital technologies are today rather understood as thinking, communicating and creative resources and media. Their potential is immense, probably as immense as is the challenge of eradicating the misconceptions and traditional views within which they have been trapped over the years. Using them to foster talent and innovation has become a central concern. As Robert Reich claimed with extraordinary foresight in the early 1990s, "Each nation's primary assets will be its citizens' skills and insights. Each nation's primary political task will be to cope with the centrifugal forces of the global economy which tear at the ties binding citizens together – bestowing ever greater wealth at the most skilled and insightful, while consigning the less skilled to a declining standard of living."[2] This challenge is of particular importance to the developing world which urgently needs to tap into their potential and into the productive capacity and talent of its still strongly marginalised, and frequently uneducated, populations.

No doubt, we live in complex and fast-changing times that pose a great number of new demands on education systems. As we are all aware, constant references to "the information age", "the knowledge society", "the digital revolution" and "the creative economy" have an impact on the way we perceive our world and on the ways in which we try to understand it in order to plan education and capacity building efforts for the new generations. Understanding and coping with these challenges and being able to make decisions is an important and difficult task. It requires the active participation of the leaders who attempt to address them, but it also demands the involvement

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[1] United Nations Development Program (2001), "Human Development Report 2001: Making new technologies work for human development", New York, p. 11.
[2] Reich, R. (1992), "The Work of Nations: Preparing Ourselves for 21th Century Capitalism", New York, p. 3.

of those teachers and facilitators who will take on implementation responsibilities.

Still, the immediate realities may very well affect our attempts to see beyond and force us to "adapt" to supposedly "more realistic" scenarios. This has been particularly common in the world of technology and education. The demands of the present as well as the limitations in resources and time keep us from conducting careful analyses of more innovative and still viable technologies and approaches. Frequently, technology investments in education projects have gone astray due to lack of perspective, knowledge, or ability to articulate the immense array of pedagogical, technological, financial, administrative, logistical and even political issues involved in the creation of innovative technology and learning projects. The great issue is no longer simply providing "access" to technology. The real task before us is that of facilitating human appropriation and meaningful use for as many people as possible.

Understanding the context: an unavoidable point of departure

Digital technologies are unique resources with great potential for education and development. Their appropriation, however, involves unique challenges. Some of them are inherent to their specific nature; others are more related to the cultural, social and economic context of the societies and communities in which they will be introduced. It is precisely for this reason, that the following considerations about these technologies and about the ways in which they are being understood, introduced and appropriated are a necessary point of departure.

Avoiding the rear view mirror syndrome

History and experience have taught us that technological innovations are not always easily adopted. As a matter of fact, even after they are introduced and accepted, they are most frequently subject to uses that comply with previous traditions and routines. For some perverse reason initially, their unique and defining contributions are most frequently overlooked. Paul Levinson has pointed out that we look at new technologies "through the rear view mirror", as McLuhan suggested. It is obvious that this tendency has a very negative effect because it distracts us from what is really critical about them.[3] This has most frequently been the case in education. For example, in education settings computers were originally used in ways that specifically attempted to mimic traditional teaching methods. Likewise, the Internet was

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[3] Levinson, P. (2001), "Digital McLuhan: A guide to the information millennium", London, p. 15.

first perceived as a broadcasting system. The very use of the term ICT is an additional example of this reductionist tendency to look back. Information and communication are obviously important elements of the digital world. They are, however, parts of a bigger whole. Interestingly, through a process of "technological synecdoche", the part has come to represent the whole, while at the same time attempting to express something different and more encompassing.[4]

The result has been extremely interesting, and needs to be analysed. In the education and social sector, the use of the term ICT has tended to magnify the importance given to information itself. In many developing countries, most projects have revolved around distribution and delivery of information. In schools, for example, this tendency has resonated very well with the traditional instructional paradigm used in most educational institutions. As a result, the most powerful dimensions of the digital revolution have been excluded. Simulation, hypermedia, virtual reality, telepresence, robotics, digital fabrication, to name only a few, are not taken into account when reductionist ICT views are dominant. Conscious and systematic efforts must be made to overcome this limitation in vision and in practice, if we want to put the full potential of computational and telecommunications power at the service of development and effective capacity building.

Information is not knowledge

Another frequent misconception has to do with the all too common tendency to think that information and knowledge are interchangeable terms. But having access to information does not really mean to have access to knowledge. At the core of the problem is a serious epistemological flaw: the idea that the individual automatically turns data into information and information into knowledge. In reality, this process involves a highly complex and demanding intellectual effort associated to higher levels of analysis, understanding and meaning.[5] In order to be meaningful and useful, information must be provided in a context in which individuals have the capacity and the necessary knowledge to assimilate the data and to relate it to what is personally and socially meaningful. Without it, access itself easily becomes useless.

This is a particularly important consideration that needs to be addressed. The massive development of the Internet and the infinite derivations of the information revolution frequently associated to it, have led many to believe that one of the key priorities of education systems is providing access to

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[4] Synecdoche, according to the *Penguin Dictionary of Literary Terms and Literary Theory,* is a figure of speech in which the part stands for the whole, something that produces the effect of something else being understood within the thing mentioned.
[5] Burton-Jones, A. (1999), "Knowledge Capitalism: Business, Work and Learning in the New Economy", p. 6.

connectivity and to information. As we have seen, information does not automatically lead to knowledge. What is more, the availability of large amounts of information certainly does not lead to higher levels of understanding. It does not assure that what circulates or is retrieved is scientifically sound or socially credible. It is precisely for this reason that some scientists have expressed their concern about the unlimited amounts of information being made available. As Ed Ayres has indicated, "As the avalanche of information gains speed, we are losing our capacity to make distinctions – a capacity that in all animals has proved essential to evolutionary adaptation and survival."[6] The amount of information available does not guarantee, therefore, that people grasp it, find it pertinent or interesting, or that they have the necessary capacity to use it for meeting their needs or enriching their lives.

Infrastructural technologies and the need to add value

There are today still great gaps in general access to technology and every effort should be made to close them. However, it is important to understand that while access is a precondition for participation in the digital age, it is not enough. Meaningful and productive appropriation is what makes a difference. It is, therefore, in this area that we must concentrate all educational and capacity building efforts. Nicholas Carr has suggested that much in extremely direct, though controversial terms: "IT doesn't matter." It is necessary to understand what is behind his observation. "As the power and ubiquity of these technologies have grown," Carr argues, "their strategic importance has diminished."[7] Many technology professionals and development experts were shocked by the statement. But what Carr is really pointing at, is that these technologies have become "infrastructural technologies", just like transportation and electric power. It is not that they have lost importance. They simply have become "invisible" and are today taken for granted. Their competitive and productive contribution depends, rather, on the value that human beings bring to them.

Understanding new technologies, knowing how to use them, having insights about the ways in which we can profit from them in creative ways is what determines their competitive angle and their productive value. This is a key policy issue. One that has direct implications on the ways in which we design and implement projects as well as the approaches we must select to develop certain capacities and skills. Countries cannot wait until all the infrastructure and access are in place everywhere before starting to think

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[6] Ayres, E. (2000), "Blinded", *World Watch.*
[7] Carr, N. (2003), "It Doesn't Matter", *Harvard Business Review,* p. 43.

about fostering the intellectual and creative competencies required to be productive with new technologies.

From routine skills to high-level intellectual competencies

Visionaries, intellectuals, development experts and activists alike insist on the strategic importance of stimulating the higher order thinking and productive skills required by modern societies and production systems. This is certainly a complex and difficult task, especially for less developed communities and countries. It is also one that cannot be bypassed or postponed, no matter how challenging the effort may be, particularly in times which are so fundamentally marked by information and knowledge processes.

Manuel Castells, one of the leading contemporary thinkers on issues of the information age and the knowledge revolution, has made evident that for the first time in history "the human mind is a direct productive force, not simply a decisive element of the production system".[8] This is clearly one of the reasons why it is central to concentrate education and capacity building efforts on the development of talent, thinking skills and creative powers. Today, business, social and academic communities progressively put a strong emphasis on the importance of paying attention to intellectual capacities. Robert Reich, for example, also pointed this out from a somewhat different, but closely related, perspective. 21st century societies, he claimed at the beginning of the 1990s, need growing numbers of "service providers" and "symbolic analysts".[9] They no longer require the routine workers of the industrial age.

Today, productivity and competitiveness are not exclusively related to technological issues. What is crucial is an individual's capacity to add value, to produce, create and innovate with technology. Furthermore, this is true for the most diverse disciplines, industries and fields, from agriculture to space science, to mention just two examples. It is, therefore, critical to be able to launch programmes and initiatives that address these faculties and needs. They are a must not only for industrialised nations, but also for less developed societies because for them the best development strategy is to invest in their people, even if in the first phases of these processes they are not able to produce technological products themselves.

Technology in education programmes: a brief perspective-taking exercise

Over the last two decades few topics have been more controversial in terms of approach, investment and impact than that of technology in education.

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8 Castells, M. (2002), "*La Sociedad Red. La Era de la Información*", Vol. 1, México.
9 Reich, R. (1992), "The Work of Nations: Preparing ourselves for 21th Century Capitalism", New York.

Grasping the potential of new technologies and confronting the challenges associated with their appropriation is fundamental to an understanding of the areas in which innovation is possible and the obstacles that need to be overcome. Precisely for this reason it is important to review, even if briefly, some of the tendencies that over the last two decades have marked the evolution of technology in education projects around the world. It is a useful perspective-taking exercise that clearly shows an important diversity of approaches and tendencies and indicates areas in which change has to be addressed.

Computer-Assisted Instruction (CAI)

The first uses of digital technologies in schools revealed the conception of the computer as a tireless "electronic" teacher, capable of endlessly presenting curricular contents which were followed by exercises which were then generally crowned by quizzing experiences. Within this process, the "learner" was positively or negatively reinforced through different types of images, sounds or interactions. Many of these initial programmes were designed as electronic textbooks. Others were complete instructional programmes designed to support the learning of specific subjects. They were frequently conceived as full curriculum-related instructional systems with modules especially designed to fit the needs of students in different grades or academic levels. This type of programme frequently made educational and government authorities believe that they could substitute machines for teachers, thus saving payroll expenses, the investments in training and follow up, and avoiding the hazards of strikes. These simplistic approaches soon proved inadequate. Older versions of these programmes have practically disappeared. Variations of this traditional instructional approach still remain, although under the cover of seemingly more innovative and attractive multimedia versions. Instructional educational programmes clearly have a strong grounding on tradition and on programmed learning approaches that are basically behavioural in nature. Uprooting these teaching methods as well as their technological counterparts is still an issue.

Computer literacy and job market approaches

Computer literacy programmes have been aimed at the development of job-related skills, in particular ICT-related business and office skills. These "computer classes" which are taught mainly in high schools and community centres, focus on learning to operate "the machine" as well as on acquiring command over commercial computer applications, e.g. word processors, spreadsheets, databases, etc. Most of them have been conceived as task-oriented demonstration courses of commercial software products. As a result, they often have had little or no connection to the participants' personal learning needs or to the cultural or professional contexts in which they oper-

ate. Not infrequently computer literacy approaches have also included computer programming courses oriented to prepare students with the programming skills specifically required by businesses and industries. Vestiges of these approaches still remain. Even learning to use Internet tools and resources is sometimes still addressed with this type of limited techno-centric view in mind which puts the emphasis on the development of technology skills but does not necessarily prepare for effective appropriation and use. Most fortunately, a tendency to introduce changes to this approach is increasingly becoming evident.

Self-directed multimedia instructional resources and content dissemination

The rise of mass production and distribution of personal computers for work, home and school environments led to the production of different types of self-directed instructional software programmes and electronic content materials. All sorts of "learning" programmes were produced: accounting tools for home and office, language learning packages, math drills, sports training, music classes, art collections, health programmes, specialised encyclopaedias, to name only a few. Many of these were made accessible in compact disk (CD) formats through different types of distribution channels: newspapers, magazines, as part of textbooks, in supermarkets, stores, schools and more recently even online. These resources changed the scene of everyday life for many families and businesses. They contributed to the familiarisation of individuals and communities with the new technologies, programmes, resources and tools. Not infrequently, parents exerted pressure on schools and teachers because they wanted their children to become competent in these technologies. They perceived the future to be highly technological and many demanded that schools include interaction with technology as part of a new social and economic requirement. This new reality unfortunately led to well-meaning, but improvised and superficial technology in education implementation processes.

Computer-enhanced learning environments

New visions about school and learning which became particularly strong during the 1990s, as well as more powerful ideas about the ways in which computers can support students' cognitive development, brought about important changes in the ways in which digital technologies were approached for capacity building processes. Project-based learning, building and constructing or exploration and play have become increasingly more popular as entry points for the development of computer skills and intellectual abilities. Some projects privileged programming tools such as "Logo" and "Microworlds". These programming languages were chosen because of the possibility they offer to develop learning situations that make possible problem-solv-

ing, thinking, creative activities for both teachers and students. Learning by doing, learning by debugging or correcting mistakes and collaborative learning were some of the characteristics of these approaches. They sprang from a completely new understanding about the ways in which computers could support learning. In these types of projects, whether they are based on programming tools or on other types of resources, what is central is the educational objective, not the technology itself. The technologies that support these projects are chosen because of their potential to support the learning outcomes expected.

The Internet and its impact on educational projects and policy

The explosive growth of the Internet in the mid 1990s, and particularly the rise of the World Wide Web and multimedia brought into view a new dimension of computers, i.e. that of networking, interactivity, interconnected databases and convergence of different media. Computers had acquired extraordinary potential and possibilities. However, as is often the case with technological innovations, the Internet soon came to be perceived as an extraordinary global distribution and broadcasting channel. Education and social development communities immediately tended to assimilate the Internet as an information and communication technology, that is, as a new way to distribute and obtain information and education contents. Most unfortunately and paradoxically, in many places the traditional instructional paradigm soon came to be empowered. Digital technologies were reduced to their restricted information and communication dimensions. The main focus was placed on downloading and uploading information, and on the creation of content databases and websites to be made available to teachers and students. The development of a pervasive technological infrastructure and the production of local educational or community content came to be perceived as the solution to educational and development dilemmas. The Internet became a global library, a knowledge repository from which children and teachers could draw.

The thrust of telecommunications somehow tended to minimise interest in other powerful uses of computers and of the Internet itself. It rendered them practically invisible. But being connected to the Internet and having access to information and education websites, clearly does not mean that understanding and learning automatically take place. *The Economist* once pointed out, that as the cost of connectivity and computers goes down the real reason why the poor don't have access will become evident: "they lack the skills to exploit it effectively."[10] The true challenge is therefore associated to literacy and intellectual development. It is here that access to the Inter-

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[10] *The Economist (2001),* "What the Internet Cannot Do", August 19.

net is really determined. Still, technology in education projects which were developed during the 1990s and later, seemed to concentrate almost exclusively on the provision of access to the Internet and on the development of Internet-mediated content. Frequently, providing opportunity to be online is the main objective – as if there were no other educationally valuable and powerful offline technology-enriched educational activities to consider. This does not, of course, mean that connectivity is not important.

There is need, however, to reconsider the role of Internet access in educational projects, since this preconception has had an important impact on policy definitions and implementation processes. Not surprisingly, there has been a lack of thought and research on what needs to be in place pedagogically and in terms of design, to be able to make intelligent and effective use of Internet resources in education projects.[11] Not infrequently, portal development has become the leading educational effort, and, at times, even an education reform icon. Having access to curriculum materials and contents, being able to post teacher-generated materials and to allow for teacher exchanges through networks, no doubt can add novelty and interest to otherwise stagnated educational contexts. It does not necessarily guarantee better assimilation and comprehension or even more meaningful and pertinent learning activities.

Virtual and online learning resources and initiatives

Online or virtual learning activities soon became extremely popular applications of technology to educational processes, particularly in academia and continuing education initiatives in business, industry and educational institutions. Some of these programmes are innovative and powerful, though many are just digital versions of analogue proposals and materials imported from traditional distance learning programmes. Many of the old ideas, methodologies and approaches made their way into brand new digital online learning platforms. Clearly, more knowledge, experience and technological understanding were needed to produce really innovative learning environments and tools. One of the great difficulties which these types of projects have encountered is the commonly held idea that technology can make possible

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[11] Concern for the lack of good educational uses of the Internet led universities, development banks and international agencies to launch their own proposals. "Globe" was created by the government of the United States of America to network teachers and students around environmental testing and protection projects. "World Links" was created by the World Bank to stimulate the use of the Internet for curriculum-related purposes. Created by the Stevens Institute of Technology with funding from NSF, "Cyberteacher" ("Ciber@ prendiz in Spanish") reached many schools in the USA and several Latin American countries to improve teaching and learning of maths and science through the analysis of real-time data, experiments and student exchanges with leading scientists and research centres. In recent years, many "schoolnet" projects have developed in all parts of the world, supported by different agencies, governments and corporations. Among these is the Global e-Schools and Communities Initiative (GeSCI) which is being implemented as a UN ICT Task Force project oriented to countries in the developing world. (http://www.gesci.org)

personalised and massively distributed training courses at very low cost. Much has still to be researched and learnt about online mediation, about "visual literacy" and Internet-mediated design and interaction. Online learning environments need to be understood as much more than platforms for distribution of information, content and for exchange and interaction. They have to be seen as virtual spaces in which learning experiences can take place through new resources. There needs to be clear consciousness about the powerful subjective as well as objective dimensions of online experiences and contexts, and about the complex design elements that have to be in place in order to produce innovative and effective virtual or online learning environments.

Corporate educational programmes and projects

The emergence of an educational market for technology products, applications and services has generated important corporate interest and involvement. Furthermore, the slow pace of adoption as well as the extremely reductionist and traditional uses of computers in learning settings have led to the creation of important education and capacity building corporate programmes oriented to elementary, high school and technical education teachers and students. Frequently launched as corporate social responsibility initiatives, these programmes are interestingly not technology-centred. They most frequently focus on linking the use of technology to the curriculum.[12] Corporate educational programmes have generally been implemented through collaborative agreements with governments, academia and non-profit organisations at the local level. These include the provision of equipment, software licensing, training resources, certification opportunities and grants to support innovative ideas. Some of them even provide students and teachers with opportunities to participate in certification processes of competencies obtained. Impact studies for many of these projects are underway. In most cases these programmes have been global in nature and rather intense. They have reached thousands of teachers, students and educational leaders from around the world, thus opening opportunities which particularly in the developing world would otherwise not have been available for poor and marginalised children and youth.

Successes and failures

The last two decades have seen a great variety of technology in education projects and approaches. They have been created with different goals in mind, for diverse populations and within different conceptual frameworks.

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[12] Intel's "Teach to the Future", Microsoft's "Partners in Learning" and Cisco's "Networking Academy" are examples of this type of corporate approach. Sun Microsystems also has an education licensing and training programme.

Their pedagogical and epistemological underpinnings, as well as the views about the use of technological resources have been extremely varied. Many have shown significant progress when analysed in terms of their objectives and impacts. Others have experienced serious difficulties and even failures. Articulating national initiatives that are forward-looking, effective and sustainable is not an easy task. Many investments in developing countries, for example, have been lost due to an inability to adequately link technological demands with pedagogical issues. In general, one could affirm that there has been a clear general tendency to use computers and networks in traditional ways or in somewhat limited capacities. This is a major challenge for industrialised and developing countries alike.

No doubt, there have also been many successful examples which have had powerful educational and socio-economic impacts. These have most frequently been initiatives that devoted considerable time and effort to the definition of educational goals and philosophy as well as to systematic planning, implementation and evaluation. Lessons learnt from these projects and programmes show that they not only introduced systematic thinking and planning, but also continual feedback, review and adaptation of the implementation practice. They provided careful, intense and sustained articulation of technological, pedagogical, financial, administrative and logistical aspects as well as of permanent human resource development. Most frequently, they have also involved active partnerships, contributions and coordination efforts that were carefully put in place and sustained over time in order to be able to realise project goals. Clear vision and leadership have been identified as fundamental.

Technology in education programmes cannot be understood simply as an addition to pre-existing educational initiatives or approaches. As Seymour Papert stated many years ago, computers offer an extraordinary opportunity to rethink learning and education. This will not come about, however, if teachers and educational authorities do not develop an understanding and command of digital technologies. Neither will it take place, if computer experts do not approach learning issues and understand the cognitive dimension involved in education projects.[13] Interaction and dialogue among educators and technology experts needs to take place in a meaningful and transparent manner.

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[13] Conversation between Seymour Papert and students of education and computer science at the University of Costa Rica in San José, Costa Rica, 1988.

Innovating with technology: new approaches to capacity building

The ways in which individual teachers, schools and education systems conceive and implement technology within learning and capacity building frameworks can today be significantly enhanced and amplified. New knowledge about learning and the development of powerful and accessible digital resources open up extraordinary opportunities, particularly when they are integrated into personally meaningful and socially valuable digital creation and productivity experiences. A better understanding of this potential has opened the way for ideas and initiatives which forward-looking practitioners and visionaries have proposed over the last three decades. Many of them had argued against the then prevalent restricted and near-sighted views about the use of computers and networks in educational settings. Seymour Papert was probably the leading voice of a movement committed to rethinking education in the presence of computers. Papert conceived of the computer as the Proteus [14] of machines. As he stated in "Mindstorms", the computer's "essence is its universality, its power to stimulate. Because it can take on a thousand forms and can serve a thousand functions, it can appeal to a thousand tastes." [15] This new vision of the computer brought with it the need to rethink the ways in which computers could be used to foster learning and to create new educational experiences and capacity building environments.

Learning through exploration, construction and design

Computers, Papert explained, allow the teacher and the learner to become engaged in meaningful and real intellectual collaboration. Work within computer programming, simulations, robotics and other forms of open-ended computer environments makes important contributions to the learning process. This contribution is different from anything that had been seen before. In Papert's view, addressing a problem jointly and sharing the experience of solving it makes it possible for the child to learn from an adult "not by doing what the teacher says" but "by doing what the teacher does". [16] What Papert highlights about these learning experiences within specific "microworlds" is that they allow school children to understand with a sense of "completeness" which is rare in ordinary life. The real change in the learning environment that computers make possible is (i) that it allows children to relate what is new to something that they already know and find meaningful; and, (ii) that whatever they create in the process they can use to play or build

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[14] Proteus is a sea god capable of assuming different forms.
[15] Papert, S. (1980), "Mindstorms: Children, Computers and Powerful Ideas", p. viii.
[16] Ibid., p. 115.

with. In sum, the child appropriates skills and knowledge in the course of his or her active involvement in the project at hand.

Learning through expression and play

As Allan Kay indicated many years ago, computers need to be understood as musical instruments, that is, as expressive and creative instruments or media. Likewise, Mitchel Resnick has claimed that computers are and need to be perceived by teachers and students as resources for creation and playful invention. According to him, "the computer is the most extraordinary construction material ever invented", because it enables people to create anything from music videos to scientific simulators and robotic material, greatly expanding what people can create and what they can learn in the process. [17] A naïve or uninformed reader could probably think that these depictions of computational power do not apply to the challenges that children and teachers must face in developing nations or in marginalised sectors of society. How would they, for example, relate to the Millennium Development Goals?

Certainly, approaches such as these could be interpreted as far-fetched, too advanced or even impractical from a development point of view. Paradoxically, this is precisely one of the more powerful resources for working with children from low-income communities. These approaches, by their very nature, address many effective and innovative ways of learning: learning by doing, learning from one's own mistakes, learning in collaborative settings, through exploration, trial and error, through personal involvement in design and production activities. Obviously, this is not an issue of bringing into the picture instances of technological sophistication or "trendy work". It is rather an approach that aims to attain quality and depth of learning as well as to stimulate creativity and innovative capacity. This in turn may very well contribute to cultural and economic growth.

Bridging the cognitive gap: contributions from the science of mind

The tendency to use technology within the context of old and traditional ways of thinking must be overcome. This is a major challenge for developing countries, many of which frequently lag behind on issues of pedagogy and new theories of mind. As is obvious, major transformations in education will not take wing unless they are accompanied by a growing awareness, understanding and application of current knowledge about cognition and its implications for learning and technology appropriation. Teachers and community facilitators in developing nations and marginalised communities need to understand basic principles about learning that they can directly apply to

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[17] Resnick, M. (1998), "Technologies for Lifelong Kindergarten", *Educational Technology Research and Development.*

their work in technology-enabled environments. Knowledge about thinking and creative processes cannot be considered something too academic, intellectual or alien to education; it cannot be considered too abstract or difficult for teachers or community facilitators. Far from adding complexity and difficulty, if properly understood and realised, they contribute ease and effectiveness to the teachers and student's challenges and work.

Technology fluency and capacity building

Capacity building within the context of the knowledge society and the digital world needs to be revisited. It needs to be understood as something richer and more complex than simply acquiring command over machines, technological tools or commercial applications. Obviously, it is much more than computer literacy; it involves developing "technology fluency".[18] It also implies developing new intellectual and creative competencies and skills, as well as, in most cases, having good quality reading and writing skills.

The challenge is both technological and intellectual, and it is a key policy issue. Technology deployment and access are, in and of themselves, not sufficient. They have never been, but today they can even become useless from a development and economic point of view if they are not accompanied by appropriation experiences that allow individuals, groups and communities to develop intellectual and personal command over them so that they can solve problems and create new things. This is something that the developing world needs to understand and act upon in powerful ways. Investments in technology in education projects, however small or limited they may be, need to be conducted in ways that allow countries and educational communities to profit from the thrust of innovation and change. No transformation in skills development will take place if the poor and the marginalised, particularly children and youth, continue to be trapped in rote technological training and in mechanical reading and writing exercises.

Innovative leadership and development of change agents

Leaders and change agents with vision, intellectual capacity and commitment are fundamental in technology adoption and appropriation processes. They play a pivotal role in projects designed to bring about educational change and to develop new competencies through the use of new technological resources and must be identified and stimulated at many different levels. There are those who need to work on general and overarching project or programme design and implementation strategies. There are others who need to concentrate on technical infrastructure, maintenance and support

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[18] Digital or technology fluency is a term initially coined by Seymour Papert and Mitchel Resnick, researchers at the Massachusetts Institute of Technology (MIT) Media Lab.

issues, and others still have to become committed to issues of financial and organisational schemes to make initiatives viable and sustainable over time. Good educational leaders and change agents are also crucial, since they are the ones that finally need to become involved in the design of specific technology-enabled learning and facilitating interventions, as well as in training, follow up and evaluation activities.

Anyone who has participated in capacity building processes that involve intensive use of technology knows very well that learning to use the technology is not as difficult as introducing transformations in the teaching and learning culture and practice of those involved in the process. For this reason, well-designed and carefully implemented strategies must be put in place in order to identify individuals with the characteristics required to contribute precisely in those areas that are considered essential. Openness, flexibility, capacity to adapt, interest in learning, ability to take risks, work in groups and the ability to produce comfortably in contexts of change and uncertainty may be initially more important than technological dexterity per se.

Partnerships for equity, innovation and development
Partnerships play a key role in efforts to adopt, integrate and use technology in education and development projects. They contribute to understanding and appropriation. Furthermore, they stimulate and facilitate the flow of the energy, vision, resources and contacts necessary to launch and sustain these types of innovative projects. The challenges to be addressed – which are manifold and often complex – demand the active participation of universities, non-profit organisations, development banks, cooperation agencies, governments and the private sector at the local, national, regional and global levels. These interactions bring about learning experiences as well as personal and organisational achievements – in addition to generating personal and professional gratification for all collaborators.

Equity and development are of central importance from the point of view of social justice and human rights. They are also essential for poverty eradication and for the attainment of prosperity. Fortunately, equity and access to educational and technological opportunities have stopped being perceived by private sector organisations simply as social interest or philanthropic issues. The digital revolution as well as the demands posed by the knowledge society have made it clear that human resource development is a key element for prosperity and economic growth. For this reason, investments in technology appropriation and human capacity building are as fundamental for the business world as they are for governments or social assistance and development organisations. Furthermore, it is today clear that alliances among sectors have a pivotal role in the establishment of projects and programmes that can foster the type of education and learning environments demanded by the new economies, but

above all, for the construction of more equitable and productive socie-
ties.

Within technology in education projects, multi-stakeholder partner-
ships have played many different roles, including knowledge sharing, inno-
vation and product development. Fortunately, many of them have resulted
in R&D initiatives oriented towards the creation of powerful but low-cost
technology products that may be made available to socio-economically de-
prived individuals, groups and communities. Valuable developments have
taken place in this area, and some of these projects are starting to see the
light under the form of "non-profit companies" which foster the creation of
technologies and services for poor and marginalised people around the
world.[19] Other types of partnerships have also emerged that are making pos-
sible peer-to-peer knowledge and experience sharing, as well as the develop-
ment of learning programmes and capacity building services and materials
for children, youth and teachers in different regions of the world. Many of
them are being created in the south.[20]

Public investment and deliberate interventions

The creation of good learning opportunities that allow lower income, rural
and marginalised groups to benefit from the digital revolution is an issue
that must be tackled through clear and sustained policy definitions and pub-
lic investments. No matter how enthusiastic governments and agencies may
be about the deployment of infrastructure, interventions have to be planned,
understood and implemented based on clear technical criteria and an under-
standing of the cultural, social and political implications that they may have.
Good educational and administrative design is fundamental. It comes as no
surprise that John Chambers, Chief Executive Officer of Cisco Systems, one
of the worlds's leading network equipment companies giants, has insisted
that those technical projects are successful which are accompanied by good
educational opportunities supported by government. Even in the case of the
wealthy and highly developed Silicon Valley in California, Chambers points
out, broadband is not enough. It must be accompanied by intensive and for-
ward looking educational opportunities.[21]

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[19] With the support of the government of Canada, the Institute for Connectivity in the Americas (ICA)
has created E-LINK, a non-profit corporation that aims to bring low-cost satellite connectivity to poor rural
communities and projects at a social interest rate. Under the leadership of Nicholas Negroponte and
Seymour Papert, the MIT recently created a non-profit corporation to launch the $100 Laptop Computer
Project that aims to provide children around the world, particularly in less developed societies, with
a computer for their personal learning and creative needs.
[20] The Innov@ Institute of Learning and Technology is one such project. It has been created by the Omar
Dengo Foundation, a Costa Rican NGO, with the support of the Swiss Agency for Development and
Cooperation (SDC) and the Canadian International Development Research Centre (IDRC).
[21] Chambers, J. (2004), "*American Way*", December 1.

Looking Ahead

No magic wands

There are no magic technological wands to transform education and learning systems. Human development is still what makes the main difference. Digital technologies offer great opportunities, but these will be missed unless we make an effort to conceive and develop new visions, services and products based on the unique potential they offer. They cannot, however, accomplish miracles and do away with poverty or ignorance as some naïve enthusiast of the "connectivity and content" paradigm have heralded. Dealing with information involves having specific intellectual capacities and skills. It is not simply a matter of having access to "informational objects". And these intellectual capacities have to be developed as part of learning processes that are frequently complex and have certain literacy preconditions themselves, a fact which is frequently overlooked by ICT project developers. As Mark Malloch Brown has warned, the belief that technology is "a potion" which can solve the problems of illiteracy, poor health or economic failure, reveals a serious lack of understanding of poverty and of technology itself.[22]

The need to invest in the young

The creation of real and effective digital opportunities and the narrowing of the digital divide in developing countries and in marginalised communities will only be achieved in sustainable ways through the creation of effective and innovative programmes focused on empowering the young. The skills and competencies that need to be in place for the new generations have become greater and more challenging. As has become evident, children in the developing world have extraordinary capacity to appropriate technology in powerful, innovative and sensible ways. Creating programmes to develop intellectual and technology skills for young children and youth is an excellent way to approach the investment of scarce resources. This type of investment can have a mid-range and long-term transformative impact in terms of the development of social change and prosperity.

It is for this reason that the projects presented at the end of this chapter as examples of forward looking initiatives have children and youth as a central core (see pp. 140–143). They show that effective technology experiences in the developing world need to be designed within rich educational, cultural and technological contexts. Children need to learn about science by making science, by becoming involved in the key aspects of the discipline even from a young age. Likewise, they need to experience democracy and learn the

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[22] United Nations (2001), "Human Development Report 2001: Making New Technologies Work for Human Development", New York, Preface.

essentials of deliberation, perspective-taking and consensus building. Youth also need to understand entrepreneurship and develop the skills that allow them to establish and manage a business in effective ways. Children and youth need to have contact with learning experiences that develop their minds and their talent. Technologies can support these processes in unique ways as the examples show. Many of these experiences can be scaled up in order to reach more children and teachers. The main emphasis should be on universal inclusion, and not only on pilot or focalised experiences. Old and outdated "school-type" forms of learning need to give way to more active, exploratory and self-directed learning initiatives. Digital technologies can be extremely rich resources in this transformation process.

Children and youths are natural learners. They appropriate technology with interest, passion and cognitive flexibility when given the chance to interact with it in open and exciting ways. Children are also extraordinary change agents and disseminators. They are capable, persuasive and, when given capacity-building responsibilities, probably even non-threatening to most adults. They can play a key role in allowing marginalised communities to understand new and diverse uses of technology. Furthermore, enriched, creative and intellectually challenging experiences with technology provide them with an opportunity to understand and think as well as to create, make and produce. Children and youth experience the sense of command over technology and the ability to create something new as extraordinarily empowering. Regardless of whether these experiences are school-based and curriculum-related or conducted within informal after-school or community initiatives, children who systematically become involved in personally and socially meaningful technology-enhanced experiences clearly show improvements in self-esteem and self-efficacy that allow them to envision a better future and release the energy and will to realise it.

In order to create these types of technology-enhanced learning environments, we need to understand better how learning takes place and how technologies can support that fundamental human development process. As the principal of one school in which access to this type of experience was provided once said: Children also need "soccer fields for the mind". Computers, as he rightly observed, can be open and challenging environments in which to put the mind to work in problem solving and creative activities. They can provide active and challenging cooperative activities that involve play and discipline, command of technique and capacity to improvise and be creative. They certainly require the ability to learn from one's mistakes and to plan and articulate initiatives individually and in teams. Capacity to create and produce is at the core of economic growth and social development. Promoting these opportunities for the new generations will give a sense of purpose to societies that embark on these processes as well as greater possibilities to overcome poverty, limitation and hopelessness.

Illustrative examples

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

Every Child a Scientist: An ICT-enabled learning experience for Indian children

Type of activity:	Programme
Organisations involved:	M.S. Swaminathan Research Foundation, India
Start – End:	2001 – ongoing
Area covered:	India

Summary description:
- The programme aims to provide children with opportunities to develop their inherent creative and scientific capacities in ways that may allow them to overcome knowledge, skills and technology gaps.
- The programme has created several "Every Child a Scientist Centre" for children in the 7–15 age group. The aim is to give exposure to children from different formal and non-formal education centres.
- Issues of biodiversity, conservation, sustainable use of bio-resources are addressed as well as those related to hygiene and environmental issues.

Key features:
- The children work with computers and multimedia learning materials chosen to make learning a joyful experience.
- School teachers and non-formal educators participate in the choice and development of the content of the curriculum.
- Children explore, play and create with PCs through different types of activities, e.g. experiments, games, interaction with experts, access to websites, etc.

Key success factors:
- Experience of the M.S. Swaminathan Research Foundation in work with children and ICT in different learning contexts.
- Technology is not considered an end in itself but an empowering and capacity building resource.
- Topics addressed are personally and socially meaningful.
- The Foundation makes it a point to explore, study and document the hidden talents that emerge in underprivileged children.

Key Challenges:
- Funding for scaling up.
- Teacher training and sustainability efforts.

Labor@: exploring entrepreneurship and business management through simulated practice firms in Costa Rica

Type of activity: Programme

Organisations involved: Omar Dengo Foundation (ODF), Costa Rica
Ministry of Public Education

Start – End: 2004 – 2006 (pilot phase)

Area covered: Costa Rica with possible extension to other Central American countries

Summary description:
- Labor@ is a high school enrichment programme which allows young students aged 14 to 24 to operate a simulated technology-intensive practice firm.
- The pilot phase of the programme involves 1,800 students from highly rural, semi-urban and full urban settings and institutions around the country.
- The project developed a service centre which provides a simulated context through which students conduct different banking, tax payment, social security, marketing and financial transactions.

Key features:
- The programme combines hands-on and simulated learning environments and experiences.
- Students learn through active participation in different company planning, production, marketing and accounting processes.
- Programme methodology stimulates teamwork, problem solving, creativity and technology fluency. They become involved in entrepreneurship and management activities and develop basic command over productivity tools.
- Role playing experiences allow students to take different management and administrative roles with different levels of complexity and responsibility.

Key success factors:
- Well-developed learning and implementation strategies.
- Ongoing pedagogical, organisational and technological support and follow-up on the part of ODF and the Ministry of Public Education personnel.
- Web-based service platform to support different banking, credit-card, tax payment, social security, accounting and marketing functions.

Key challenges:
- Provision of high quality connectivity needed to access the Labor@ website and service platform.
- Establishing good teams of business teachers and educational informatics facilitators.
- Appropriation of programme philosophy and pedagogical approach.

Costa Rican National Educational Informatics Programme: developing children's cognitive, creative and problem solving skills

Type of activity:	Programme
Organisations involved:	Omar Dengo Foundation (ODF), Costa Rica
	Ministry of Public Education (MPE)
Start – End:	1988 – ongoing
Area covered:	Costa Rica (fully national)

Summary description:
- Joint programme of the Costa Rican Ministry of Public Education and the ODF created in 1988. It reaches 50% of students in elementary schools and 73% of public high school students nationwide. Over 1.5 million students and teachers have benefited over 18 years.
- Development and implementation for the educational informatics curriculum in the Costa Rican public education system.
- Focus on the development of cognitive, creative and problem solving skills as well as on digital fluency.

Key features:
- Children and youth work in computer programming environments with a project-based, collaborative and learning by doing approach during two periods a week.
- Children are stimulated to participate in their own learning processes and to generate their own products within curriculum-related but personally meaningful contexts.

Key success factors:
- Strong teacher development and follow-up processes focused on the creation of technology-mediated learning environments.
- Clear pedagogical focus and organisational support.
- Programme stability and growth based on well-developed educational technological, financial and organisational strategies.
- Programme ownership on the part of teachers, schools and communities.
- Intense and continuous building of multi-stakeholder partnerships.

Key challenges:
- Political changes and transitions between government administrations.
- Financial, technological, organisational and political strategies to maintain growth while at the same time substituting obsolete or inadequate computers and networks.
- Develop with teachers a new vision about their role in a "constructionism" environment.

Telecentres for Street Children: Internet as a tool for life in Latin America

Type of activity:	Project
Organisations involved:	ChasquiNet (Ecuador), Proyecto Salesiano Chicos de la Calle, IDRC (Canada)
Start – End:	2000
Area covered:	Ecuador, Colombia

Summary description:
- The project aims to link through telecentres different communities of poor, marginalised children and youth, that have been forced to adopt street life as a way to survive. The children share common problems such as prostitution, crime and drugs in their daily struggle to survive different types of physical and psychological violence.
- This initiative uses the Internet to help children establish new forms of communication and inform them about opportunities available to them. The telecentres also provide access to different learning opportunities that allow them to look for jobs and develop the self-confidence to take part in other educational programmes and activities.
- The project supports 600 children and youths and provides support to 360 mothers who, likewise, live in social risk conditions.

Key features:
- Development of websites and training programmes in collaboration with organisations that already work with street children.
- Training and development activities for children and youth who have been selected to support the learning experiences of other children.
- Systematic recording of project experience in order to share lessons learnt with other projects and countries in the region. The experience provides important information for teachers, psychologists and other professionals associated to the rehabilitation and education of street children

Key success factors:
- Sharing of experience and lessons learnt as part of planning and imple-mentation processes.
- Children's interest in computers constitute a high motivation factor that opens up opportunities for other types of interventions. Introduction of practical activities so that the children can gain self-confidence.

Key challenges:
- Sustainability of the initiative.
- Avoiding key risks such as access to pornography. Development of con-trol mechanisms that do not stifle children's interest and involvement.

The potential of ICT for promoting Gender Equality

by Natasha Primo

Summary

This chapter[1] examines the issues around the definition of the gender Millennium Development Goals (MDGs), examines how Information and Communication Technologies (ICT) have been used to advance gender equality and women's empowerment to date, and outlines some of the key success factors and remaining challenges for ICT for advancing gender equality work.

- *Gender equality concerns must cross-cut all the MDGs. Gender equality is not achievable if all eight MDGs are not centrally concerned with how women are impacted across the areas governed by the MDGs.*
- *One of the priorities is to take a rights-based approach to the MDGs, and bring the MDGs closer to The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Beijing Platform for Action (BPFA).*
- *Women's access to ICTs is constrained by factors that go beyond issues of technological infrastructure and socio-economic environment. Socially and culturally constructed gender roles and relationships play a cross-cutting role in shaping – often limiting – the capacity of women and men to participate on equal terms in the information society.*
- *There are increasing and strong proponents of the view that poverty will not be eradicated without ICTs, and failure to maximise their potential for poverty reduction in this MDG era would be a gross travesty and waste of resources. By extension, one can argue similarly that gender equality and women's empowerment will not be achieved without ICTs and harnessing and maximising their use for fuelling social transformation processes and practices.*
- *Maximising the potential of ICTs for poverty reduction without situating these efforts within a gender analytical and women's empowerment framework would only further exacerbate poverty.*
- *Women's empowerment is focused on increasing their power to take control over decisions that shape their lives, including access to resources, parti-*

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cipation in decision-making and control over distribution of benefits. For
women who can access and use them, ICT offer many benefits, especially in
terms of reducing poverty, improving governance, overcoming isolation,
and amplifying women's voices.

"Gender equality" and the development agenda:
from CEDAW to the MDGs

"Gender equality and the empowerment of women – MDG 3 – is at the core
of all MDGs, from improving health and fighting disease, to reducing pov-
erty and mitigating hunger, expanding education and lowering child mortal-
ity, increasing access to safe water and ensuring environmental sustainability.
Attempting to achieve the MDGs without promoting gender equality will
both raise the costs and decrease the likelihood of achieving the other
goals." [2]

The Convention on the Elimination of All Forms of Discrimination
Against Women (CEDAW) – also known as the Treaty for the Rights of
Women – is one of the international instruments that comprehensively out-
line the scope and nature of women's human rights, and is the only interna-
tional human rights treaty to detail women's rights. It is often described as
an international "Bill of Rights" for women. Consisting of a preamble and
30 articles, it defines what constitutes discrimination against women and sets
up an agenda for national action to end such discrimination. The Treaty
requires regular progress reports from ratifying countries though it does not
impose any changes in existing laws or require new laws of countries
ratifying the treaty. It lays out models for achieving equality but contains no
enforcement authority.

Historically, CEDAW has been used by feminist activists, women's em-
powerment advocates and women's organisations in conjunction with the
Beijing Platform for Action (BPFA) as the twin pillars for women's human
rights advocacy. The BPFA is the final outcome of the Fourth World Con-
ference on Women held in Beijing, China, in 1995. It obliges governments to
look at its 12 Critical Areas of Concern as priorities for action. Following its
empowering mission, government signatories to the BPFA are to address
barriers and constraints in the 12 Areas. [3]

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[2] United Nations Development Programme (2005), "En Route to Equality: A Gender Review of National
MDG Reports – 2005", Introduction [original emphasis]. (http://www.undp.org/gender/docs/en-route-to-
equality.pdf)
[3] The 12 Critical Areas of Concern are: Women and poverty; Women and education and training; Women
and health; Violence against women; Women and armed conflict; Women and the economy; Women in
power and decision-making; Institutional mechanisms for the advancement of women; Human rights of
women; Women and media; Women and environment; The girl-child.

In September 2000, the United Nations adopted the Millennium Declaration which committed the international community and member states of the UN to the achievement of eight development goals, called the Millennium Development Goals (or MDGs).

The MDGs have come to constitute the overarching framework for development cooperation at the international level. In light of the fact that the MDGs have taken a central place in shaping development policy and practice at national and international levels, human rights activists have had to consider how they might use the MDGs to further the human rights agenda.

Since the Millennium Declaration, there have been numerous analytical papers to compare the MDGs with the provisions and commitments contained in the human rights commitments gained during the last 10 years of women's rights advocacy. The purpose of such analyses is to get a more informed sense of what has been lost – or gained – with the ascent of the MDGs as the principle framework for international and national development discourse and practice.[4]

One of the first major tasks of the international women's movement was to consider the relevance of MDG 3 to women's empowerment and gender equality, and the challenges and opportunities for advancing women's human rights as presented by the MDGs and MDG 3 in particular. Women's rights activists, researchers and women's organisations have been virtually unanimous in noting the limitations of the MDGs for advancing progress towards gender equality:

- Goal 3 – to "promote gender equality and empower women" – has been specified in the narrowest sense with a focus on the target of educational access, to the exclusion of other barriers to gender equality (such as violence against women).
- In their totality, the MDGs do not embrace the vision of the Millennium Declaration of a world where women and men are equal and, instead, are marked by a selection of targets and indicators that are considered gender-blind and wholly inadequate for monitoring progress towards gender equity.
- In a human rights approach, development *process* is as important as *outcome*. The MDGs make no specific reference to human rights and do not reflect a human rights agenda. They do not recognise and include people – and poor women in particular – as key actors in their own development, and ignore human rights principles of *participation and empowerment*

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4 Johnson, R. (2005), "Not a sufficient condition: The limited relevance of the gender MDG to women's progress", Oxfam UK 2005, *Gender and the Millennium Development Goals,* pp. 56–66. (http://publications. oxfam.org.uk/oxfam/add_info_009.asp)

through the meaningful involvement of people in all stages of the development process.

As a way forward, (women's) human rights activists have called for actions to improve on and strengthen the MDGs by harnessing and expanding the goals and indicators so that they are more useful for monitoring women's human rights.[5] One of the priorities is to take a rights-based approach to the MDGs and bring the MDGs closer to CEDAW and the BPFA. Reports by the UN Millennium Project Task Force on Gender Equality, for example, recommended six improvements for MDG 3 – including the right to sexual and reproductive rights for women and girls, as well as a guarantee of an end to violence against women.[6]

ICT: potential tools for poverty reduction and women's empowerment?

ICT are understood to include computers, the rapidly changing communications technologies (including radio, television, mobile telephony and Internet), networking and data processing capabilities, and the software for using the technologies. ICT provide us with the capacity to harness, access and apply information and disseminate knowledge in all kinds of human activities, thus giving rise to the information- or knowledge-based economies and societies. These have the potential to create new types of economic activity and employment opportunities, thereby improving the quality of daily life of those who can access and use the technologies effectively.

While the potential of ICT is well recognised, the benefits of ICTs have been unevenly distributed within and between countries. The term "digital divide" refers to the differences in resources and capabilities to access and effectively utilise ICT for development. The digital divide exists within and between countries, regions, sectors and socio-economic groups, as well as between men and women. This divide is often characterised by low levels of access to technologies. Poverty, illiteracy, lack of computer literacy and language barriers are among the factors impeding access to the ICT infrastructure, especially in developing countries and particularly for women.

Information and communication technologies could give a major boost to the economic, political and social empowerment of women, and the promotion of gender equality. But that potential will only be realised if the gender dimensions of the information society – in terms of users' needs, con-

[5] Sweetman, C. (2005), "Editorial", Oxfam UK 2005, *Gender and the Millennium Development Goals,* pp. 2–8. (http://publications.oxfam.org.uk/oxfam/add_info_009.asp)
[6] Hayes, C. (2005), "Out of the margins: the MDGs through a CEDAW lens ", Oxfam UK 2005, *Gender and the Millennium Development Goals,* pp. 67–7. (http://publications.oxfam.org.uk/oxfam/add_info_009.asp)

ditions of access, policies, applications and regulatory frameworks – are properly understood and adequately addressed by all stakeholders.

However, women's access to ICT is constrained by factors that go beyond issues of technological infrastructure and socio-economic environment. Socially and culturally constructed gender roles and relationships play a cross-cutting role in shaping – often limiting – the capacity of women and men to participate on equal terms in the Information Society.

To date however, the dominant tendency has been to overemphasise and focus on the technology, rather than the people and how they use technology. In practice, it is not information and communications *technologies* that reduce poverty and empower people but, rather, *how* people use ICTs to effect transformations in social, economic and cultural practices that were identified and defined by local communities – including women. There is an erroneous tendency to feature the technology rather than the people as key "change agents". In this process, ICT use is depoliticised as the focus on the successes of technology masks the political, social and economic motives behind such initiatives.

Nevertheless, there are increasing and strong proponents of the view that poverty will not be eradicated without ICTs, and failure to maximise their potential for poverty reduction in this MDG era, would be a gross travesty and waste of resources.[7] The Chennai Statement on Up-scaling Pro-Poor ICT Policies and Practices[8] says:

> *The deployment of ICTs increases the effectiveness and efficiency to reach the MDGs whatever the resources available – mainstreaming ICTs pays off even when budgets are stagnating or shrinking.*

By extension, one can argue similarly that gender equality and women's empowerment will not be achieved without ICTs and harnessing and maximising their use for fuelling social transformation processes and practices. However, maximising the potential of ICT for poverty reduction without situating these efforts within a gender analytical and women's empowerment framework would only further exacerbate poverty.[9]

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[7] Spence, R. (2003), "ICTs for Poverty Reduction: When, Where and How?", International Development Research Center (IDRC), pp. 4–6.
[8] The "Chennai Statement on Up-scaling Pro-Poor ICT Policies and Practices" published online in January 2005 resulted from a workshop held on 17th to 19th November 2004 to review experiences in Asia and Africa on the use of ICTs for poverty reduction. The workshop was organised by the MS Swaminathan Research Foundation (MSSRF) and the Swiss Agency for Development and Cooperation (SDC) in collaboration with the Global Knowledge Partnership (GKP), OneWorld South Asia (OWSA) and the United Nations Development Programme (UNDP).
[9] Many forms of poverty do not originate from a lack of information, but rather as consequences of power relations in society.

Women's organisations and feminist activists have been at pains to illustrate that gender inequality is an underlying cause of poverty. Thus, without specific and concerted attention to eradicate gender inequality and positive efforts to empower women, governments and the international development community will not achieve its MDG poverty reduction targets by 2015. In order to make substantial inroads on the development agenda, gender-aware targets and indicators will need to be developed and applied across all eight MDGs.

WSIS and the development agenda: applying ICT with a gender lens

> *We affirm that development of ICTs provides enormous opportunities for women, who should be an integral part of, and key actors, in the Information Society. We are committed to ensuring that the Information Society enables women's empowerment and their full participation on the basis of equality in all spheres of society and in all decision-making processes. To this end, we should mainstream a gender equality perspective and use ICTs as a tool to that end.* [10]

The inclusion of Paragraph 12 in the Declaration of Principles, signed by heads of states at the World Summit on the Information Society on 12 December 2003, is the culmination of close to ten years of advocacy around ICTs and gender equality. The fact that Paragraph 12 exists in the WSIS Declaration – and that the Plan of Action contains references to actions towards achieving gender equality – is a testament to the successes of the last decade of advocacy and lobbying.

The WSIS Plan of Action contains references to the special needs of women in relation to capacity building (removing the gender barriers to ICT education and training); enabling environment (promotion of participation of women in formulating ICT policies); ICT applications (e-health and e-employment); cultural diversity and identity (strengthening programmes focused on gender-sensitive curricula in formal and non-formal education and media literacy); media (balanced and diverse portrayal); follow-up and evaluation (gender-specific indicators on ICT use and needs should be developed, and measurable performance indicators should be identified to assess the impact of funded ICT projects on the lives of women and girls).

[10] Declaration of Principles, World Summit on the Information Society 2003, par. 12.

Gender equality and women's empowerment through ICT: evaluating the practice [11]

Where the gender dimensions of ICT – in terms of access, use, employment and potential for empowerment – are explicitly identified and addressed, ICT can be a powerful catalyst for political and social empowerment of women, and the promotion of gender equality.

Women's empowerment is focused on increasing their power to take control over decisions that shape their lives, including access to resources, participation in decision-making and control over distribution of benefits. For women who can access and use them, ICT offer many benefits, especially in terms of reducing poverty, improving governance, overcoming isolation and providing a voice.

What impact have ICTs had on advancing gender equality and reducing poverty? The answer to that question is tied to the understanding of the dimensions of gender inequality and the various ways, extents and angles through which women experience disadvantage, discrimination and poverty.

Unfortunately, these questions cannot be addressed adequately in the context of this publication, more so as there is no definitive response that holds true for all contexts, across geographies and across time. Naila Kabeer's 2003 report [12] on "Gender Mainstreaming in Poverty Eradication and the Millennium Development Goals" speaks about a "geography of gender" and shows how different power structures and roles for women and men set different frameworks for women's living conditions and their chances of breaking out of poverty. [13] The underlying causes of gender inequality are multifarious and context-specific. Mapping gendered contexts (geographies of gender) is an important pre-cursor to understanding which strategies will best address women's poverty and gender inequality in a specific context. In short, before measuring impact one has to start with an analysis – involving women and men in a specific context – of how they define their poverty and the specific dimensions that gender inequality hold for them.

During a 2004 research project to assess the impact of ICTs on poverty reduction, the researchers found that women defined their poverty by reference to different dimensions of gender inequality. It is instructive that poor women who participated in this study described poverty in terms of gender inequality:

[11] Ramilo, C.G. (2005), "Women2000 and Beyond", UNDAW (forthcoming).
[12] Kabeer, N. (2003), "Gender Mainstreaming in Poverty Eradication and the Millennium Development Goals".
[13] The Ministry of Foreign Affairs (2004), "Power and Privileges: On Gender Discrimination and Poverty", p. 31–34. (http://www.sweden.gov.se/sb/d/574/a/41169)

- "Limited opportunities for women to explore their talents is poverty."
- "Living without a husband in a young age and depending on sister and brothers for everything, denial of participating in public functions and any good event, always having fear in the mind, how to talk, how to laugh … and not having courage to overcome all these can be called poverty."[14]

In this section, we provide a select overview of how ICTs have been used for gender equality and women's empowerment in different sphere of women and girls lives, together with some suggestions of the impact this has had in the local contexts.

Enabling women's economic empowerment

ICT interventions that are directed at economically empowering women capitalise on the potential of these technologies as knowledge and networking tools for women as producers and distributors of goods. The tools are used to connect women to new and wider markets, broaden their social networks and provide them with information that opens up important economic opportunities.

Among others, ICT can provide new opportunities for women's economic empowerment by:

- Creating business and employment opportunities for women as owners and managers of ICT-accessed projects, as well as employees of new business ventures;
- Developing ICT-based tools that address women's specific needs and that are run by women (e.g., literacy programmes, business planning courses, ICT training, access to market and trading information services and e-commerce initiatives);
- Offering economic opportunities in salaried employment and entrepreneurship, as well as in the ICT sector itself and in ICT-enabled jobs.

Beyond generating new jobs for women, ICT are being used in projects that address other gender and development issues related to poverty reduction. For instance, projects in South-Asia that focused specifically on income generating activities and direct employment benefits for women created spaces for information exchange, provided support networks and developed a

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14 Slater, D. and Tacchi, J. (2004), "Research: ICT Innovations for Poverty Reduction", Unesco.

range of interrelated social, technical and economic skills. Participants acquired the confidence for autonomous activity that made a significant contribution to their empowerment. [15]

Although ICT have not yet had significant impact on creating employment and generating income for very poor and marginalised women, there is potential through increasing their engagement with ICT to expand social networks and introduce new modes of learning which can play a key role in overcoming poverty in the future.

Enabling women's socio-economic empowerment

ICT provide opportunities in health, education and other socio-economic areas.

Education: Education is an area where both developed and developing countries are applying a combination of traditional and new ICT, adapting the use of computers and the Internet, radio and television and satellites, among others, in formal and informal learning, open and distance education and in establishing e-learning centres – to support education and training of women and girls.

Women and girl's high illiteracy rates and the lack of ICT training are two of the most serious barriers that prevent them from entering the information economy. Continuing gender gaps in education – relating to girls' domestic responsibilities, lack of mobility and socio-cultural practices that downplay the importance of education of girls – constitute enormous challenges for women and girls. [16] Language and basic computer literacy are prerequisites for women and girls to benefit from the use of ICT for education. The traditional under-representation of females (in relation to males) in science and technology adds to the gender differences in this field.

In many developing countries, computers are being introduced in schools as a tool to support the learning process. Research has shown that classrooms are not free from gender bias. Hence, gender-sensitive planning of ICT interventions is a precondition to ensure equal access and effective use by girl learners of computers in the classroom environment.

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[15] Primo, N. (2003), "Gender Issues in the Information Society", Unesco, p. 37–38.
[16] Ibid., p. 23.

ICT for education in African countries

World Links, an organisation that promotes international tele-collaboration among secondary school teachers and students in developing countries, commissioned a gender assessment study in 2001. The research focused on male and female students in four African countries: Senegal, Mauritania, Uganda and Ghana. The evaluation found that despite efforts to make the programme gender-sensitive, gender inequalities in access persisted. In some schools in Uganda and Ghana, girls do not enjoy equitable access to the computer labs. High student-to-computer ratios and first come, first serve policies do not favour girls who are typically heavily outnumbered by boys at the secondary level. Girls have earlier curfew hours and domestic responsibilities that limit their access time. Proposed corrective measures to correct this gender bias included encouraging schools to develop "fair use" policies in computer labs, conducting gender sensitivity sessions and advocating for reducing after-school duties of girls to give them more time.

(Sources: http://www.bridge.ids.ac.uk/reports/CEP-ICTs-OR.pdf; Tinio, V. (2003), "ICT in Education", e-ASEAN Taskforce and UNDP-APDIP)

Improving functional literacy: Initiatives that focus on educating women in poor communities and teaching them computer literacy have demonstrated the value of ICT for women. A study of nine projects with a specific focus on women and youth in South Asia showed that ICT use is valued for providing a different model of teaching and learning which is practical, functional and hands-on. New ICTs also allow the process and content of education to be determined by learner preferences and priorities, thus opening up possibilities for designing and providing education in forms that are locally relevant.[17]

Enabling women's political empowerment

People all over the world are using new technologies in unprecedented ways for networking, movement building, political participation and advocacy. Women and their organisations have pioneered and continue to innovate around strategic and empowering uses of ICT to promote women's rights. The Fourth World Conference on Women in 1995 and the five- and ten-year reviews of the implementation of the *Beijing Platform for Action* in 2000 and 2005 led to massive networking and mobilisation of the international women's movement through ICT.

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[17] Slater D. and Tacchi J., "ICT Innovations", p. 89.

Within the context of increasing monopolies in the communications sector, women's media and communications networks are taking full advantage of new technologies to amplify voices of the marginalised as well as advocating for peoples' right to the airwaves. The changing nature and structures of the media brought about by the emergence of ICT has facilitated the establishment of alternative media organisations, and NGOs cover issues that are not given adequate attention by the mainstream media. Such alternative media organisations reach out to large sections of the population that are not served by the mainstream media. The Internet has brought women's news and views into the public domain, with countless websites targeted specifically, if not exclusively, at women.

Information technologies can contribute as tools to increase women's networking for social and political advocacy, to strengthen women's participation in the political process, to improve the performance of elected women officials, to improve women's access to government and its services.

Women Mayors' Link: connecting local governance, ICT and gender

Women Mayors' Link is an initiative developed in 12 countries and territories of the Stability Pact Region with the Equal Opportunities for Women Foundation as the lead organisation. The direct beneficiaries are fifty women mayors from Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR of Macedonia, Greece, Hungary, Kosovo, Moldova, Romania, Serbia and Montenegro, Slovenia. One of the main aims was to promote the use of ICT among members to improve local and community governance, and to promote gender issues within constituencies. All the women mayors recognised the importance of ICT in local governance. Half had developed strategies on ICT in local government institutions and agencies and 64 percent had specialised departments dealing with Internet, e-mail and network issues. The fact that 90 per cent of the project was implemented by e-mail and the Internet increased the level of confidence and satisfaction of the women mayors in using ICT. The initiative has been successful in promoting networking among women mayors in the region. Despite the gains made, however, WML members still face challenges in effective and strategic use of ICT for their work. Almost half of the women mayors had problems related to the costs of Internet connections. Language is another barrier faced as the majority of the women in the network have beginner-level English skills, and there is a lack of relevant content in their native languages.

(Source: Association for Progressive Communications' Women's Networking Support Programme, APC WNSP)

Lessons learnt: critical success factors or challenges in applying ICT for gender equality

Experiences of implementing ICT for development, and specifically for promoting gender equality, is varied and context specific. Nevertheless, there are some factors – both challenges and success factors – that occur from across contexts. The main lessons can be summarised as follows:

Success factors

- Having women as ICT trainers, being aware of the potential barriers that women and girl learners face in relation to technology, and accommodating these issues into the training methodology generates the best learning outcomes for women learners.
- Providing women- or girl-only spaces – backed up with gender-friendly usage policies and guidelines – in schools and public access points creates safe spaces where women and girl learners can work best.
- Involving local women and girls in content development around their own issues and information needs – turning women and girls into content producers rather than consumers only – provides a stronger motivation for them to continue using and benefiting from ICT. As long as women see a change in their livelihoods, they will be more likely to continue engaging with the initiative and the technology.

Challenges

- Public ICT access points must consider and respond positively to the workloads and domestic responsibilities of women users, by providing women access to ICT facilities during the hours when they are most likely to have "free" time. A positive response to the impact of resource – like time and money – and cultural practice constraints will demand strategic thinking about how to build alliances and local community buy-in and support for gender-aware ICT project implementation.
- In developing country contexts, potential rural women trainees/users are more likely to be non-literate with no prior experience of technology usage, not likely to speak a major international languages and will be severely challenged to source content that speaks to their personal and community priorities and needs.
- There is need to build understanding of ICT as a global and national public good that the public should have access to, and motivate local women and women's organisations to join advocacy efforts for gender-aware ICT policy that supports affordable, accessible and available ICT infrastructure for women and girls.

Illustrative examples

More information on the illustrative examples as well as information on additional activities can be found at http://www.globalknowledge.org

Pallitathya Mobile Help-Line: helping women help themselves in Bangladesh

Type of activity: Programme
Organisations involved: Global Knowledge Partnership (GKP)
Start – End: Programme launched in 2003 – ongoing
Area covered: Bangladesh

Summary description:
Pallitathya is an innovative Mobile Help-Line programme via cell phones for underprivileged women in rural Bangladesh. The Pallitathya Help-Line Centre was initiated in response to a community assessment that showed that lack of timely and relevant information is a leading factor in the exploitation of the underprivileged, particularly women. The Help-Line deploys women in the community as "Mobile Operator Ladies" who move from door-to-door to enable other women – mostly housewives – to ask questions via a mobile phone. At the other end of the line, a Help-Desk operator responds to the women's queries with the use of a database-driven software application and the Internet.

Key success factors:
- The Help-Line delivers information related to livelihood, agriculture, health and legal rights, and leads to improved self-assessment by the women, increased income and better decision-making power.
- Through partnerships with government, NGOs and others, the programme expands the knowledge base of the Help-Desk.

Key challenges:
The project is addressing economic empowerment of women which has been defined as a key factor in overcoming chronic poverty. It is faced with a difficult task, i.e. to define techniques and applications to help overcome marginalisation and oppressive social norms. The goal is to provide choices and opportunities for women and enable them to acquire the voice and capability to counter their lack of socio-economic-political power in the community. It is rooted in the argumentation behind the MDGs about women's health and education that need to be focal areas given attention, and in the fact that no less than three of the eight MDGs speak directly to women and their needs.

Gender Evaluation Methodology (GEM): assessing the impact of ICT4D projects on women's lives

Type of activity:	Programme
Organisations involved:	The Association for Progressive Communications Women's Networking Support Programme (APC WNSP)
Start – End:	2001 – ongoing
Area covered:	international

Summary description:

GEM is a tool for conducting gender evaluations of initiatives that use ICT for social change. It helps to assess, if ICTs really improve women's lives and gender relations as well as promote positive change at the individual, institutional, community and broader society levels. The tool was tested in Africa, Asia, Central and Eastern Europe, and Latin America by its application within a variety of projects and initiatives.

Key features:
- GEM is a free online and downloadable guide (www.apcwomen.org/gem).
- The GEM Practitioners Network connects individuals and organisations with the aim to enhance GEM expertise, share knowledge among GEM users and build partnerships in order to promote gender accountability in global, regional, national and local ICT policies and initiatives. APC WNSP also assists organisations and institutions to conduct their gender and ICT evaluations.

Key success factors:
- The greatest value of the GEM Tool is that it is derived from actual practice of using it. The latest version of GEM went through a substantial period of gathering and culling lessons and experiences from several and diverse ICT projects and initiatives. It is an evolving guide.
- GEM draws from existing experiences in gender analysis and builds on literature, experience and practice.
- The tool was piloted and applied and the process of evaluation itself was analysed, which helped to illustrate the importance and potential impact of evaluation from a gender perspective on organisations' work and strategies.

Key challenges:
- The greatest challenge lies in building capacity within the ICT4D "community" and framework to effectively integrate gender considerations in a consistent and sustainable way so that gender is addressed in depth.

Field report from Uganda

"How will it help Veronica …?"

by Rich Fuchs

Summary [1]

Many African countries have made tremendous progress in embracing the Information Society. Uganda is among these. In less than a decade it has managed to re-engineer its ICT policies, programmes and people to be among the most imaginative and innovative in all of Africa. It has taken the "gradualist" approach to the introduction of competition. But its relatively new independent regulator, the Uganda Communications Commission, has been dynamic and forward-looking, creating the opportunity for tremendous innovation in the public, NGO and private sectors.

ICT in development has never been about technology. They're about people, their commitment and the institutions they lead to create and stabilise Information Society friendly change. This "day in the life" story that follows is about some of those Uganda people and institutions involved in this live, realtime, process of innovation. [2]

[1] Because we were so impressed by what we learned in Rakai, Uganda, and by the midwife, Veronica, we began to reality-check the subsequent ideas that were offered for future progress with the question "How will it help Veronica?"

[2] My colleagues in the NGO Satellife have provided technical assistance to our Ugandan collaborators over the last two years with assistance from IDRC's Connectivity Africa and Acacia programmes.

People want to be part of something bigger than themselves…What else are we going to be remembered for, our generation? … We will be remembered for 3 things right now. The Internet, the war against terror and what we did or didn't do about this glorious continent of Africa and its travails.

Bono, World Economic Forum 2005

"How will it help Veronica?"

Veronica is an early 30-something midwife. Her smile brightens the room. Her spirit enlarges it. She lives in the Rakai District in Southern Uganda. Hers is a "Level 2" health clinic, or among the most rural in this region of 1.5 million people. As the senior medical officer supervising five other people, her clinic has no electricity, no running water and, until recently, no communication with the outside world. There are no newspapers, ever! In fact, for the entire district, only twenty copies of the government-controlled popular daily tabloid, "New Vision", come to just a few of the local leaders each week. GSM telephony is now possible, thanks to the Uganda Communications Commission Universal Service Rural Access Fund, but hardly anyone in Veronica's community owns a cell phone.

Twice a week Veronica travels seven kilometres, either by foot or cycle, to charge the battery of her Palm Pilot (PDA, Personal Digital Assistant). It's a colour version. It fits in her hand like a soft, leather glove. She sits the three of us down right across from the rough-hewn wooden clinic reception table, looks us straight in the eye and testifies.

Veronica uses her PDA for three principal purposes. First, she can periodically travel even further afield to the wireless router that stores the surveillance report for the entire district. If there is an outbreak of measles somewhere else in the district she'll learn of it before it comes to her community. Then she can return and advise people how to prevent the illness that's nearby.

Equally, if her own report shows a local rise in cholera, the district will review her data and send medications and specialist assistance to help out. It used to take six months before the district would respond to this type of distress message, if at all. Only 20% of her previous paper reports made it to the district office because they would get lost or despoiled by weather en route. Now more than 90% of her reports get where they need to go.

A certified midwife, Veronica isn't a nurse but the local people call her "doctor". She is expected to know how to treat all sorts of illnesses, not just help families deliver their newborns. From the medical downloads to her PDA, Veronica learns how to diagnose and treat common illnesses, which weren't part of her medical training.

Just as important, Veronica gets news from Kampala and the world downloaded to her PDA. People come to the clinic to take turns reading the news on her Palm Pilot. She has to be careful about how she manages this. If too many people want to read from it, the battery will be exhausted even faster forcing her to make even more frequent trips to recharge the battery. A simple $40 solar charger would fix that.

My colleague, a similarly bright and energetic Kenyan woman, asks her: "Veronica, what would you say if we had to take away your PDA? What would you do then?" Steely eyed, but smiling, Veronica responds: "I need a solar charger!"

"They've even factored new computers into the district budgets!"

Dr. Robert Mayanja is proud, driven and ambitious. He's the District Director for Rakai. The 600 health care workers, located in 60 clinics, are all his responsibility. Uganda is in its eighth year of decentralised local service delivery, including healthcare. At first, it was only the problems that were decentralised. Now the money is actually being transferred to the rural districts and managed by locally elected officials, not the public servants in Kampala.

Dr. Mayanja gives us a briefing on healthcare in the district and how the PDAs have made an important difference locally. He's proud that "every clinic in Rakai has a computer in it". He tells us how, in just their second year of experimenting with this new system, they've already prevented an epidemic of malaria. Their, now timely, disease-surveillance reporting helped them identify an increase in malaria in a district close to one of the many lakes in the region. They telephoned Kampala and five drums of chemical spray were delivered, helping people to make their clay and brick homes less attractive to the malaria bearing mosquitoes.

We go for the walkabout in the district offices. Boxes of medical pharmaceuticals line the corridors and the offices. "We'll run out of medication by September," he mentions matter-of-factly. The local tech support stops me in front of the communications router the project uses. It can "read" WiFi, GSM and infrared. He encourages me to receive a "beam" on my three year old PDA. Today's content includes several articles from today's "New Vision" newspaper. There's web content there as well. I beam it all across including the material from the IDRC@WSIS website. He smiles when I take note that it's there. Not especially useful for Veronica or Dr. Mayanja but he's demonstrated his technical virtuosity and marketing savvy.

Dr. Mayanja wants a supervisor to help with the new system. And the supervisor will need a motorcycle. He's not emphatic about this. He's persistent but not insistent. He claims proudly that HIV/AIDS in the district has fallen from 44 to 14%.

Jocko sex!

Today is Budget Day in Uganda. By law, all 128 District Councils must submit their decentralised budgets to the Ministry of Finance on Budget Day. While they receive an indication of the total budget numbers in advance, the elected officials all over Uganda must sit in caucus all day to finalise their budget details. 25+ elected and appointed officials sit around the ebony board room table. One has a laptop opened in front of him. The Chairman of the Council greets us warmly in a booming voice that only politicians and auctioneers can master.

He was elected for the first time three years ago. He'll run again for another term next year. He was interviewed in the "New Vision". Other districts want to know how Rakai arranged to get all these computers for their health clinics. He thinks the computers will help him get elected for another term, which will be his last. He apologises that he can't spend more time with us because of Budget Day. As he concludes he reminds us, as he does in every encounter: "Be sure if you have jocko sex while you're in Uganda that you use a condom!"

Dr. Mayanja assures us the Chairman will win another term of office. He explains that healthcare is the principal service Local Districts provide. People know whether or not there's enough medication to treat their illnesses.

"We're already there!"

It's 5 AM. We've just flown a 2½ hour overnight flight from Addis to Entebbe and then another hour by car to Kampala in a wild lightning and torrential rainstorm. The wind and rain hit just after we landed. All the flights that are supposed to arrive immediately after us get routed to Nairobi. We're not staying at the Sheraton until tomorrow night but they generously allow us to use the fitness centre for a shower and change of clothes. The long night's flight and the stress of the taxi navigating the storm hang on us like a wet towel. We'll be going to Rakai later that day.

Because of the early morning flight we haven't slept for 24 hours. Our first meeting of the day is at 8 AM. Makerere University was once considered Africa's finest black university. A quarter century of Idi Amin and Milton Obote, followed by the ravages of HIV/AIDS in the professional classes of Uganda, have despoiled that reality and reputation.

Dr. Nelson Sewankambo is one of the reasons Makerere is headed back to its former celebrity. As Dean of the Medical School and Chairman of Uganda Chartered HealthNet, he is indefatigable. His greying temples, peppered short-cut black hair and perfect fitting grey suit help you know he was always meant to be a medical doctor. He's comfortable in his suit and his skin.

Our hour-long engagement with him and his HealthNet colleagues enlivens our fatigued spirits. He uses our time together to question, add value to conversation and draw everyone in the room into the discussion. He's off to

London for a conference that afternoon and apologises that he can't join us on our rural mission that awaits us. Dr. Edison, a Pediatrician and Vice-Chair of Uganda Chartered HealthNet, accompanies us throughout our visit instead.

As we close I comment: "The University of Florida Medical School has started giving PDAs to all its medical students. Did you ever consider doing that at Makerere?" Modestly and without impatience he responds. "We're already on it. We've given PDAs to 200 medical students already. And we'll continue to do it for as long as we can get them donated."

Before departing we stop by the HealthNet office located in the Medical School building. It's right behind what can only be called a medical telecentre consisting of 18 desktop computers connected to the university's 1 GHZ LAN. Most medical students and faculty can't afford their own computers either at home or in their offices. They convene at the HealthNet telecentre to do their mail, web searching and research. There is so much demand they have to limit each user to an allotted amount of time.

Ernest, the smiling senior tech, assures us that no pornography or music downloads are allowed. His smile widens when I imagine out loud that health related music downloads must surely be permitted.

The 12% setback

I've known Patrick Masambu since I first met him in 1997. He was the Managing Director of the state owned Uganda Post and Telecoms Ltd (UPTL). But he was about to change jobs at that very time. Patrick would assume a new post as Executive Director of the Uganda Communications Commission (UCC), the country's first-ever independent telecom regulator.

In my first visit to Uganda, almost a decade ago, I was a consultant helping with site selection and planning for East Africa's first Multi-purpose Community Telecentre. It came to be located in Nakaseke, a 90 minute ride North from Kampala. In my interactions with the Uganda telecom at the time, they hadn't realised that the manually operated switch in the community hadn't actually operated for more than a decade. The single copper telephone line that had earlier served the community was taken down to help local farmers tie their plantain onto bicycles so they could get them to the market.

Eight years later and UCC owns it's own twelve storey building right smack in the middle of downtown Kampala. Through the tremendously successful Universal Service fund, mobile telecom operators have to invest 1% of gross revenue into a fund to support pre-market rural GSM access. Our agency had helped UCC finance the research to establish the policy for the Fund. The World Bank invested an additional $11 million to broaden the Fund's impact. This is among Africa's most successful transitions from state run telephony to a gradually competitive market with independent regulator. Quite a success story in itself.

Because of this, Uganda arguably has the highest penetration of mobile telephony in all of Africa. Dr. Mayanja and his rural health information innovators in Rakai wouldn't be possible without the pervasive access to GSM that UCC's policies and Patrick Masambu's leadership has enabled.

The next step in the Universal Service rollout is for 32 new Internet access points to be established in rural areas, including wireless data access within a 10-mile radius of each of these. Additionally, UCC will establish a proposal-call for Multi-purpose Community Telecentres in 20 of these locations. Even the Post Office is getting into the act with 20 new "Postal Telecentres". Additionally, UCC is to commission a feasibility study for a fibre-optic link around the country. All of this in less than a decade.

Patrick Masumbu is ever the soft-spoken gentleman with a perfect clip to his use of the English language. But he'd never met the other Patrick, Dr. Okello, before and hadn't heard about Uganda Chartered HealthNet. He's most interested to learn more about it and to visit Rakai. More, much more we expect, will come of this.

But today's news isn't good. Yesterday was Budget Day. The Government announced a 12% surtax on mobile telephone access. The President is quoted as saying "if you can afford a cell phone, you can afford to pay the tax!". Tell that to Dr. Mayanja and Veronica in Rakai! The officials at Uganda Communications Commission seem disappointed yet undeterred.

The DG at HQ

There had been considerable flutter in our pre-mission communications about whether or not we would get to have a meeting with the Director General (DG) of the Ministry of Health. This was seen to be something of a make or break element of our visit. On the last day of our time there, as we are driving to the as-yet-unconfirmed 9 AM meeting with the DG, his office calls our host, Dr. Patrick Okello. They advise that our meeting can be confirmed for 2:30 that afternoon. Dr. Okello smiles.

Our meeting with the Director General lasts 30 minutes longer that was planned. This is generally good news but I'm uncertain if that general principle applies in this instance. His advisors have indicated that they think the PDA technology is worthwhile but that the communications router, or "Jack", is an obsolete technology. A "down to business" fellow, the DG also wonders why the project needs to have someone in the region to "supervise" it? How can that possibly be sustainable, he states in a manner that turns a question into a fact.

The Chairperson of the Government Telemedicine Policy Committee is in the meeting too – an Anaesthesiologist, she sits on the Board of Uganda Chartered HealthNet but she seems critical of the project. Both she and the DG remind us that there is a government-wide and a Health Sector ICT

policy. Accordingly, HealthNet's activities should fall within that context. We ask for a copy of the Health sector ICT policy. She informs us that it's still in draft form, hasn't been approved by the government. The DG encourages her to give us the draft copy anyway. It feels like we're the beneficiary of when one parent encourages the other to be more lenient with the children.

The DG indicates what elements of health reform our HealthNet friends should pursue. He agrees that an MOU should be signed between his Ministry and the NGO. Several times he mentions how dealing with donors is like playing with a jigsaw puzzle. He wants to know how much our organisation is prepared to spend on "scaling up" the project to Uganda's 126 other districts. Good question. How will this get paid for? Who will finance it? We agree, at his suggestion, that we might be able to help support the cost research for the new Health Sector ICT policy once it is made public.

Bursting at the seams

Our HealthNet friends in Uganda have grown from an idea to a successful, real-life and rural health IT innovation in less than three years. Despite the Health Ministry's recalcitrance, there's growing interest from all over the continent in what is being accomplished. The World Health Organisation has a $100 million fund to rollout ARV (antiretroviral) services and it needs a monitoring system. The HealthNet system is ideally suited for this.

The Rwandan government has already contracted HealthNet to test their system as a real-time monitoring system for national elections. Caesar, one of the HealthNet staff, has just returned from Ethiopia where they piloted the system in the health sector. We've supported a South African group to pilot the same technology in the treatment of HIV/AIDS.

In the Ugandan setting, the HealthNet team is a bit "Kampala heavy" and there aren't nearly enough women working within the team. For an African grow-out they very much need a strategic focus and a plan. Their Managing Director, Dr. Okello, is young, highly motivated and sufficiently impatient with big systems to lead me to think that Africa, and not just Uganda, should be their focus.

And they've had setbacks. Their technology needed to be considerably tweaked to get to where they are now. The manufacturer of the "switch and router" for the project has decided to change directions. They want to sell their technology to help Europeans upload digital photos rather than service Africans delivering health care. They've had other local administrative and operational hurdles to overcome as well. All stuff that can set a weak, unmotivated team back. Dr. Patrick Okello isn't going to let that happen and neither is the Dean of the Medical School at the University.

We depart thinking that we've experienced something very special: a snapshot of African innovation in the face of all the reasons why it shouldn't work.

Annex

Note on contributors

Rinalia Abdul Rahim is Executive Director of the Global Knowledge Partnership (GKP), the world's first global multi-stakeholder network of commercial, public and civil society organisations active in using Information and Communication Technologies (ICT) for development. She established the GKP Secretariat in Kuala Lumpur in 2001, and currently heads its operations and provides leadership and strategic guidance. She is currently an ex-officio member of the GKP Executive Committee and served as a member of the International Advisory Panel for the 2003 World Summit on the Information Society's ICT4D Platform. Rinalia began her career as a policy technologist in 1997 with the National Information Technology Council (NITC) of Malaysia, the primary advisor and consultant to the Malaysian Government on matters pertaining to ICT for national development. At NITC she was entrusted with managing the Council's Governance Agenda portfolio and has represented the nation at many international meetings and conferences. She has a Master in Public Policy from Harvard University's John F. Kennedy School of Government and a Bachelor of Arts in Political Science from Princeton University.

James Deane is Managing Director of the Communication for Social Change Consortium, which develops communication strategies which enable those living in poverty to make their voices heard and improve their lives. He is a founder and former Director of the Panos Institute, London, which works globally with the media to generate public debate on development issues. He has written numerous papers and publications on telecommunication, media and other communication issues as well as on HIV/AIDS, PRSPs and other development issues. He speaks regularly to international audiences and has organised many international and national seminars, conferences and training events related to media and communication for development. He was the organiser of the Global Media Forum at the Global Knowledge conference in Malaysia in 2000, the convenor of the Bellagio Symposium on Media, Freedom and Poverty, and the Bellagio Symposium on Communication and the Millennium Development Goals (both in 2004) as well as numerous other similar events. He has provided formal strategic advice and consultancies to Dfid, Danida, Sida, the World Bank, WHO, Unicef, Unesco, UNDP, UNFPA, FAO among other agencies on me-

dia and communication for development. He has been a visiting fellow at the London School of Economics and has a Masters degree in international communication and development.

Anriette Esterhuysen is Executive Director of the Association for Progressive Communications (APC), an international network of organisations focusing on the use of information and communication technologies by civil society for social justice and development. She started working with ICTs in Southern Africa in the late 1980s as a political and information activist. From 1993 to 2000 she was Executive Director of SANGONeT, an electronic information and communications service provider for the development sector in South Africa. She is also a founder of Women'sNet in South Africa and served on the first African Technical Advisory Committee of the Economic Commission for Africa's African Information Society Initiative. Currently Anriette Esterhuysen is a member of the United Nations ICT Task Force and of the executive committee of the Global Knowledge Partnership (GKP). She also serves on the boards of two African organisations: Isis Women's International Cross Cultural Exchange and Ungana Afrika.

Clotilde Fonseca is Executive Director of the Omar Dengo Foundation (ODF) and has been working in technology and education for over 18 years. She served as Executive President of the Costa Rican Social Assistant Institute (IMAS) and was the founding Director of the Costa Rican Computers in Education Program, a joint ODF and Ministry of Public Education initiative that benefits over 1.5 million children, youths and teachers. Clotilde Fonseca is Vice Chair of the Global Knowledge Partnership (GKP) and member of the Hemispheric Advisory Board of the Institute of Connectivity of the Americas. She is also part of the Technical Advisory Group to the DOT.COM Alliance. She is the author of "Computers in Costa Rican Schools: From an Idea to a National Program" and of numerous articles dealing with education, technology and development. She holds a Master in Public Administration from Harvard University.

Rich Fuchs has been Director of Information and Communication Technologies for Development (ICT4D) at Canada's International Development Research Centre (IDRC) for the last five years. A sociologist, he established North America's first system of rural telecentres and online services beginning in 1988 as the CEO of a Crown Corporation in Newfoundland (Canada) called Enterprise Network Inc. He also served as a Commissioner with the Newfoundland Economic Recovery Commission. From 1996–2000 he operated his own company, Futureworks Inc., which won the Canada's International Trade Exporters Award in 2000. He currently is serving a second 2 year term on the Executive Committee of the Global Knowledge Partnership (GKP).

Walter Fust has been Director-General of the Swiss Agency for Development and Cooperation (SDC) since September 1993. He holds a Master in Political Science (University of St. Gall) and entered the diplomatic service in 1975. He was assigned to Berne, Geneva, Baghdad and Tokyo. From 1976 to 1979 he was in charge of economic affairs at the Swiss Embassy in Baghdad. In 1979, he was transferred to Tokyo, responsible for economic, commercial and industrial affairs. In September 1983, he was appointed deputy head of the Integration Office, dealing with the Swiss government's relation with the European Community and the EFTA countries. From 1984 to 1986 he was appointed as personal advisor to Federal Councillor Kurt Furgler, Minister of Public Economy. In 1986, he was elected as Managing Director of the Swiss Office for Trade Promotion. From 1990 to August 1993 he served as Secretary-General of the Ministry of the Interior. Mr Fust is Chairman of the Board of the Global Knowledge Partnership (GKP). He is also a member of the Panel of Advisors of the United Nations Task Force on ICTs. Furthermore he is member of the Steering Committee of the "Global Governance Initiative" of the World Economic Forum (WEF) and of the Policy Committee of the Global Coalition for Africa.

Paul Greener is Senior Program Manager at the Foundation for Development Cooperation (FDC) in Brisbane, Australia. He is responsible for the FDC programmes promoting effective multi-sector partnerships and for the programmes in the areas of rural development and microfinance. Greener worked seven years for the Aga Khan Foundation in Geneva and nine years for AusAID. He also worked for the University of Queensland and as a private consultant. Born in Zimbabwe, Green has working experience in over 25 countries, mostly in Asia, Africa and the Pacific, and is an expert in organisational rural development, microfinance and development of civil society organisations. He holds a PhD in Geography, a Master of Science in Agricultural Development and is accredited by the Partnership Broker's Accreditation Scheme as a broker of development partnerships.

Ingrid Hagen has her own consulting firm, CrossingPoint, which builds on her 12 years of development cooperation experience. She specialised in strategic alignment of private, public and non-profit actors as invaluable partners in socio-economic development. While employed by the International Institute for Communication & Development (IICD), she built multi-stakeholder partnerships with European development ministries, colleague NGOs and the private sector. These alliances generated more than EUR 50 million for financial support and technical assistance to the work of local partner networks. Hagen has worked for NGOs, the private sector and the International Finance Corporation (IFC); the latter is the private sector investment arm of the World Bank. Over the years, she has published a number of arti-

cles on ICTs and development and multi-stakeholder partnerships (e.g. "Embedding ICTs in Development" and "Financing gap for SMEs: Building incubator networks for ICTs in Africa"). Hagen has a Master's Degree from Johns Hopkins University and an undergraduate degree from the University of Virginia.

John K. John is currently Executive Chairman of Knowledge Summit, an e-development consulting company focusing on applying ICT for the development of nation states. Formerly he was the Executive Director of the National IT Council of Malaysia and concurrently served as Vice President for Strategic Interventions for Mimos Berhad, an R&D Company of the Government of Malaysia from 1996 to 2004. John K. John was National Director for the GKII hosted in Malaysia and the Founder Member of the Global Knowledge Partnership (GKP) Secretariat. He nurtured and spawned GKPS from its infancy under Mimos jurisdiction until her spin-off as a separate legal entity registered in Malaysia. He pioneered many strategic ICT initiatives in Malaysia, including DAGs (a 150 million ringgit seed funding programme of the Government of Malaysia), the MIU and the award winning mobile computer lab, TIGeR, an e-commerce initiative using the RosettaNet standards. He has served in many strategic and development planning frameworks, undertaken consulting projects in Iran, Mongolia and Mozambique and participated as a global speaker at numerous ICT4D sessions.

Mudiarasan Kuppusamy is a lecturer in Management at the School of Business, Monash University Malaysia. His research work has been published in international journals and presented in international conferences. He is an expert in the area of innovation management and human capital management. Kuppusamy holds a BA Honours degree from Oxford Brookes University, UK, and an MPhil (Management) from Multimedia University Malaysia. He is currently pursuing his doctoral studies in the area of strategic management of innovation in ASEAN countries.

Radhika Lal is a policy advisor for ICT for poverty reduction and the MDGs with UNDP's Poverty Group in the Bureau for Development Policy in New York. She is a development economist with a focus in technology, development and macroeconomic policies and issues. She has advised developing country governments and other partners on issues relating to the role of ICT as an enabler for development. She has also been active in global fora and initiatives such as the WSIS Geneva, particularly in the context of the SG's Task Force on Financial Mechanisms for ICTD that was facilitated by UNDP in the follow-up to the Geneva-phase of WSIS, and before that in supporting the work of the G8 DOT Force. Prior to working with UNDP, she undertook research, taught economics and worked with a number of civil society orga-

nisations on technology as well as economic policy issues. Recent publications include "Development Divides and Digital Bridges: three reasons why ICT is key for achieving the MDGs" which was co-authored with Shoji Nishimoto for the "Reference Report of the Commonwealth Ministers of Finance" (2005); "Towards an Inclusive and Development-Rich Information Society: Linking Financing Issues and Development Agendas" in the UN ICT Task Force Series 8: "The World Summit on the Information Society: Moving from the Past into the Future" edited by Daniel Stauffacher and Wolfgang Kleinwächter (2005).

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Natasha Primo is Executive Director of Women'sNet in South Africa. The main activities of Women'sNet include ICT and gender-related training, networking and collaboration around gender and ICT issues at regional and global level, as well as multimedia content development around relevant gender issues with a view to aiding South African women's empowerment processes. She is currently also the Chairperson of the Executive Board of the Association for Progressive Communications (APC), a global network of organisations working to advance the use of ICT for social justice and development. Formerly, Primo was manager of the Women-in-Research (WIR) programme of the National Research Foundation in Pretoria, South Africa, coordinator of the postgraduate Gender and Women's Studies Programme of the University of Western Cape, Bellville, South Africa, as well as a lecturer in Geography & Environmental Studies at the same university.

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Gabriele Siegenthaler Muinde works for the Swiss Agency for Development and Cooperation (SDC) and has been deputy head of its ICT for Development Division since 2003. In that function she has worked with various partner organisations and partner initiatives that innovatively use ICT in their development work. She also contributed to the SDC-internal shaping of programmes and strategies regarding ICT for development and made active inputs into the WSIS process. She is currently seconded to the Secretariat of the Global Knowledge Partnership (GKP) to assist with various strategic challenges. Prior to joining SDC, Siegenthaler Muinde spent a year in Africa after serving as Managing Director of a middle-sized industrial plastics company until 2000. She originally trained as an attorney-at-law, after completing her Law degree at the University of Fribourg (Switzerland).

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Daniele Waldburger is an independent communication consultant specialising in media relations, corporate publishing and interactive media. He has held national and international mandates from leading private sector companies as well as non-profit and government organisations, particularly in the fields of IT (information technology) and telecommunication, development cooperation, and science. Before establishing his own company, Waldburger Consulting GmbH, he worked in senior management posts in the media and communication industries in Switzerland. Daniele Waldburger started his professional career as a systems engineer in IT, later moving on to journalism where he worked for more than ten years as a science and technology editor for different major Swiss publications. He holds a degree in African history and social anthropology from the University of London's School of Oriental and African Studies (SOAS). He is the co-editor of "ICT4D – Connecting People for a better World: Lessons, Innovations and Perspectives of Information and Communication Technologies in Development" (2004).

The Global Knowledge Partnership (GKP)

The GKP is the leading international multi-stakeholder network committed to harnessing the potential of information and communication technologies (ICT) for sustainable and equitable development. Ranging from grassroots practitioners to policy-makers, GKP members and partners are innovators in the practical use of ICT for development.

Through the GKP, governments, business and civil society organisations share their experience, ideas, issues and solutions to unleash the potential of ICT to improve lives, reduce poverty and empower people. While fostering meaningful exchanges and learning, GKP also provides the platform for building effective multi-stakeholder partnerships (MSPs) to generate innovative and practical solutions to development problems, and creates opportunities for scaling up ICT initiatives and spreading their benefits. Working together, GKP members increase their organisational influence and visibility.

The GKP's activities focus on:

- Convening knowledge sharing events with products and innovative solutions
- Brokering multi-stakeholder partnerships (MSPs) for knowledge sharing and increasing effectiveness of ICT for development initiatives
- Promoting innovation in the use and appropriation of ICT for development initiatives and knowledge sharing
- Facilitating mobilisation of investments in ICT for development at local, national and global levels
- Influencing policy, regulatory frameworks and public opinion

Founded in 1997, GKP continues to grow and now comprises some 90 members from over 40 countries, covering all continents. It is governed by an elected Executive Committee and supported by a Secretariat based in Kuala Lumpur, Malaysia.