

Mainstreaming Information & Communication Technologies for the Achievement of the Millennium Development Goals

**Report Prepared by the UN ICT Task Force in Support of the Science, Technology
& Innovation Task Force of the UN Millennium Project**

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I - Acknowledgments

This report is based on a recent survey of UN ICT Task Force members and advisers and draws extensively on their collective work in the field of ICT for Development.

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II - Executive Summary

The intersection of Information and Communication Technology (ICT) and the Millennium Development Goals (MDGs) forms a critical nexus for the future of sustainable human development and poverty eradication. Yet the great paradox of the information age - the persistence of scarcity in a digital era of superabundant capacity – remains the greatest single challenge to the networked economy and society. This report argues that while the means to meet this challenge are actually close at hand, the so-called “digital divide” has shifted perilously in recent years to the detriment of the poorest developing countries with serious and potentially irreversible consequences for the achievement of the MDGs.

To address this problem and unleash the full potential of ICTs both old and new as an enabler of economic and social development throughout the developing world, a global and prioritised policy and practice breakthrough is urgently required. Increasingly, the relevance and importance of such a breakthrough is being viewed within government, business, civil society and international organizations through the lens of MDGs. For with the strategic, intensive, widespread and innovative use of ICTs in development policies and programmes, the ambitious agenda of the MDGs becomes much more possible to realize. Without this laser-like focus and vision, scaleable implementation of the MDGs in many instances may well be impossible.

With the five year review of progress toward the achievement of the MDGs planned at the UN General Assembly/Millennium Summit + 5 (MS+5) in New York in September 2005 and the second phase of the World Summit on the Information Society (WSIS) in Tunis in November 2005, overarching issues and interests are set to converge. A unique and virtuous opportunity exists both to identify bottlenecks and gaps and to strengthen synergies and inter-linkages between the MDGs and ICT. By galvanising political will and action in 2005, the essential breakthrough criteria can be framed to meet the desired objectives of all interested players in the common cause of poverty reduction, sustainable development and good governance.

There is already a strong correlation between ICTs and the MDGs based on a mutually shared objective: namely, the efficient, scalable, affordable and pervasive delivery of goods, services and information flows between people, governments and firms. Significantly, of all the MDG targets it can be said that ICT has made the most rapid progress to date and is “on-track”. Ultimately, however, despite the obvious benefits to economic growth, including pro-poor growth, of the global explosion in ICT supply and demand, it is as a generic technology and development enabler (Goal 1-7) rather than simply as a stand-alone production sector (Goal 8) that ICT will most impact the MDGs.

Unique ICT & MDG Characteristics

There are a number of important ways in which ICT is differentiated from other development sectors and technologies, and this is not simply because of its status as a lucrative source of revenue and taxation for business and government. As accelerator, driver, multiplier and innovator, the unique character of ICTs, both established (radio, television, video, compact disc) and emerging (wireless, Internet, broadband), make them a powerful if not indispensable tool in the massive scaling up and inter-linkage of development interventions and outcomes inherent in the MDGs.

The uniqueness of the MDGs lies in two dimensions. First, by defining the goals in terms of development targets, as opposed to inputs and outputs, the MDGs draw attention to the multi-sectoral and inter-linked determinants of development targets. Second, the MDGs focus on the achievement of quantified and time-bound targets, providing both opportunities to make progress in combating poverty and risks of non-attainment. Indeed, given current rates of progress many countries and regions are to date “off-track” and will be unable to meet the MDGs by 2015.

To catalyse progress, innovative and breakthrough models and modalities of operation and implementation are therefore required in all areas ranging from policy to partnership to

resource mobilization. Here again it is as a fundamentally generic technology that ICTs will likely have the most far reaching impact on the achievement of the MDGs, because they anticipate and foreshadow many of the critical socio-economic growth and development models and modalities of the future.

It is no coincidence that the innovative and breakthrough elements of the ICT and most particularly the Internet, value chain not only mirrors the missing links in the development value chain, but also impinge on precisely the areas of difficulty and contention faced by the MDGs in meeting the 2015 agenda: namely, intellectual property rights; integration of legal, regulatory and physical infrastructures; youth and gender empowerment; and, viral growth models for very large scale projects and initiatives. In this regard, most experts concede that the MDGs can be attained if and only if ambitious yet realistic nationally-determined priorities and initiatives are also promoted and advocated at the global level. And these globally supported goals and initiatives must embed growth models based on just the kind of sustainable, self-replicating and multi-stakeholder business models and partnerships as evidenced in ICT and Internet-based efforts today.

Cross-Sector Complexities

In order for ICT to positively foster development goals, it must be employed where relevant, appropriate and effective. In addition, perennial cross-sector complexities and issues must be overcome within existing approaches to ICT for Development. Specifically: full demonstration of development impact; integration and prioritization within national development and poverty reduction programmes; policy realignment on basic infrastructure deployment; improved government and donor coordination and cooperation; increased private sector engagement; and, enhanced mechanisms for resource mobilization.

For too long the ICT for Development sector has been mired in an internal dialogue on the digital divide. In the process it has lost sight of the endgame of delivering pro-poor products and services matched to the full range of development applications that, with consequent economies of scope and scale, will grow the worldwide market as a whole. As ICT increasingly intersects with the MDGs and overlaps with adjacent industries, and as the pace of technological innovation intensifies, the debate is now moving beyond the digital divide.

In developed countries, the rush to broadband infrastructure is resulting in multi-billion dollar telecommunication equipment write-offs. In developing countries, those able to embrace knowledge, entrepreneurial skills and competitive business models via broadband networks are now reaping the rewards of the “outsourcing” and “offshoring” phenomena. Those unable to do so are falling ever further behind. The playing field is at once levelling and yet becoming more uneven.

This continuing market instability and volatility makes it increasingly important to shift from the old environment of technology push to a new environment of technology pull in ICT for Development initiatives and interventions. Here, success will depend on a combination of full integration in national development plans and poverty reduction strategy programmes (PRSPs), again at an early stage, and the prioritization of ICT in sectors with the greatest potential payback, such as income poverty, youth and gender empowerment, and HIV/AIDS. Currently, the integration and mainstreaming of ICT in these strategies is lacking in a majority of LDCs – a situation that must at once be rectified.

Unresolved Challenges, Untapped Opportunities

The MDG campaign offers the possibility not only to address the deficits in the ICT for Development field but also to contextualise both its unresolved challenges and untapped opportunities. Moreover, Goal 8 “Develop a global partnership for development” and Target 18 “In cooperation with the private sector, make available the benefits of new technologies, especially information and communication” suggest a powerful framework to both resolve those challenges and realize those opportunities.

Rather than taking the approach to systematically “problematise” ICT in development policy and programmes, there has been a tendency among practitioners to depict ICT almost as a black-box solution, and a solution situated within a win-win world of common interests between developed and developing countries. For LDCs this tendency has been most unhelpful because a shift in emphasis away from the unfulfilled and unrealistic expectations of technology leapfrog espoused by ICT proponents throughout the 1980s and 1990s is required if accelerated progress is to be made.

Once ICT for Development policies and programmes are embedded within the overall development process, even subordinated in the service of the MDGs, many unresolved challenges and untapped opportunities are thrown into relief: policy and regulatory frameworks for ICT investment that achieve the right balance between investment promotion and meeting the needs of low-income customers; profitable business models that engage the private sector in the local delivery of affordable ICTs to rural and urban areas; coordination and cooperation between government, business, civil society and international organization initiatives; and, financing mechanisms that realistically and effectively address the funding deficit in bridging the digital divide. By setting clear development priorities resource allocation to the kind of multi-stakeholder ICT partnerships needed to achieve the MDGs can be pressed far more robustly.

Similarly, the massive scaling up and low cost delivery of public and private services to the world’s poorest citizens inherent in the MDGs also focuses attention on innovative and breakthrough approaches to ICT delivery that exploit the enormous variety of communication technologies. These approaches must allow access to information that is most relevant to people’s multi-dimensional livelihoods. It requires forms of ICT transactions that achieve the optimal division of risk between the public and private sectors, and that afford the necessary flexibility for operators to deliver pro-poor services over time. It recognises the importance to livelihood security of social capital, identifying those ICTs that contribute most to building this asset. And it implies knowledge and information delivery critical to sustainable livelihoods that reach the right people at the right time at the right price.

2005 to 2015

In conclusion, of all the MDG targets it can be said that ICT has made the most rapid progress to date and is “on-track”. But despite the obvious benefits to economic growth, including pro-poor growth, of the global explosion in ICT supply and demand, it is as a generic technology and development enabler (Goal 1-7), rather than simply as a stand-alone production sector (Goal 8), that ICT will most impact the MDGs: through the creation of new social and economic opportunities; the promotion of greater participation in development policies and processes; and, an by increasing the efficiency, accountability and delivery of public and private services. Yet Goal 8 also suggests a powerful strategic framework for global partnerships and initiatives to address the unresolved challenges and untapped opportunities of ICT for Development, a framework to get from here to there that must be exploited in 2005 to energise a new and unique decade of progress.

Strategic alliances between, government, business, civil society and international organization are a growing feature of both developed and emerging economies. Such multi-stakeholder partnerships are necessary because it is increasingly clear that no one sector in society can deliver the complexities of sustainable human development alone. MSPs are alliances between parties drawn from government, business, civil society and international organizations that strategically aggregate the resources and competencies of each to resolve the key challenges of ICT as an enabler of development, and which are founded on principles of shared risk, cost and mutual benefit.

The logic of the networked economy and society naturally inclines toward inclusion rather than exclusion. Yet the international system has over the past two decades of the digital network revolution been unable to deliver on promises or expectations of digital inclusion to the developing world. The MS+5 Summit +5 and the second phase of the WSIS come at a critical juncture for ICT and the MDGs, where decisions will have a profound long term impact on

whether to mainstream or not to mainstream. This time, whatever emerges from these Summits must be backed up by concrete and realistic financial commitments that draw from complementary local resources, bilateral donors, multilateral donors and private investment. All parties must take responsibility to make realistic commitments and deliver on them. Given the great challenge of the MDGs and the resource constraints that are likely to continue even under the most optimistic growth scenarios, particularly in ODA, more attention must be paid to maximising synergies among existing resources and using aid strategically as a catalyst for private investment. With evidence of *impact* in place, it will then be possible to *prioritise* in taking the *risk* to *innovate* and *invest* in new *global partnerships and initiatives* for ICT and the MDGs toward 2015.

For all intents and purposes the science, technology and innovation that need to be invented to meet the unresolved challenges and untapped opportunities of ICT for Development have by now been invented. But it will be the intersection of ICT and the MDGs that will form the vital nexus for future initiatives and interventions at the national, regional and international levels. The bottom line in 2005 is whether a global and prioritised policy and programmatic breakthrough in both coordination and commitment can be marshalled in time to harness the exciting and dynamic synergies of ICT and the MDGs over the coming decade.

Against this background, there are five critical areas that must be addressed for the full and effective mainstreaming of ICT for the achievement of the MDGs:

Conclusions & Recommendations

1. Evidence of Impact

Conclusion – The case for mainstreaming ICT for the achievement of the MDGs cannot be made without rigorous analysis and empirical evidence of development impact. Emphasis must shift from simple ICT access to more sophisticated data sets on the improved efficiency of ICT-enabled delivery of public service particularly in LDCs.

Recommendation – Develop and Promote the a common and coherent set of ICT-MDG-based indicators and benchmarks across and within the relevant United Nations agencies, to be disseminated among governments, business and civil society and endorsed at MS+5 and WSIS 2 for the purpose of accelerating ICT deployment in service of the MDGs.

2. Policy Development

Conclusion – National e-strategies need to be linked far more explicitly to national economic development plans and vice versa. The special case of LDCs demands immediate and full integration of national e-strategies within the poverty reduction strategy process, accompanied by enhanced cooperation and coordination among donors.

Recommendation – Promote and Support the prioritisation of ICT for Development in all PRSP and national, regional and global economic development plans as a prerequisite for developing countries in achieving the MDGs, backed by the common voice of academia, governments, business, civil society, and international organizations.

3. Resource Mobilization

Conclusion – There remains a serious deficit in the current approaches and financing mechanisms for bridging the global digital divide. Flows of adequate funds will fail to materialise until

scepticism among donor countries is countered, developing country prioritisation is enacted, and the private sector is persuaded of profitable business models for investment.

Recommendation – Promote and support coordinated activities on the part of national governments, donors, the private sector and international organizations to address bottlenecks and gaps, and fulfilment of the Monterrey commitments for 0.7% of GNP contribution to ODA, and comprehensive debt relief for the HIPC nations, with the aim of channelling funds for mainstream ICT in MDG programmes, as well as actively exploring innovative financing mechanisms for pro-poor growth markets.

4. Global Campaign & Alliance

Conclusion - A strategic, multi-stakeholder framework for employing ICT and media in accelerating the achievement of the MDGs is urgently required. The MDGs provide a common denominator and common agenda for the creation of a Global Campaign and Alliance for ICT for Development drawn from actors both within and outside the ICT sector.

Recommendation – Develop and Support a Global ICT Alliance for ICT for Development to be launched at MS+5 and WSIS 2, with the aim of enhancing cooperation, establishing a knowledge network, defining priorities and catalysing Global ICT for Development Initiatives for achievement of the MDGs.

5. Global Initiatives

Conclusion - The sheer ambition of the MDG challenge demands an unprecedented response at the global as well as at national level. Scaling and replication of ICT efforts will require aggregation of knowledge and resources across markets, and innovative breakthrough approaches to meet key price points and economies of scale for MDG delivery.

Recommendation – Develop and Promote Global ICT & MDG Initiatives in sectors where the scaling and replication of ICT interventions will prove of most benefit to the achievement of the MDGs, including economic opportunity for poverty eradication, health and HIV/AIDS, education and training, gender and youth empowerment, and public administration

III - ICT & the MDGs - Converging Fields, Common Interests

Information and Communication Technologies (ICTs) can play a critical role in sustainable human development and poverty eradication. Yet the field of ICT for Development is at a turning point. At one level, the past decade has witnessed the most dramatic growth in the history of global computing and communications, with the near-ubiquitous spread of mobile telephony and the Internet. At another level, progress in narrowing the gap between those developing countries now empowered by the fundamental right of access to local and global networks of knowledge and information, and those developing countries still impoverished by the practical denial of that right, is widening and as stark as ever.

This central paradox – the persistence of scarcity in a digital era of superabundant capacity – is perhaps the greatest single challenge to the networked economy and society. This report argues that while the means to meet this challenge are actually close at hand, the so-called “digital divide” has shifted perilously in recent years to the detriment of the poorest countries, most notably the Least Developed Countries (LDCs). Today, a chronic paucity of affordable access to network infrastructure and services endures in all LDCs. To address this network deficit, and unleash the full potential of ICT as an enabler of economic and social development throughout the developing world, a global and prioritised policy and programmatic breakthrough is urgently required.

Increasingly, the relevance and importance of such a breakthrough is being viewed within government, business, civil society and international organizations through the lens of the Millennium Development Goals (MDGs). Agreed by world leaders at the United Nations Millennium Summit in 2000, the MDGs are intended to catalyze sustainable human development and halve the number of the world’s poorest citizens by 2015. In essence, with the strategic, intensive, widespread and innovative use of ICTs in development policies and programmes, the ambitious agenda of the MDGs becomes much more possible to realize. Without this laser-like focus and vision, scalable implementation of the MDGs in many instances may well be impossible.

The stakes could not be higher. The Millennium Summit’s decision to adopt eight specific goals comprising eighteen targets and forty eight indicators for the first time established a globally agreed political and time-bound benchmark for measuring the progress of development at the national, regional and international levels (Table 1). In parallel, two major multi-stakeholder initiatives were also launched in 2000 - the Group of Eight Digital Opportunity Task Force (G8 DOT-Force) and the United Nations ICT Task Force (UN ICT Task Force) - in ground breaking attempts to address the growing digital divide and its repercussions for economic and social development.

With the five year review of progress toward the achievement of the MDGs planned at the UN General Assembly/Millennium Summit + 5 (MS+5) in New York in September 2005 and the second phase of the World Summit on the Information Society in Tunis in November 2005, overarching issues and interests are set to converge. A unique and virtuous opportunity exists both to identify bottlenecks and gaps and to strengthen synergies and inter-linkages between the MDGs and ICT. By galvanising political will and action in 2005, the essential breakthrough criteria can be framed to meet the desired objectives of government, business, civil society and international organizations in the common cause of poverty eradication, sustainable human development and good governance.

**Table 1 – Millennium Development Goals & Target -
ICT Applications Map to the MDGs for Economic & Social Opportunity, Youth & Education,
Gender Participation & Empowerment, Healthcare, and Environment**

Goals	Targets
1. Eradicate extreme poverty and hunger	1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.
	2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.
2. Achieve universal primary education	3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.
3. Promote gender equality and empower women	4. Eliminate gender disparity in primary and secondary education preferably by 2005 and in all levels of education no later than 2015.
4. Reduce child mortality	5. Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.
5. Improve maternal health	6. Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.
6. Combat HIV/AIDS, malaria, and other diseases	7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS.
	8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.
7. Ensure environmental sustainability	9. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.
	10. Halve, by 2015, the proportion of people without sustainable access to safe drinking water.
	11. Have achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.
8. Develop a global partnership for development	12-17. Separate targets for developing trading and financial systems, addressing the special needs of LDCs, SIDS and land-locked countries, debt sustainability, youth employment, and providing affordable drugs.
	18. In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

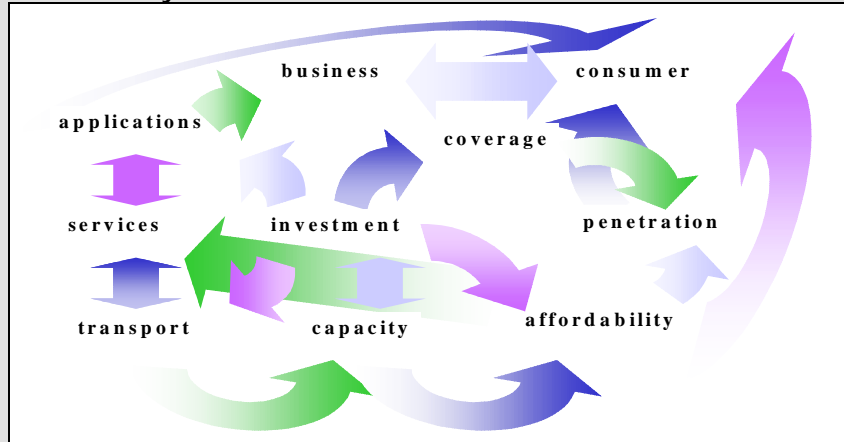
Note: For a list of the 48 MDG indicators see the Millennium Indicators Database at: http://millenniumindicators.un.org/unsd/mi/mi_goals.asp.

Source: Adapted from the United Nations Development Programme (UNDP) Human Development Report, 2003

III.1 - Network Revolution

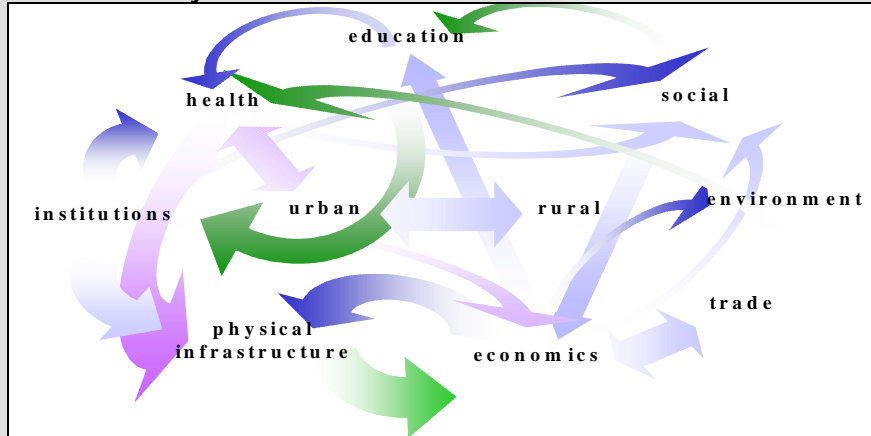
The network revolution has forced a radical transformation of business and development models in both developed and developing economies and societies. New network economics and dynamics have combined multiple “positive feedback mechanisms” and “network effects” with disruptive and discontinuous change. This change encompasses: fast decreasing technology costs with volume and innovation; vastly increased system development costs, risks and timescales; new competitive market forces; heightened user expectations; uncertain industry restructuring and financial market behaviour; as well as standardisation that is often non-proprietary in nature. In addition, there has been the onset of nascent “network externalities” with major implications for the future of electronic commerce.

Fig.1a ICT Economics & Dynamics



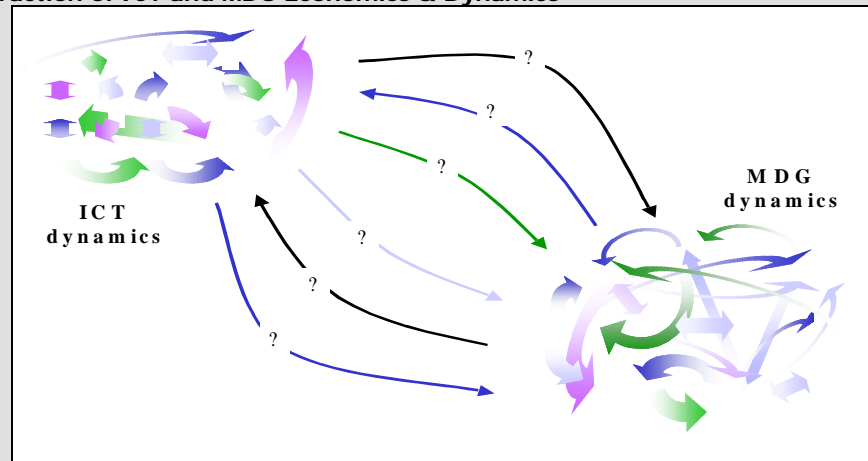
Source: WBG.

Fig.1b MDG Economics & Dynamics



Source: WBG.

Fig.1c Interaction of ICT and MDG Economics & Dynamics



Source: WBG.

At many levels, the new network economics and dynamics remain complex and only partially understood. The complexity of development economics and dynamics is equally daunting, so that the assessment of the interaction of network (ICT) and development (MDG) economics and dynamics becomes highly subjective (Figure 1). Like poverty, ICT is multi-dimensional in nature. It is primarily for this reason that the debate over poverty eradication and the broad and systematic use of ICT in development policy and programmes has until quite recently been polarized between sceptics and enthusiasts.

While some have viewed ICT akin to an exotic luxury in relation to pure development needs and priorities - from clean water and food security to basic education and healthcare - others initially viewed it almost as a panacea for perennial development problems. Now, in parallel with the “dotcom” crash and the re-emergence of the ICT sector has come a shift from anecdotal exuberance to a focus on the empirical evidence of its full development impact, and a more balanced perspective has emerged where ICT is no longer seen as an end in itself but rather as a critical enabler in the development process, increasingly in the context of the MDGs.

There is already a strong correlation between ICTs and the MDGs based on a mutually shared objective: namely, the efficient, scalable, affordable and pervasive delivery of goods, services and information flows between people, governments and firms. In addition, while ICT cuts across all seven Millennium Declaration goals targeted at specific objectives in promoting development and improving people’s daily livelihoods – including income poverty, food security, healthcare, education, gender equity and environment – it also appears as an MDG itself within the eighth goal, “Develop global partnerships for development”, focussed on how to achieve the objectives themselves.

Within Goal 8 Target 18 thus proposes that "In cooperation with the private sector, make available the benefits of new technologies, especially information and communication". It further suggests indicators in terms of telephone, mobile, personal computer and Internet users worldwide. It is against this background that the Task Force on “Science, Technology, and Innovation” was created within the UN Millennium Project to propose strategies for harnessing the pervasive and profound potential of modern science and technology in achieving the MDGs.

Significantly, of all the MDG targets it can be said that ICT has made the most rapid progress to date and is “on-track”. The ITU estimates that access to telephone networks in developing countries tripled in the ten-year period 1993-2002 from 11.6 subscribers per 100 inhabitants to 36.4 (Figure 2). By the end of 2002, there were more mobile cellular subscribers than fixed telephone lines in the world. Growth has been particularly strong in Africa where almost all countries now have more mobile phones than fixed telephones.

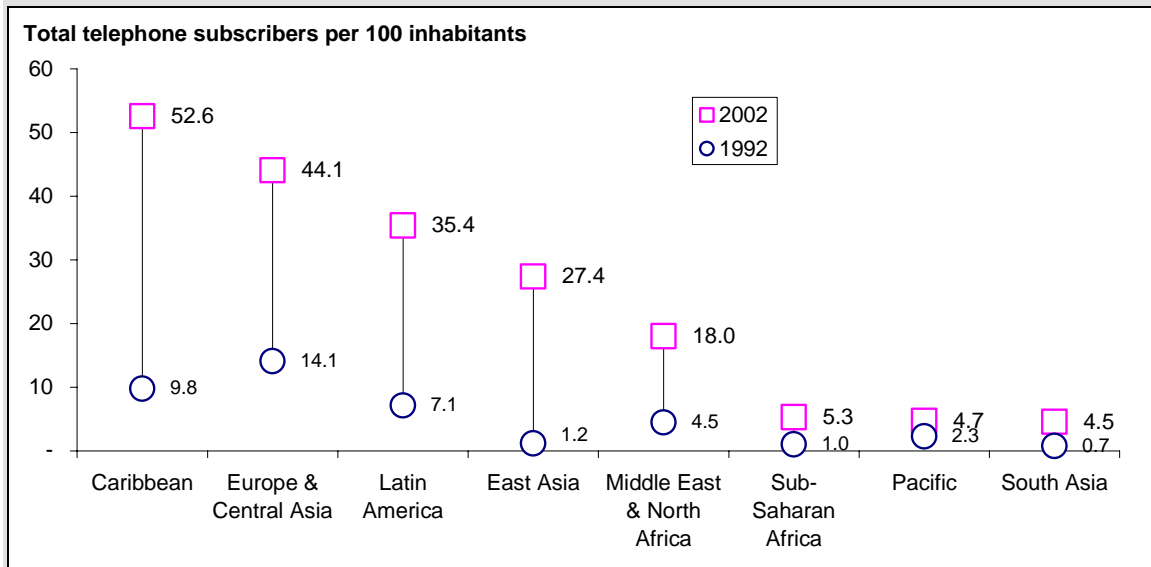
Growth in personal computers and the Internet has been equally impressive. By the end of 2002 there were an estimate 615 million computers in the world, up from only 120 million in 1990. From only 27 economies that had a direct connection to the Internet in 1990, the figure grew to almost every country in the world by the end of 2002, corresponding to some 600 million users. Again, growth has been most rapid in developing countries where 34 per cent of users resided in 2002, up from only 3 per cent in 1992.¹

Ultimately, however, despite the obvious benefits to economic growth, including pro-poor growth, of the global explosion in ICT supply and demand, it is as a generic technology and development enabler (Goal 1-7) rather than a stand-alone production sector (Goal 8) that ICT will most impact the MDGs: through the creation of new economic and social opportunities for poverty eradication; by increasing the efficiency, accountability and delivery of public services in healthcare, education and environment; and, with the promotion of greater participation in development policies and processes. In all these areas, the potential of ICT for Development has yet to be fully realized. Critical to unleashing this potential is the need to recognize the unique characteristics of ICT and the MDGs.

¹ See “ICTs and the Millennium Development Goals”, Chapter 4, *World Telecommunications Development Report 2003*, International Telecommunication Union, 2003.

Fig.2 A decade of ICT progress

Total teledensity (main telephone lines and mobile users per 100 inhabitants), in 1992 and 2002, in developing regions



Note: Developed countries are excluded. For definitions of regions, see: www.worldbank.org/data/countryclass/classgroups.htm.

Source: ITU World Telecommunication Indicators Database.

III.2 - Unique ICT & MDG Characteristics

There are a number of important ways in which ICT is differentiated from other development sectors and technologies, and this is not simply because of its status as a lucrative source of revenue and taxation for business and government. As accelerator, driver, multiplier and innovator, the unique character of ICTs, both established (radio, television, video, compact disc) and emerging (wireless, Internet), make them a powerful if not indispensable tool in the massive scaling up and inter-linkage of development interventions and outcomes inherent in the MDGs.

ICT is a powerful enabler of development goals because it dramatically improves communication and the exchange of knowledge and information to strengthen and create new social and economic networks. Its uses and applications are pervasive and cross-cutting and can be applied to the full range of human activity from personal use to business and government. It propitiates an acceleration factor through the power of the network that becomes ever more powerful and useful the more people are connected to it, thus creating network externalities or exponentially increasing returns as network usage increases. And it fosters the dissemination of information and exchange of knowledge by separating content from physical location and overcoming distance.

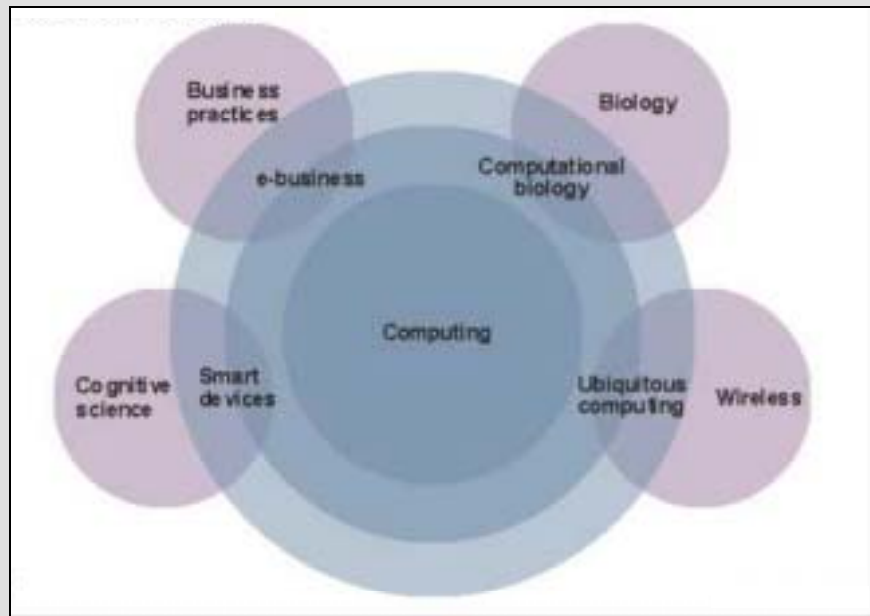
Crucial in the poverty context, ICT can also radically reduce transaction costs. Replication of content is virtually free regardless of volume, and marginal costs for distribution and communication are near zero. Central to the MDGs, ICT's power to store, retrieve, sort, filter, distribute and share information can lead to substantial efficiency gains in production, distribution and markets, and benefits for social processes. And ICT is global in nature, transcending cultural and linguistic barriers as it challenges current policy, legal and regulatory structures within and between nations.

Analogously, the uniqueness of the MDGs lies in two dimensions. First, by defining the goals in terms of development targets, as opposed to inputs and outputs, the MDGs draw attention to the multi-sectoral and inter-linked determinants of development targets. Second, the MDGs

focus on the achievement of quantified and time-bound targets, providing both opportunities to make progress in combating poverty and risks of non-attainment. However, given current rates of progress many countries and regions are to date “off-track” and will be unable to meet the MDGs by 2015.²

Fig.3 The Ripple Effect

Innovation occurs in overlap areas as computing ripples outwards.
The examples below are not exhaustive.



Source: Apax Partners/Economic Intelligence Unit

To catalyse progress, entirely new models and modalities of operation and implementation are therefore required in key areas ranging from policy to partnership to resource mobilization. Here, it is as a fundamentally generic technology that ICTs will likely have the most far reaching impact on the achievement of the MDGs, because they anticipate and foreshadow many of the critical socio-economic growth and development models and modalities of the future. Even within the science and technology community itself, the seismic changes and tectonic shifts continuing to occur in the fields of computing and communications are still often underestimated.

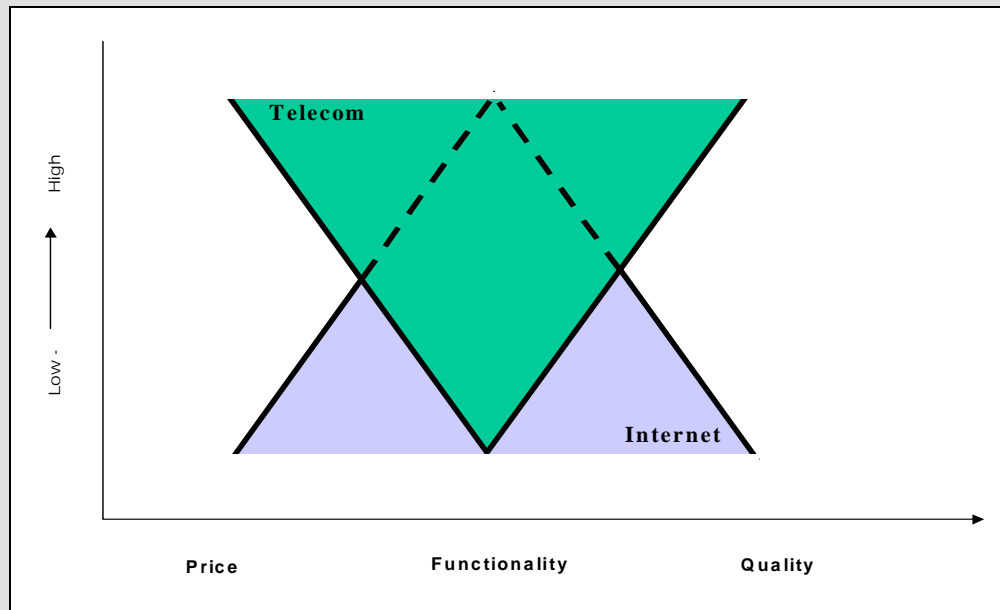
For example, progress in computing is providing the foundation for innovation in adjacent industries as far afield as wireless communications and genomics. This “ripple effect” (Figure 3) will continue to expand with the exponential growth of processing power, storage capacity and networking bandwidth. Today, processing power available at a given price doubles every eighteen months; storage capacity per unit area is doubling every year; and the amount of data that can be squeezed down a fibre optic cable is doubling every nine months. The impact of this technological progress has only just begun to be felt, but it will continue to be utterly pervasive and profound.

The Internet is a case in point. The ripple effects from the Internet are at an embryonic stage of development. Already the fastest growing communications medium in history, the Internet marks the beginning of the great discontinuity of technological convergence between telephone, television and computer. Reversing the relationship between quality, functionality and price it has already turned telecommunications orthodoxy on its head (Figure 4). Today, the

² See “ICT & the MDGs: A World Bank Group Perspective”, World Bank Group, 2003.

Internet is being run on top of the telephone network. Tomorrow, all telephony will end up running on top of the Internet.

Fig.4 The World Turned Upside Down



Source: UNDP

Not only is an almost entirely unregulated network threatening to topple its highly regulated predecessor, but the Internet also embodies many of the elements of the future communications marketplace – the arrival of local-global calls, the onset of freeware, the separation of networks and services provision, the availability of affordable mass access, and the provision of scalable broadband communications. The implications for developing countries, whether early or late technology adopters, of an impending global Internet utility or grid - cheap, reliable, and always-on – will be too compelling to ignore indefinitely.

III.3 - Missing ICT & MDG Links

Ironically, the great self-sustaining, self-replicating and multi-stakeholder enterprise that in 2005 constitutes the global wired and wireless Internet seems almost by accident to have acquired the attributes of a global public good. Yet it is no coincidence that the innovative and breakthrough elements of the Internet value chain not only mirror the missing links in the development value chain, they also impinge on precisely the areas of difficulty and contention faced by the MDGs in meeting the 2015 agenda: namely, intellectual property rights; integration of legal, regulatory and physical infrastructures; youth and gender empowerment; and, viral growth models for very large scale projects and initiatives. In this regard, most experts concede that the MDGs can be attained if and only if ambitious yet realistic nationally-determined priorities and initiatives are also promoted and advocated at the global level. And these globally supported goals and initiatives must embed growth models based on just the kind of sustainable, self-replicating and multi-stakeholder business models and partnerships as evidenced in Internet-based efforts today.

In the meantime, the fact that the unique characteristics of ICT if conceived as means and not ends can, in theory, act as powerful development enable does not mean that it will necessarily do so. In order for ICT to positively foster development goals, it must be employed where relevant, appropriate and effective. In addition, perennial cross-sector complexities and issues

must be overcome within existing approaches to ICT for Development. Specifically: *full demonstration of development impact; integration and prioritization within national development and poverty reduction programmes; policy realignment on basic infrastructure deployment; improved government and donor coordination and cooperation; increased private sector engagement; and, enhanced mechanisms for resource mobilization.*

Key to making the case for the strategic deployment of ICT to support the achievement of the MDGs is the potential to demonstrate scalable impact. There are currently few studies or strategies that outline a strategic programmatic vision with regard to integrating ICT and assessing its impact through appropriate benchmarks, goals and indicators for its deployment in developing countries. It is generally agreed that the indicators proposed by Target 18 of the MDGs - number of telephones, personal computer and Internet users – are wholly inadequate if they are to also serve as a measure of development impact in the use of ICTs in poverty reduction, health, education, empowerment or environment. Here, major work is now being undertaken by the UN Partnership on Measuring ICT for Development, UN ICT Task Force and the World Bank Group with findings due in 2005.

The awareness of the development potential of ICT is often not fully reflected in the formulation of national e-Strategies, many of which lay primary emphasis on the development of ICT as a new growth and export sector. Those that do focus on ICT as an enabler often fail to make the linkage between ICT goals and priorities and those of the other development strategies as though synergies were expected to occur automatically. Similarly, national development strategies in general, and poverty reduction strategies in particular, provide the framework for focus on core development priorities, but the full and necessary integration or mainstreaming of ICT in these strategies is lacking. The OECD estimates that of the twenty nine poverty reduction strategy papers (PRSPs) of Heavily Indebted Poor Countries (HIPC) in 2003 only twelve define or position ICT as a strategic component of poverty reduction and address it as an independent item in their PRSPs.³

This problem is a function not only of a lack of full awareness of the potential of ICT and the adoption of mutually exclusive sectoral approaches to development, but also because network access and infrastructure remain an issue. With the trend toward the deregulation and privatization of the global telecommunications industry in the 1990s, development banks and national donor agencies effectively withdrew from public infrastructure finance in lieu of the private sector. In hindsight, this decision may have been premature. Market and regulatory failures, particularly in sub-Saharan Africa, have led to cases of privatised state entities retaining effective monopoly control, limiting competition and reducing network investment. While mobile cellular networks are believed to have now brought some 80 percent of the world's population within reach of a telephone⁴, regulatory policy frameworks, licensing conditions and a lack of financial mechanisms to support connectivity have also failed to realize tangible coverage and affordable access, particularly in rural and remote areas. As a result, a broad reappraisal of current policy frameworks, roles, responsibilities and mechanisms to facilitate provision of basic telecommunications infrastructure services is currently the subject of intense debate.

Traditionally, this access gap has been addressed in piecemeal fashion by governments and donors with a limited ability within the ICT for Development community to move beyond mere pilot projects in the scaling-up of investments for mass market deployment. This has partly been due to lack of coordination and duplication among donor agency and government initiatives within countries, where competition for volume has taken precedence over the goal of development impact. Local actors and local content have also often been under-emphasised in initiatives. Both donors and governments have been slow to foster the requisite private sector participation at the earliest stage of project implementation essential to ensure buy-in and long term investment. Looking forward, innovative public-private or multi-stakeholder partnerships

³ See "Integrating Information and Communication Technologies in Development Programmes", OECD Policy Brief, OECD, 2003.

⁴ See ITU above.

between government, business, civil society and international organizations while complex are increasingly viewed as essential for large scale ICT for Development projects – for building ownership, ensuring relevance, leveraging core complementary competencies and sharing financial risk. These types of partnerships will often need to be accompanied by scalable approaches for national franchising of public access and the use of (minimum) public subsidy schemes to support provision in under-served areas and uneconomic market conditions. .

The focus on the role of the private sector in ICT for Development interventions – including the local private sector - cannot be underestimated: in advocacy for pro-poor growth strategies; in integrating private sector development and poverty reduction strategies; in helping to create enabling legal and regulatory environments; in finance and risk mitigation; in human and social capital and innovation development; in product, commodity markets and trade; in infrastructure investment and deployment; and in interaction with donors and donor organizations. Again, though the role played by the private sector has significantly increased in the digital era, investment shortfall due to the global technology downturn means that careful nurturing of their involvement by donors and governments will be required for some time to come.

Inevitably, perhaps the critical issue concerning mainstreaming ICT for the achievement of the MDGs is that of resource mobilization. The jury is still out on whether enough evidence exists to make the case either for supporting a massive, multi-billion dollar financial infusion toward bridging the digital divide, or for the creation of a dedicated global financial mechanism for its disbursement. And questions remain on many fronts: Should priority be given to the LDC investments? How will funds released by adherence to the Monterrey commitments and HIPC debt relief be channelled? What are the respective roles of the public and private sectors? Can technological transformation be leveraged to provide new and leapfrog business models for affordable provision? What innovative sources of financing for development can be found?

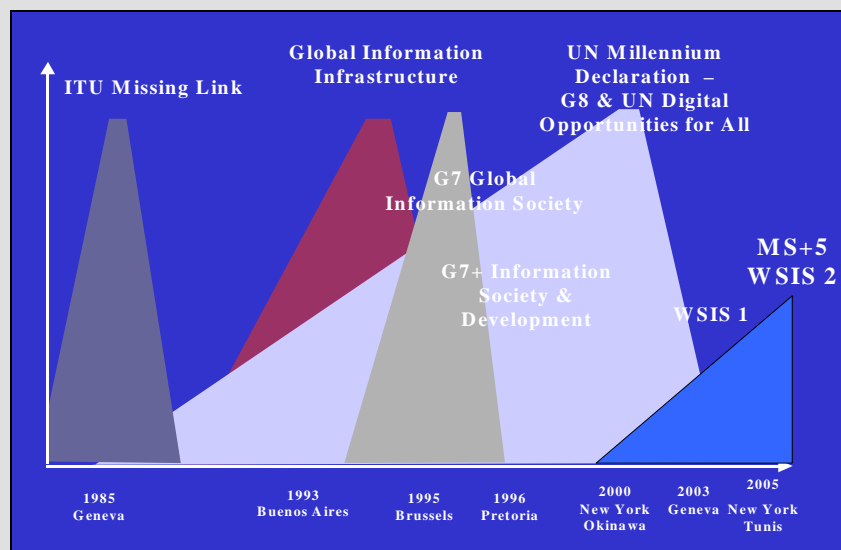
In this context, the UN-led Task Force on Financial Mechanisms for ICT for Development that resulted from the first phase of the World Summit on the Information Society is expected to examine these questions in more depth and will look to play a catalytic role with findings due in 2005. As mentioned earlier, however, for all intents and purposes the science, technology and innovation that need to be invented to meet the unresolved challenges of ICT for Development have by now been invented. But it will be the intersection of ICT and the MDGs that will form the vital nexus for future interventions at the national, regional and international levels. The bottom line in 2005 is whether a global and prioritised policy and programmatic breakthrough in coordination and commitment can be marshalled in time to harness the synergies of ICT and the MDGs over the coming decade toward 2015.

IV – ICT & the MDGs – Work in Progress

In 1985, the landmark “Missing Link” report of the Independent Commission for Worldwide Telecommunications Development recommended that by the year 2000 every village on the planet should have access to a basic telephone.⁵ Two decades later, and despite repeated and nuanced efforts by government, business, civil society and international organizations aimed at bridging the digital divide, this simple goal remains elusive. While unexpected market forces in the guise of mobile telephony and the Internet have driven the explosion of worldwide ICT diffusion during this period, the evolving and multi-dimensional nature of the digital divide has stalled moves to adequately express the severity of the problem in ICT for Development policies and programmes.

Nowhere has this been more evident than in the past decade’s series of reconstructed global ICT summits that have resulted in a summary failure to deconstruct the global digital divide (Figure 5). Part of the difficulty in framing the debate has been the lack of awareness of the digital divide as effect rather than cause. It has always been largely a reflection of deeper and more ingrained economic and social schisms related to poverty, hunger, illiteracy, healthcare, or geographical location, all of which have justifiably been viewed as of far more pressing concern. Another difficulty has been the flawed perception of the existence of a solitary digital divide between rich and poor nations. In reality, deep divisions and complex cleavages occur both within developed and developing countries themselves, as well as between developing countries.

Fig.5 Scaling the Summits – Situating ICTs & MDGs



Source: WSIS

In common with the MDGs, a shock to the system is required if the necessary breakthrough is to be made in policies, priorities and mobilization of additional financial resources to bridge manifold digital divides. That breakthrough will see a shift from emphasis on universal telecommunications access to the delivery of public and private services in support of the MDGs; from the need for more investment in physical infrastructure to simultaneous investment in an enabling environment, human capacity, innovation and enterprise; from an ICT-

⁵ See “The Missing Link: Report of the Independent Commission for Worldwide Telecommunications Development, ITU, 1985.

based industry focus to a multi-sectoral-based industry focus spanning the breadth of the MDGs; and, from a “one size fits all” approach to detailed differentiation between the policies and priorities most appropriate to individual developing countries whether early or late technology adopters.

For too long the ICT industry has been mired in an internal dialogue on the digital divide. In the process it has lost sight of the endgame of delivering pro-poor products and services matched to the full range of development applications that, with consequent economies of scale, will grow the worldwide market as a whole. As ICT increasingly intersects with the MDGs and overlaps with adjacent industries, and as the pace of technological innovation intensifies, the debate is now moving beyond the digital divide. In developed countries, the rush to broadband infrastructure is resulting in multi-billion dollar telecommunication equipment write-offs. In developing countries, those able to embrace knowledge, entrepreneurial skills and competitive business models via broadband networks are now reaping the rewards of the outsourcing and offshoring phenomena. Those unable to do so are falling ever further behind. The playing field is at once levelling and yet becoming more uneven.

That the ICT for Development landscape is remodelling in real time presents key challenges and opportunities to all players. Each must chart a path toward digital inclusion through unknown terrain. For major donor agencies who have been struggling to incorporate ICT into their overseas development assistance (ODA) strategies, the MDGs provide a welcome compass. After years of experimentation on ICTs in often stand-alone, frequently unsustainable pilot projects, attention is now being drawn to the need to leverage ICTs for poverty reduction strategies and the MDGs through a focus on integration, scaling and replication. From experience it is clear that ICT and technology “push” projects have generally been ill-suited to fulfilling the requirements of the MDGs. Rather, “pulling” ICTs into development projects where appropriate and relevant at an early stage – often with a mix of traditional and new media and achieved via multi-stakeholder partnerships – to achieve greater efficiency and service delivery will have far greater poverty impact.

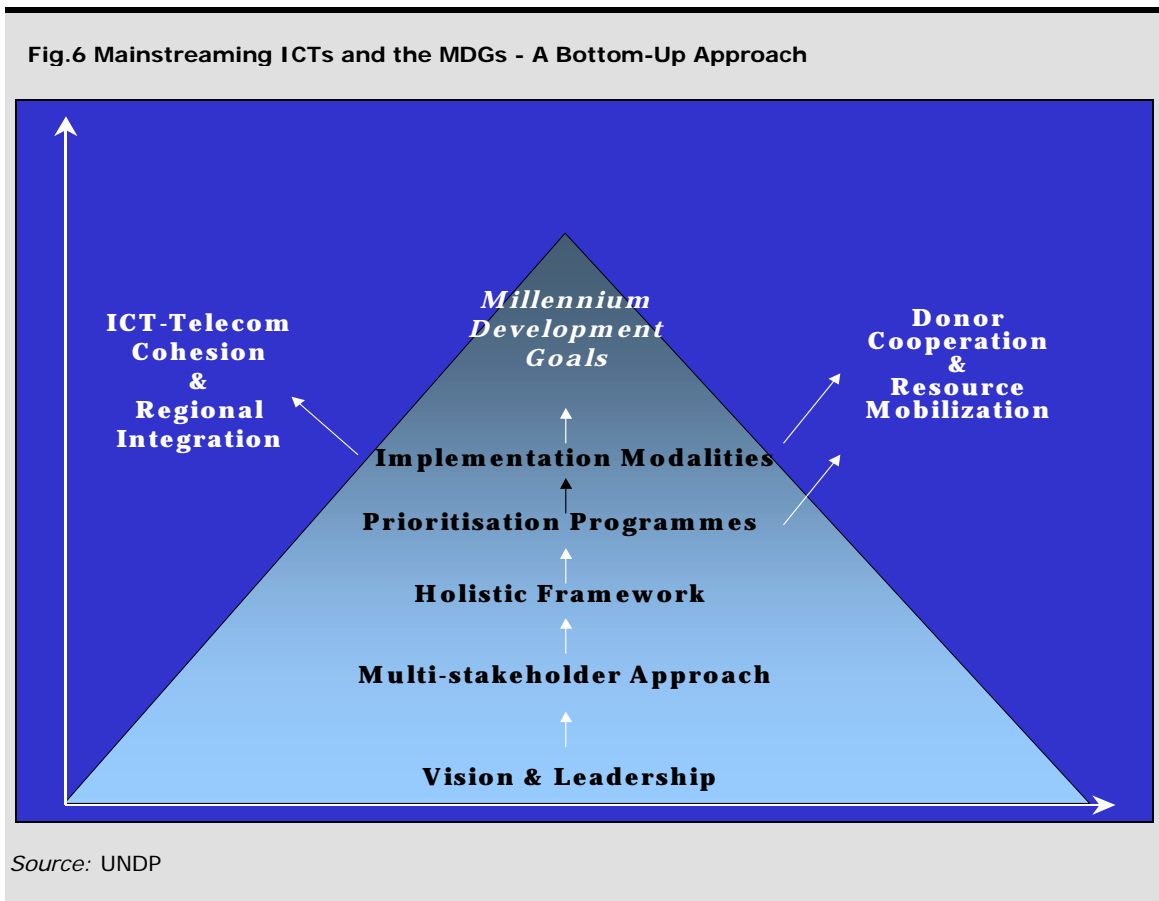
Just how successful the shift from push to pull will be, however, will depend on a combination of full integration in national development plans and PRSPs, again at an early stage, and the prioritization of ICT in sectors with the greatest potential payback, such as income poverty, youth and gender empowerment, and HIV/AIDS. As mentioned earlier, the mainstreaming of ICT in these strategies is currently lacking in a majority of LDCs and needs urgent attention. In addition, many PRSPs suffer from a shortfall of donor support and are rarely ambitious enough to meet the MDG targets. There are often only weak procedural and financial links between the MDGs, the national budgets, and the levels of ODA. And in many cases PRSPs remain too top-down from national governments, with villages and cities yet to be empowered to implement much of the scaled up investment.

Research has shown that in the context of ICT maximum MDG benefits have accrued in countries that have adopted and implemented bottom-up and holistic e-strategies that are aligned with overall national development strategies, thus bringing ICT to bear on all the diverse components of national development agendas such as governance and institution building, infrastructure and access, health, education and capacity building, local content development and fostering an enabling policy and regulatory environment to stimulate competition, entrepreneurship, commerce, investment, job creation and growth. Thus, when a set of interrelated conditions are pursued in conjunction with one another, the interplay among them becomes catalytic, creating a development or MDG dynamic.⁶

In practice, any blueprint for a national e-development strategy will comprise a number of essential elements: a clear e-strategy vision championed at the highest political level; a multi-stakeholder approach to enhance results; a cross-sectoral holistic strategy; realistic priorities for e-strategy actions and programmes; simplified implementation modalities; national and

⁶ See “Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative”, Accenture, Markle, UNDP, 2001.

international cooperation and partnerships for a prioritized and nationally-owned e-strategy; global inclusion of developing countries and ICT in ODA; ICT to facilitate regional integration and regional integration to facilitate ICT deployment; telecommunication and information technology policy cohesion, convergence and low-cost cutting edge solutions; and, an overarching focus on achieving the MDGs themselves (Figure 6).⁷



So what is the critical role of knowledge and information to economic and human welfare with respect to the MDGs? How can ICT and the MDGs practically contribute to empower the PRSP process, to improve the efficiency of public and private service delivery, and to enhance livelihoods? To what extent should ICT for Development priorities, policies and practices differ with respect to “off-track” versus “on-track” developing countries? While these key questions should have been posed far earlier by the development community, it is in direct response to the MDG challenge of scaling up and replicating that they are now being addressed.

The MDGs provide a robust platform whereby government, business, civil society and international organization initiatives and interventions can coalesce. Yet resistance by government and business to full acceptance of the critical role to be played by ICT in support of the MDGs must quickly be diffused by hard data on development impact and the real potential to scale up and replicate. While significant anecdotal evidence has already been amassed in this direction, major efforts are now underway to produce systematic measurement criteria by the end of 2005.⁸ For the moment mainstreaming ICT for the achievement of the MDGs remains very

⁷ See “National & Regional E-Development Strategies: A Blueprint for Action”, UNDP, in *The Role of ICT in Global Development*, UN ICT Task Force, 2003.

⁸ See “Youth, Poverty and Gender: ICT for Development Success Stories”, GKP, 2003. Forthcoming work on the development impact of ICT and the MDGs is expected from the Un Partnership for Measuring ICT for Development, the UN ICT Task Force and the World Bank Group before the end of 2005.

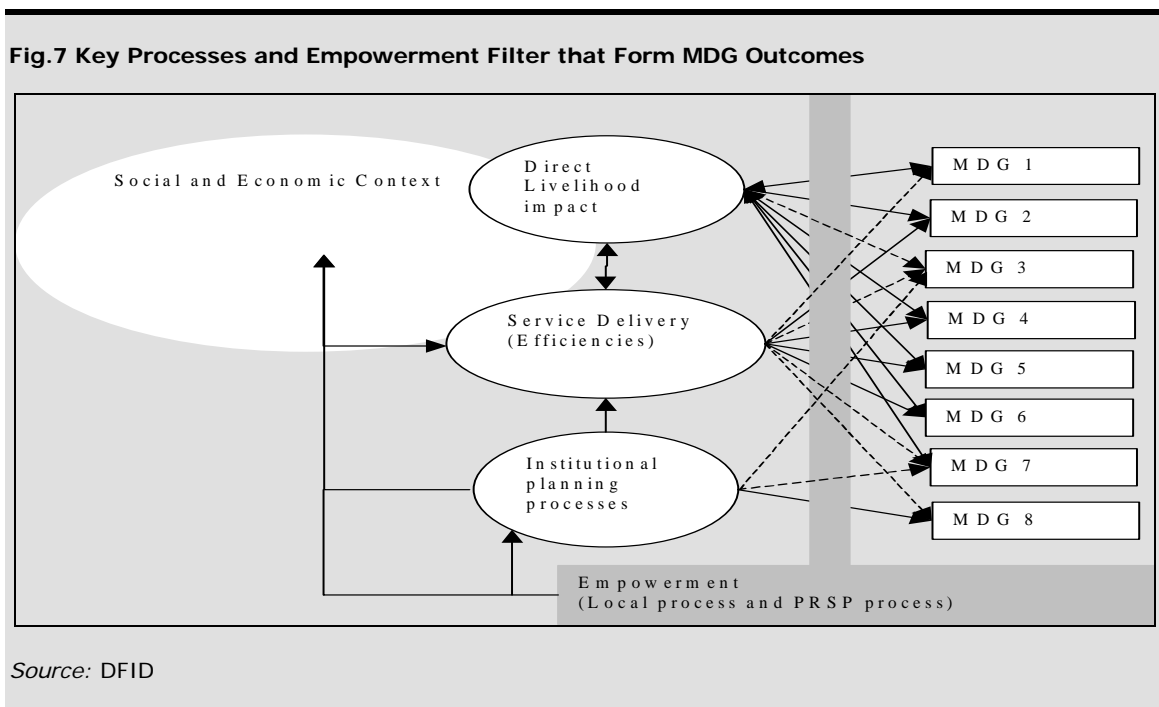
much work in progress, and the following describes the generic development impact across the first seven MDGs.

IV.1 - ICT for Poverty Eradication and Hunger (Goal 1)

The multi-dimensional nature of poverty has complex causes. Apart from lack of material wealth and possessions, poor people are often deprived of basic nutritional, educational, and healthcare needs. In addition, they are denied access to knowledge and information, a primary source of economic opportunity and political empowerment, rendering them vulnerable and prey to social exclusion. Though lack of access to ICT is clearly not a primary problem of poverty compared to the basic, urgent needs of the poor like food and shelter, ICT can be seen as both an accelerating and driving force for progress as well as an outcome of human development itself.

Promoting opportunities for the poor is an essential element of poverty reduction. Consensus is building in the development community on the need to focus attention on ICT interventions that match local needs and conditions and concentrate efforts in a four of principal areas⁹:

- (i) *stimulating macroeconomic growth*, with the contribution of the ICT sector to the economy and of ICT investments to economic growth and job creation;
- (ii) *increasing market access, efficiency and competitiveness of the poor*, with micro-level and people-oriented interventions (for example, via the use of or village payphones and knowledge centres that improve agricultural practices through access to information on crop selection, irrigation, fertilizers, and fishing and livestock conditions, thereby raising yields and reducing poverty and hunger;
- (iii) *improving social inclusion of isolated populations*; with the interactivity, permanent availability, reduced cost and global reach of ICT making social inclusion of poor and disadvantage groups more feasible;
- (iv) *facilitating political empowerment*, with improved planning in the local and PRSP processes through ICT via inclusive, informed priority setting, increasing accountability and good governance. Here, key processes that will inform MDG



⁹ See "ICT & the MDGs – A World Bank Group Perspective", WBG, 2003.

outcomes include institutional planning, service delivery and efficiency, and direct livelihoods impact, all enhanced by an essential empowerment filter at the local and PRSP levels (Figure 7).

One of the most compelling examples of the importance of moving from anecdotal to empirical evidence to demonstrate development impact, as well as the necessity of adopting a long term investment and partnership perspective is Bangladesh's village payphone operator, GrammenPhone. At one stage almost a cliché within the ICT for Development community as a stalwart for pro-poor business models, GrammenPhone has recently undergone a surgical re-evaluation by the OECD. While originally held back by local regulatory constraints, over-ambitious growth forecasts, and creative tensions among its multi- One of the most compelling examples of the importance of moving from anecdotal to empirical evidence to demonstrate development impact, as well as the necessity of adopting a long term investment and partnership perspective is Bangladesh's village payphone operator, GrammenPhone. At one stage almost a cliché within the ICT for Development community as a stalwart for pro-poor business models, GrammenPhone has recently undergone a surgical re-evaluation by the OECD. While originally held back by local regulatory constraints, over-ambitious growth forecasts, and creative tensions among its multi-stakeholder partners, the venture has since taken off only as a result of openness to innovative and pro-poor business models, and long term investment commitment.¹⁰

Since 1997, GrammenPhone has provided some 45 000 telephones to 39 000 villages in Bangladesh, bringing access to the telephone to some 70 million people. By 2003 GrammenPhone was the largest source of foreign direct investment (\$230 million) and second largest corporate taxpayer (\$280 million) in the country. The Village Phone model has now been replicated in Uganda with a like degree of success, while in Bangladesh the company is now leveraging its market power both to lobby government to ease punitive tax rates to boost network investment. With its indispensable role in flood disaster relief the company has also assumed the mantle of a national public good. And with radical innovations such as 50c prepaid scratch cards (in contrast to conventional \$10 cards), it is pioneering the stimulation of pro-poor economies of scale. In practical poverty reduction terms, a 24 percent increase in income of Bangladesh village phone owners (Figure 8, also detailing representative gains across the six other MDGs.

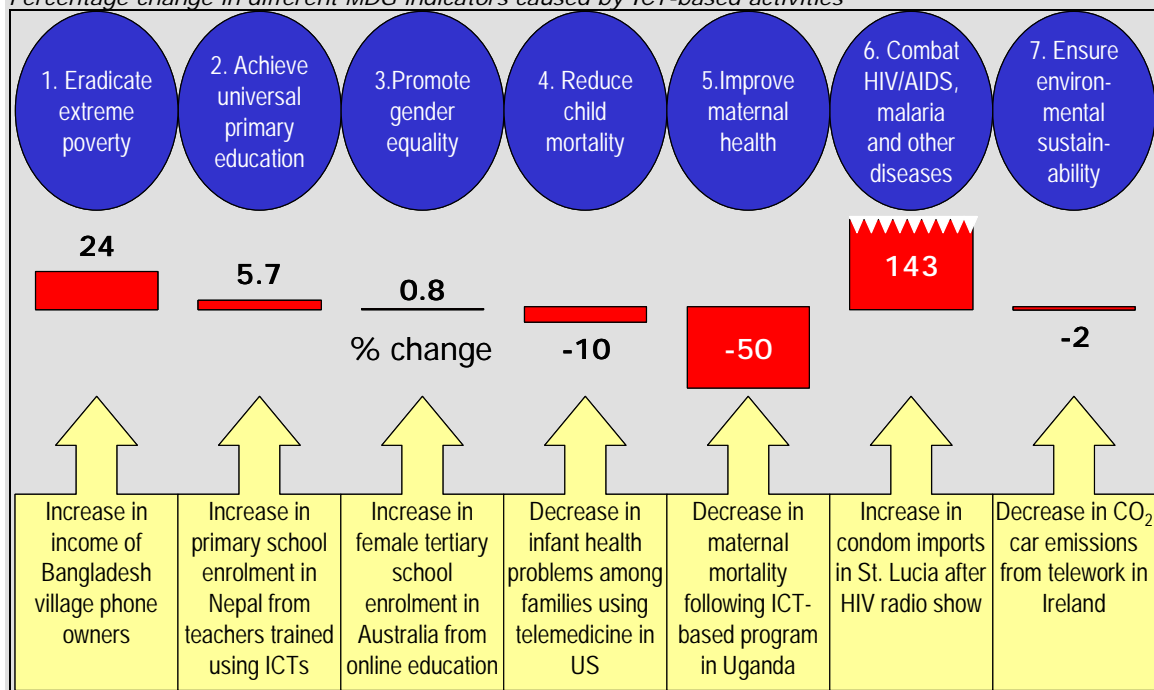
IV.2 - ICT for Primary Education (Goal 2)

There are many hurdles to achieving the MDG target of all children receiving primary school education. Of the 680 million children of primary school age in developing countries, 115 million do not attend school, with 60 percent of these children girls and 74 percent living in South Asia and sub-Saharan Africa. ICTs can help overcome the chronic shortage of facilities and teachers in an efficient and economic manner for many countries facing budgetary constraints. Unesco estimates that an additional 15-35 million educated and trained teachers will be needed over the next decade if all countries are to achieve the MDG of universal primary education by 2015. ICT-based distance training can overcome the shortage of primary school teachers by accelerating instruction. ICT can also supplement primary school teaching thereby helping to overcome shortages. And via the traditional ICTs of radio and television ICT could also be used to emphasise the importance of primary school attendance, particularly where in areas with strong social or cultural barriers.

Based on extensive interviews in Bolivia, Ghana, India, Namibia and South Africa, the Global eSchools and Communities Initiative (GeSCI), backed by the UN and governments of Canada, Ireland Sweden and Switzerland has recently identified five educational building blocks with respect to key educational challenges and ICT solutions desired by schools:

¹⁰ See "GrameenPhone Revisited: Investors Reach Out to the Poor", OECD DAC Network on Poverty Reduction, 2004.

Fig.8 – Development Impact of ICTs on the MDGs
Percentage change in different MDG indicators caused by ICT-based activities



Source: ITU. *teachers*, with inadequate training and ICT-based (TV or computer) teacher training;

- (i) *teachers*, with inadequate training and ICT-based (TV or computer) teacher training;
- (ii) *infrastructure*, with long distance to schools in some areas and remote distance learning via ICTs;
- (iii) *curriculum and content*, with outdated curricula and inclusion of ICT skills in curriculum, and ineffective distribution of content for teachers and ICT-based delivery of traditional and rich content;
- (iv) *teaching and learning tools*, with under-equipped laboratories and insufficient tools and materials for project work and ICT-based education tools for classroom teaching and for project work by learning;
- (v) *administration*, with high volume of manual administration and for teachers and principals with basic ICT applications for administration.

The GeSCI also notes that ICTs in schools also deliver enormous benefits to their local communities in employment, adult education and skills making, health, business services, communication and e-government. It is currently pioneering an end-to-end e-School system with developing country and private sector partners that is claimed to reduce costs by a factor of eight. Based on the 2.5 million schools in the developing world, it is estimated governments spend approximately \$250-300 billion on education annually, or about \$100 000 per school. ICT spending in developing countries is about \$150-200 billion per year, compared to \$6-8 billion needed to deliver ICT solutions to all schools.

IV.3 - ICT for Gender Equality (Goal 3)

Women have been too long limited from participation in many areas of economic and educational opportunity and political empowerment. The MDG on gender equality has the specific target to “eliminate gender disparity in primary and secondary education preferably by 2005 and in all levels of education no later than 2015”. ICTs can be used to influence public opinion on gender equality, increase economic opportunity, improve women’s education and

conditions for women as educators, and enhance women's ability to know their rights and participate in decision making.

ICTs promote gender equality by providing online opportunities that are not always available in the "off-line" world. The Internet in particular allows women to interact with men without face to face contact, and from remote locations. ICT also helps female entrepreneurs, with often limited resources, reduce transaction costs, increase market coverage, and even expand across borders. The Self-Employed Women's Association (SEWA) of India, who employ a mix of mobile village phones, Internet, satellites and television ICTs to promote their artisan handicraft network, comprises somehh 5000 women who have used their life savings to access village mobile phones for garnering market information. SEWA estimate that 93 per cent of the Indian economy is unorganized and 60 percent of this is accounted for by women. With appropriate investment in gender-based initiatives it believes that a new class of ICT literate technicians is being bred in India that can now wield significant lobbying at the level of local, regional and national government.

In education, primary responsibility to child-care, food and other household tasks have impeded women's ability to attend school. In some countries, social customs make it difficult for women to participate in activities that involve mixing with men. In some cases, female school enrolment declines after childbearing age. ICT can help overcome the barriers through the application of distance learning. Likewise, enrolment for ICT-based training for teachers via distance learning has outnumbered men in many countries.

IV.4 - ICT for Health (Goal 4, 5, 6)

The influence of ICT on healthcare in developing countries has already been immense. In the field of prevention and treatment for HIV/AIDS and other infectious and communicable diseases, however, it has barely scratched the surface. ICT has enabled healthcare workers to perform remote consultation and diagnosis, access medical information and coordinate research activities more effectively in the past two decades than in the history of medicine. Not only is ICT an essential component in providing remote healthcare services, storing and disseminating healthcare information, and research, training and networking of and for health workers. Through both traditional (radio, TV, video, CD) and new (wireless, Internet) ICT media, ICT can also provide an effective and cost-effective channel for the distribution of healthcare and disease prevention information to the general public.

The role of ICT in achieving health-related MDGs is indispensable. ICT is an invaluable tool for both healthcare workers and the international development community for their combined efforts in the reduction of child mortality (Goal4), improvement of maternal health (Goal5), and combating HIV/AIDS, malaria and other diseases (Goal 6). Diseases of childhood accounted for nine percent of children not living to see their third birthday. ICT can be used by healthcare workers to establish databases to track vaccination programmers, to coordinate antibiotic shipments and to inform communities of medical services that can prevent child mortality. Maternal death is the leading cause of death for women of reproductive age in the developing world. ICT can critically reduce the incidence of maternal death numbers by facilitating access to information and healthcare services.

In the battle against the HIV/AIDS pandemic, ICT can enhance disease monitoring and management, drug distribution systems (for generic anti-retroviral drugs), training of care givers, patient education and monitoring and facilitation of the development of support networks for people living withy HIV/AIDS and their care givers. Yet the potential to enhance HIV/AIDS response is yet to be fully leveraged in developing countries most affected by the crisis. In many cases, these countries are lacking in both the infrastructure and human capacity (further weakened by the toll taken by brain drain and HIV/AIDS) required to implement comprehensive ICT strategies that could add real value to prevention, treatment and policy support. In addition, the potential of ICT as a cross-cutting tool spanning all the MDGs that can add value in addressing the pandemic is not widely recognised.

A number of ICT initiatives against HIV/AIDS are currently underway, at varying levels of sophistication, scale and range. These initiatives encompass networks aimed at enhancing access to knowledge on HIV/AIDS treatments to the use of geographic information systems (GIS) to map the spread of the disease in relation to socio-economic variables and treatment. In some cases, clinical information infrastructure systems and simpler mechanisms have been used to address the logistics of distribution and monitor the use of essential drugs. Virtual forums and lists have facilitated the discussion of access, treatment and enhanced advocacy and awareness raising. Evaluations of effectiveness, identification of good practices and mechanisms to scale productive intervention and systems is yet to happen. Further, to the extent that HIV/AIDS response needs to be cross-sectoral to address the pandemic's multiple dimensions, a more widespread coordination and strategic deployment of ICT that create new synergies and enhance overall response effectiveness is critically overdue.

IV.5 - ICT for Environment (Goal 7)

This MDG proposes integrating the principles of sustainable development into country policies to reverse the loss of environmental resources, halving the proportion of people without access to safe drinking water and achieving a significant improvement in the lives of slum dwellers.

Managing and protecting the environment contributes to improving human health conditions, sustaining agriculture and other primary production sectors, as well as reducing risks of natural disasters such as flood, mudslide and wildfire. The effects of ICT on sustaining the environment are multidimensional. ICT enables greater participation by the population in activities to protect the environment through networking and information exchange. ICT also provides researchers with critical tools for the observation, simulation and analysis of environmental processes. Environmentally friendly work habits are also increasingly the cultural norm in many countries promoted through ICT in areas such as reduction of paper and working from home.

Raising awareness and sharing knowledge; environmental monitoring and associated resource management and risk mitigation; environmental progress in the ICT sector; enabling greater environmental sustainability in other industrial, commercial and agricultural sectors; and by communication and developing and enforcing policies affecting the environment – all of these contribute to sustainable development and protecting environmental resources through the marriage of ICT and the MDGs.

V – ICT & the MDGs – Leadership as Partnership

For champions of ICT for Development, a key objective in recent years has been to elevate networking into the mainstream of development dimensions as agreed by generalists. This has involved articulating the role of networking in the development portfolio, attempting to achieve the right balance of analytical and qualitative argument, and linking into the existing lexicon of development in the areas of poverty, health, education, gender and environment. However, rather than taking the approach to systematically “problematise” ICT in development policy and programmes, there has been a tendency among practitioners to depict ICT almost as a black-box solution, and a solution situated within a win-win world of common interests between developed and developing countries.

The MDG campaign offers the possibility not only to correct this fallacy but also to contextualise the unresolved challenges and untapped opportunities within the ICT for Development field. Moreover, Goal 8 “Develop a global partnership for development” and Target 18 “In cooperation with the private sector, make available the benefits of new technologies, especially information and communication” suggest a powerful framework to both resolve those challenges and realize those opportunities. This is of critical importance to LDCs because a shift in emphasis away from the unfulfilled and unrealistic expectations of technology leapfrog espoused by ICT proponents throughout the 1980s and 1990s is urgently required if accelerated progress is to be made.

It is important to recall that the great ICT success stories of the Celtic and Asian tiger economies during the above period were built on a long term political vision of market-based incentives backed by strategic investment in infrastructure and human capacity way beyond the reach of any heavily indebted LDC. At the core of the ICT and MDG debate is the question whether or not ICT can contribute to improving efficiency in delivering the MDGs, and hence accelerating the achievement of development targets. This is an essential corrective to the traditional over-emphasis on the creation of a domestic and export-oriented ICT sector, so quickly exposed in the poorest countries to global volatility and competition.

Once ICT for Development policies and programmes are embedded within the PRSP process, even subordinated in the service of the MDGs, many unresolved challenges and untapped opportunities are thrown into relief: policy and regulatory frameworks for ICT investment that achieve the right balance between investment promotion and meeting the needs of low-income customers; profitable business models that engage the private sector in the local delivery of affordable ICTs to rural and urban areas; coordination and cooperation between government, business, civil society and international organization initiatives; and, financing mechanisms that realistically and effectively address the funding deficit in bridging the digital divide. By setting clear development priorities resource allocation to the kind of multi-stakeholder ICT partnerships needed to achieve the MDGs can be pressed far more robustly.

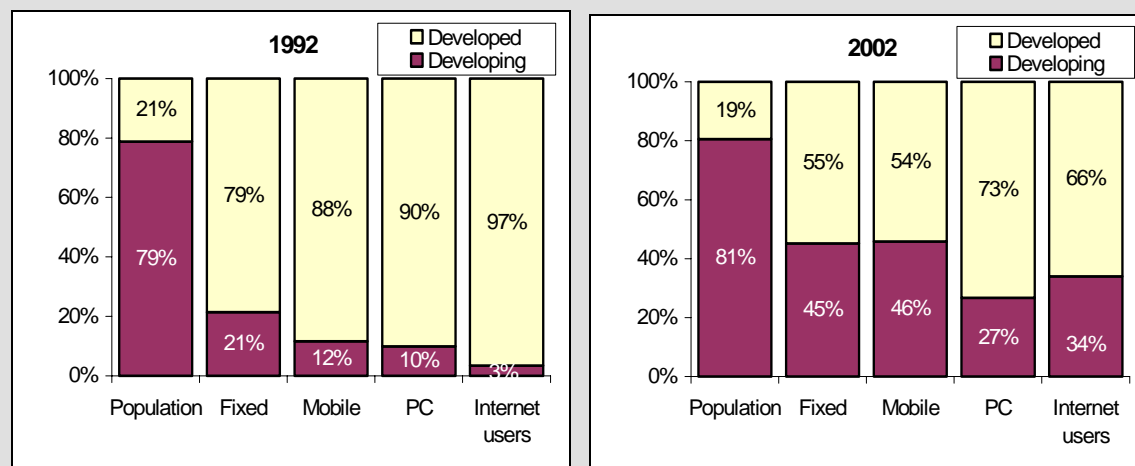
Similarly, the massive scaling up and low cost delivery of public and private services to the world’s poorest citizens inherent in the MDGs also focuses attention on innovative and breakthrough approaches to ICT delivery that exploit the enormous variety of communication technologies. These approaches must allow access to information that is most relevant to people’s multi-dimensional livelihoods. It requires forms of ICT transactions that achieve the optimal division of risk between the public and private sectors, and that afford the necessary flexibility for operators to deliver pro-poor services over time. It recognises the importance to livelihood security of social capital, identifying those ICTs that contribute most to building this asset. And it implies knowledge and information delivery critical to sustainable livelihoods that reach the right people at the right time at the right price.

V.1 - Untapped Technologies

Phenomenal growth has been achieved by developing countries in the global ICT sector over the past decade. From 1992 to 2002, the ITU estimates that the developing countries’ share

of the world's fixed telephones grew from 21% to 45%, mobile phones from 12% to 46%, PC users from 10% to 27% and, most impressively, Internet users from 3% to 34% (Figure 9). Mobile networks have been growing faster in LDCs than elsewhere in the world with an estimated 80% of the planet's population now covered by wireless access. Yet coverage is not usage with still only one telephone per 100 people in LDCs, and 20% of the world's population with no ICT access at all. In this regard, breakthrough technologies are emerging in four key areas to address this deficit that have particular significance for the MDGs:¹¹

Fig.9 Progress in Bridging the Global Digital Divide



Source: ITU

Low cost devices – These encompass computers, PDAs, terminals, peripherals, routers, communications devices, and embedded software. In theory there is no limit to how cheap computer and communication devices can become. Cellular telephones have already assumed the status of commodity consumer electronic items with pre-paid cards having created a truly mass market and no technical reason today why such cards could not be calibrated in cents rather than dollars for even greater diffusion. Computer costs will also continue to fall precipitously due to the basic laws of physics, while several pioneer projects to deliver the people or volks-computer for developing countries are underway.

As mobile and computing technologies converge progress will accelerate, but the key challenge for low cost devices will be building profitable business models that work in the emerging rural markets they target. The target market is enormous but unstructured and needs further study along the lines of the GrammenPhone micro-financing partnership model and the use of pre-paid approaches for the creation of robust business plans. Remaining challenges will be to see how cheap devices can become, whether major manufacturers will be willing to produce and sell low cost devices of shared design, or whether assembly and final checking of these devices could, for example, be converted into a business for NGOs and service-oriented SMEs.

Low cost software – This encompasses operating systems, utilities, and development platforms. Proprietary operating systems and applications have until now mainly been priced for developed world market conditions. The advent of “free” and “open source” software has not only captured the imagination of many developing countries, with the promise of low costs and the freedom to modify and adapt software to their local context with linguistic customization, but

¹¹ See “The Future of Information and Communication Technologies for Development”, Braga, Daly, Sareen, Development Gateway Foundation, 2003.

expanded competition and choice. The potential to adapt intellectual property rights approaches to contribute to the development agenda, as in the case of provisioning for HIV/AIDS anti-retroviral drugs, has had important implications for the MDGs. Yet both open software and nascent social licensing schemes are at a relatively early stage of development and in reality very rarely come entirely free.

Social licensing schemes for cheap or free software programmes for healthcare, education and government offered by vendors can facilitate lock-in, while open source solutions though removing source code IPR, in the spirit of early Internet software pioneers, can often involve significant development costs where capacities are limited. Again the potential market in developing countries is huge. Remaining challenges will include investigating licensing scheme for software targeting the needs and conditions of social entrepreneurs, determining how cheap software could become in such schemes, and evaluating which requirements will have to be satisfied by local governments and NGOs in order to benefit from such schemes.

Wireless solutions – These include satellite-based systems and terrestrial wireless not only for “last mile” but also for back-haul and rural connectivity. The high cost of equipment and licences has traditionally restricted fixed and cellular telecommunication access to densely populated areas in developing countries. The critical factors of affordability, ease of deployment, and appropriate business models in rural areas has increasingly favoured satellite and terrestrial wireless networks in recent years. At the time, the implosion of the low-earth orbit satellite industry at the end of the 1990s was of particular concern to developing countries because of the promised of cheap and universal access from these global systems. In reality, the near-ubiquitous spread of mobile telephones during this period closed the window of opportunity for the small and big LEOs, and expectations for rural satellite provision have since somewhat diminished.

Wireless Fidelity (WiFi) and WiMax technologies is increasingly being seen as the most appropriate solution for rural connectivity due to its maturity, affordability and pervasiveness and the potential to leapfrog.¹² The “de-licensing awareness” among developing country governments of its potential, the backing of major semiconductor manufacturers, and its attractiveness top telecommunication operators as a less expensive infrastructure alternative may well make it the *de facto* technology of choice as the “first mile” infrastructure digital inclusion and rural communications for both voice and data in LDCs. More work needs to be done to refine WiFi for ease of deployment while at the same time pursuing business models around WiFi Internet Service Providers in rural areas.

Content and Applications – This include local Internet content, local content in traditional media, local content in analogue form and its digitalization, ICT applications in major areas such as health education and government, and new strategic technologies such as GIS and GPS. The absence of content in local languages is a key limiting factor in the spread of the benefits of ICT to marginalized communities. This can be ameliorated in the use of the Universal Network Language which allows storage on the Internet of domain-specific information in a particular language in its semantic form. Technological advances are now demonstrating access to domain specific information from a different language than that in which it was originally stored. This is enabled by new search technology that allows the querying of information from these semantic representations in different languages.

In many cases, the bandwidth of content must be changed to meet the needs of people in developing countries. In the context of the MDGs and low income markets, inter-modal linkages become much more relevant. Integration of the Internet with community radio and mechanisms to facilitate e-mail dissemination of web content are some of the relevant areas for future research. Overriding questions concern how digital content can become an industry in developing countries, investigation of the requirements for electronic distribution at cost, which technology packages can be offered under social licensing schemes on a commercial basis, which packages can be offered under “copyleft” schemes, which open technology initiatives should be promoted, and how all of these can succeed in developing countries.

¹² See “Birth of Broadband”, ITU, 2003.

None of these breakthrough technologies can exist in a vacuum, and require enlightened if not radical policy and practice adjustment where policy and practice development has proven insufficient, or resulted in market failures. A range of programmes may be appropriate here including; support for emerging technologies like WiFi and voice over Internet Protocol (VoIP); support for increased international connectivity; support for low user programmes such as very cheap cellular handsets; seed-corn finance for application service providers, and other small, niche ventures with low capital needs; programmes that address specific capability gaps such as IP configuration and html creation. In all these cases the potential for multi-stakeholder partnerships to scale up and replicate interventions is compelling.

V.2 - Unique Multi-Stakeholder Partnerships

Extensive research has been undertaken by the Digital Opportunity Initiative and the Overseas Development Institute/Foundation for Development Cooperation/Global Knowledge Partnership in the area of ICT for Development multi-stakeholders partnerships (MSPs).¹³ Strategic alliances between, government, business, civil society and international organization are a growing feature of both developed and emerging economies. Such multi-stakeholder partnerships are necessary because it is increasingly clear that no one sector in society can deliver the complexities of sustainable human development alone. MSPs are alliances between parties drawn from government, business, civil society and international organizations that strategically aggregate the resources and competencies of each to resolve the key challenges of ICT as an enabler of development, and which are founded on principles of shared risk, cost and mutual benefit.

Most experts concede that the MDGs can be attained if and only if ambitious yet realistic nationally-determined priorities and initiatives are also promoted and advocated at the global level. And these priorities and initiatives must embed growth models based on sustainability, self-replication and multi-stakeholder partnerships, as evidenced in Internet-based efforts today. In the context of MSPs, the challenge of achieving greater ICT penetration and access in the developing world, and of the subsequent utilisation of this access to reduce poverty and contribute to the MDGs, are manifold. They include: ineffectiveness in the regulatory regime to attract new investment; public-private ICT transactions that fail to deliver affordable ICT solution; unprofitable business models for rural ICT access; ICT strategies that fail to exploit the diversity of technologies on offer; and, content that is irrelevant to the livelihood priorities of poor communities.

Paramount to success is the importance of taking a strategic approach to developing design parameters for a partnership. This will necessarily involve: finding partners able to contribute the necessary 'mix' of resources and competencies, in particular to ensure the long-term sustainability of ICT interventions; the importance of business partners understanding their commercial case for entering the partnership, be that reputation, local knowledge, testing of new products and services, or viable financial rates of return; and, recognition by the public sector that to reach poor communities living in remote locations there may be a need for subsidies for private investors and/or concessional rates for network access (Figure10).

Based on a series of case studies, and drawing from the "development dynamic" model proposed by the Digital Opportunity Initiative, ODI/FDC/GKP have identified several priority areas for further research and experimentation. These comprise: whether GrameenPhone-type partnership business models are replicable for other businesses interested in tapping into the low-income consumer market in developing countries; whether the engagement of community groups and development NGOs in the design of regulatory frameworks for public-private-partnership-based ICT access in remote rural areas might result in more balance in the competitive bidding of

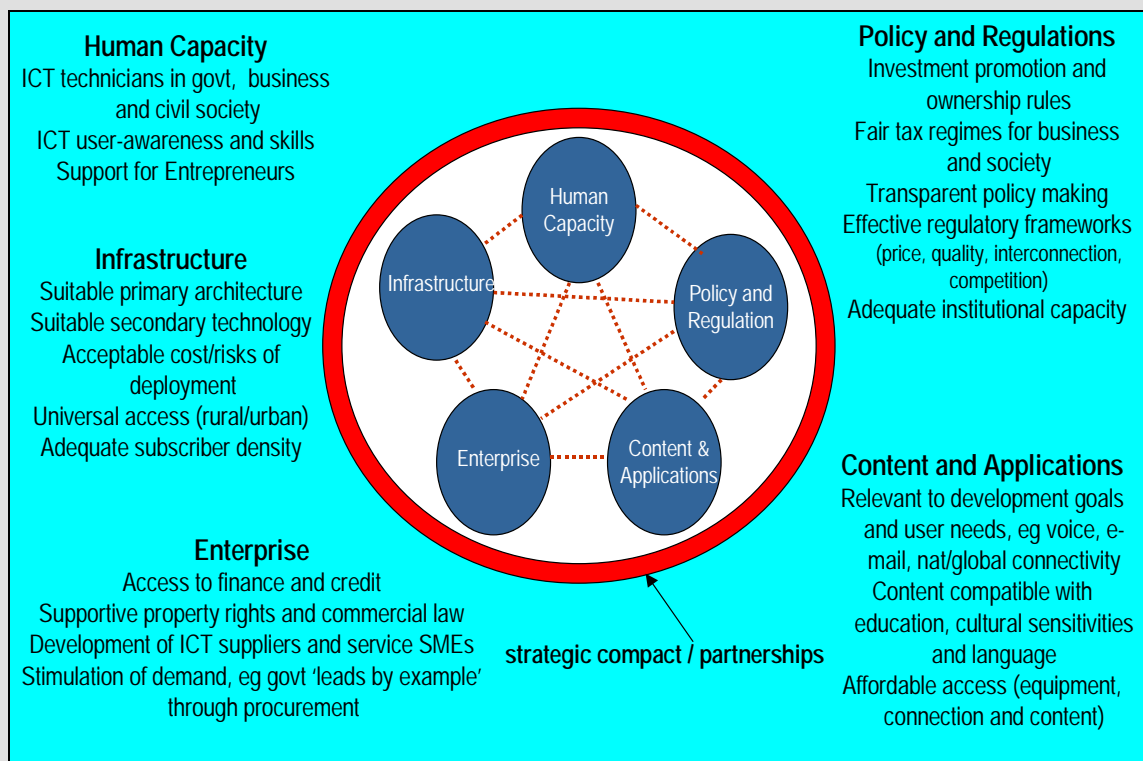
¹³ See "Creating a Development Dynamic - Final Report of the Digital Opportunity Initiative", Accenture, Markle Foundation, UNDP, 2001, and "Multi-Stakeholder Partnerships", ODI & FDC for GKP, 2003.

operators between achieving least cost (and/or subsidy) and livelihood-driven performance; and, what the design parameters of partnership projects should be when formulated in part for ICT companies to test the financial viability of marketing or product/service development targeted at low-income consumers.

There is, of course, one business model that already encompasses and exemplifies the unique characteristics of ICT, the MDGs and MSPs – that of the Internet. The deployment of Internet services on a national scale is one of the most challenging tasks imaginable in a developing country. Perhaps nothing today is richer in challenges (and rewards) than the proper planning and implementation of Internet services in a developing nation, because it will require re-thinking about all other infrastructural facilities, from transport to telecommunications. At one level, it requires the combined use of a whole range of communications infrastructure such as satellites, fibre optics, copper cable, and microwave radio links, which in turn strongly depend on the availability of other types of infrastructure, such as power lines, gas pipes, and roads.

At another level, complex partnerships involving governments, large companies and small sized enterprises have to be established in order to make Internet access available everywhere. Similarly, the legal framework which has to be put in place is a moving target changing everyday. Not only can Internet services provide the most compelling model of technological change and organizational learning applicable to other areas through this kind of integration of infrastructures, but the *viral* growth, global governance and citizen empowerment models heralded by the Internet have direct relevance to the achievement of the MDGs and deserve in-depth consideration.

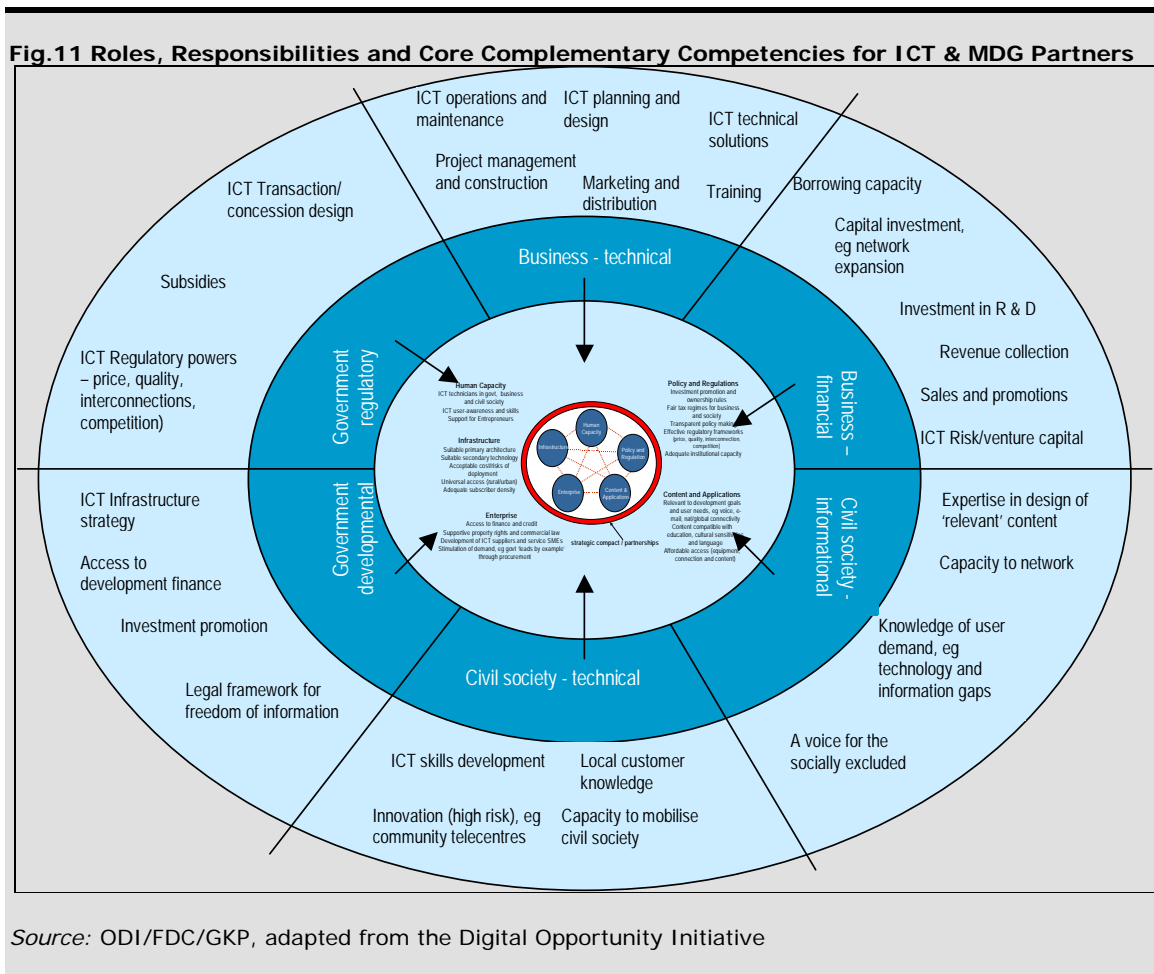
Fig.10 Design Parameters for Strategic Multi-Stakeholder ICT and MDG Partnerships.



Source: ODI/FDC/GKP, adapted from the Digital Opportunity Initiative

V.3 - Leadership & Partnership Imperatives

The logic of the networked economy and society naturally inclines toward inclusion rather than exclusion. Yet the international system has over the past two decades of the digital network revolution been unable to deliver on promises to or expectations from the developing world on digital inclusion. ICT for Development is a case of unfinished business, and it has become increasingly clear that this endemic failure is derived from the fact that different types of organizations in society view the challenge in different ways. Interestingly, recent research into partnerships in the water and sanitation sector identifies clear comparative advantages between the business, public sector and civil society sectors. Taken with the Digital Opportunity Initiative Development Dynamic framework, this research can help summarise the complementarity of core competencies between the various key stakeholders (Figure 11).¹⁴

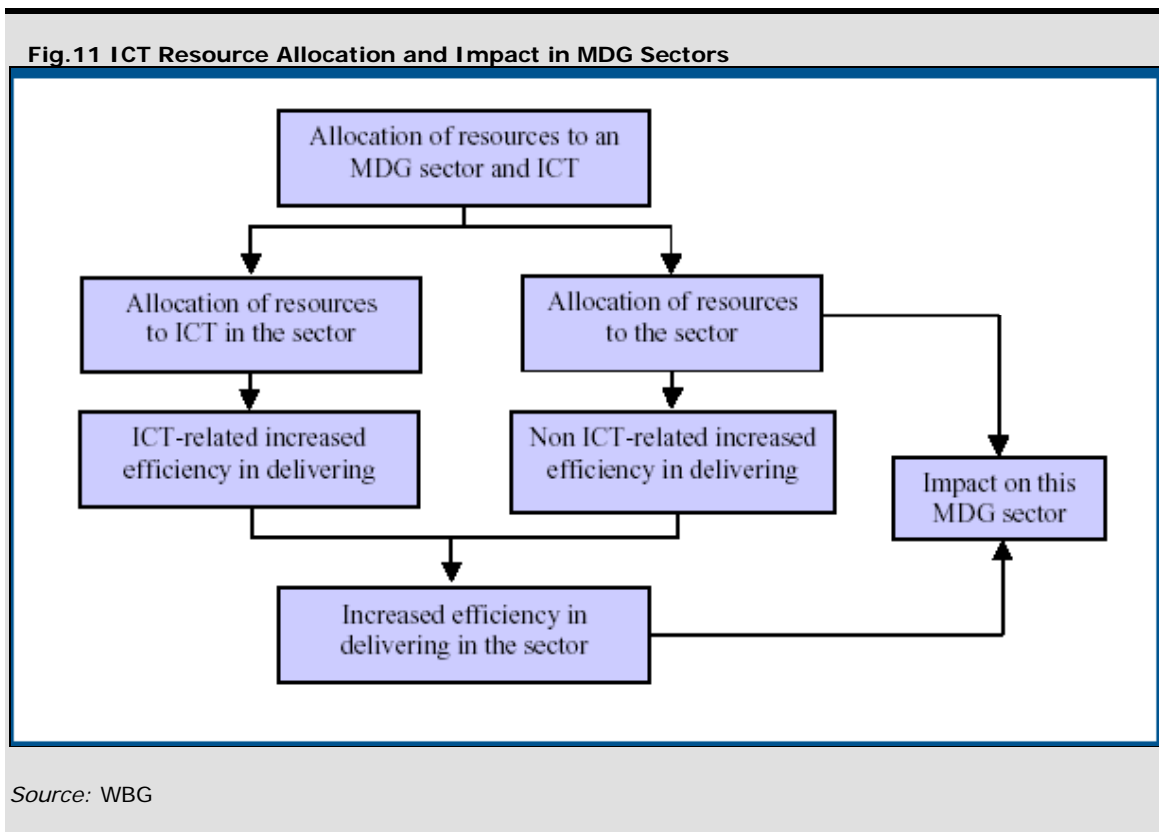


However, to take full advantage of these relative strengths demands vision and leadership in different segments of society, and the need for clear and renewed definition of roles and responsibilities among government, business, civil society, academia and international organizations. For national governments, bridging the digital needs to be part and parcel of every developing country's national agenda. Leaderships is needed in active regulatory support for the deployment of breakthrough wireless solutions and de-licensing of spectrum should be a high priority. Sustained funding for digital divide research and development projects and pilots is a prerequisite. And, leadership by example is essential in areas that can employ ICT reengineer the public sector such as e-government.

¹⁴ See ODI/FDC/GKP above.

For business, leadership is needed in the allocation of investment in financial, human and organizational resources in ICT. It requires bringing ICT technologies that are relevant to the needs of poor countries and poor people to market. It involves increasing corporate social responsibility budgets for technology-based efforts and investment in research and development efforts on technology related to addressing the digital divide. For the technological and academic community, researchers will be needed to step forward and most specifically in developing countries. The community needs leaders to radically improve the response of educational systems in developing countries to the challenge of the information revolution. And the community should lead in the development of content needed in developing countries and the localization of that content.

For civil society, leadership is needed in leveraging the process of transforming ICT technology into tools for transparency, with emphasis on benefits to the poor. It means creating sustainable civil society mechanisms for ICT innovation and development by further engaging grass-roots communities in the delivery of these solutions. It means facilitating the spread of social licensing and open content software solutions and ICT training tailored to the needs of poor communities. And it involves experimenting with innovative mechanisms to magnify the reach of the Internet coupling it with community radio and other conventional media.



For multilateral institutions and international agencies, leadership in funding is needed to play a catalytic role in living research projects, pilots to scale deployment, continued and renewed support in mobilizing resources for roll-out of ICT infrastructure, and continued support for applications of ICT in all sectors. The United Nations system, in particular, must as one and for the first time embrace elements of a coherent approach comprising: MDG-focussed e-strategies and their integration in national development strategies; policy and regulatory reform; MSPs; pro-poor business models; connectivity, capacity building and content; participation in ICT policy governance mechanisms; and, financial mechanisms.

Ultimately, in order to reach the targets set by the MDGs, countries can either increase the resources allocated to these objectives, or increase the efficiency with which available resources are used. At the core of the ICT and MDG debate is the question whether or not ICT can contribute to improving the efficiency in delivering the MDGs and hence accelerating the achievement of development targets (Figure 12).¹⁵ With vision and leaderships from all relevant players in the ICT community - whether government, business, civil society, academia or international organizations – the choice is nothing less than to transform the uncertainty of this question into a vibrant and living imperative.

¹⁵ See WBG above.

VI – ICT & the MDGs – The Way Ahead

One of the definitions of a mature technology is that it becomes invisible to the eye and mind until some catastrophic failure strikes. Today, ICT is some way from exhibiting the simple characteristics of a water, gas or electricity utility or grid. Like ICT, development is in a state of chaotic transition where the environment is ever more challenging and complex. The sheer pace of ICT progress and innovation matches the sheer scale of the task of achieving the MDGs. Similarly, the delicate art and science of multi-stakeholder partnership, so crucial in leveraging ICT in support of the MDGs, is at a very early stage of maturation. For this reason this report has attempted to remain somewhat neutral in its approach both technologically and bureaucratically. It is far too soon to pick winners or losers in the ICT and MDG stakes.

What the report has tried to demonstrate is that the unique characteristics of ICT, the MDGs, and MSPs, taken together and working in tandem, represent a new and powerful dynamic in the promotion of sustainable human development and poverty eradication. The report errs on the side of the potential and the positive aspects of ICT for Development without losing sight of the fact that there is a long way to go. But the emerging consensus is that ICT for Development policies and programmes must be understood as subordinate to, and in the service of, the MDGs. The measurement of success for ICT policies and programmes is not an increase in basic access to ICTs, not mere statistics, but the impact of those ICTs on progress toward the achievement of the MDGs.

The common denominators that bind ICT, the MDGs and MSPs look to the future and not the past. As mentioned earlier, the missing links in the Internet and ICT value chain correspond to the missing links in the value chain of the MDGs and the broader development agenda. The digital divide between rich and poor countries is an effect not a cause. It is largely a reflection of deeper more fundamental divides in economic opportunity, health, education and empowerment. But if ICT, the MDGs and MSPs are on the same trajectory, there is an increasingly urgent need for a high-level, strategic framework for the mainstreaming of ICT for Development for the achievement of the MDGs.

While the MDGs set out goals and targets relating to ICTs, they fail to specify global deadlines and targets, and those laid out in the Plan of Action of the Geneva phase of the WSIS are either too vague, too infrastructure-based or actually close to being achieved.¹⁶ In theory, most of the world's population will soon have access to ICTs. In practice, their ability to use them will depend on knowledge and affordability. The MS+5 and the second phase of the WSIS come at a something of a make or break point in time for ICT for Development and the MDGs, where decisions will have profound long term impact on whether effective mainstreaming actually occurs or not.

This time, whatever emerges from these Summits must be backed up by concrete and realistic financial commitments that draw from complementary local resources, bilateral donors, multilateral donors and private investment. All parties must take responsibility to make realistic commitments and deliver on them. Given the great challenge of the MDGs and the resource constraints that are likely to continue even under the most optimistic growth scenarios, particularly in ODA, more attention must be paid to maximising synergies among existing resources and using aid strategically as a catalyst for private investment.¹⁷ With evidence of *impact* in place, it will then be possible to *prioritise* in taking the *risk* to *innovate* and *invest* in new *global initiatives and partnerships* for ICT and the MDGs toward 2015.

¹⁶ See “ICTs and the Millennium Development Goals”, Chapter 4, World Telecommunications Development Report 2003, ITU.

¹⁷ See OECD above.

VI.1 - Beyond the Digital Divide

ICT for Development is at a turning point and a shock is needed to the system. Fragmented and piecemeal efforts to mainstream ICT for the achievement of the MDGs must crystallize and coalesce into a common effort with shared objectives. The stakes could not be higher. Failure to urgently and meaningfully exploit the available means to bridge the digital divide may consign many developing countries, particularly LDCs, to harmful and even permanent exclusion from the network revolution. With the strategic, intensive, widespread and innovative use of ICTs in development policies and programmes, the ambitious agenda of the MDGs becomes much more possible to realize. Without this laser-like focus and vision, scaleable implementation of the MDGs in many instances may well be impossible.

The planned MS+5 and the second phase of the in September and November 2005 respectively, mark the convergence of these parallel global MDG and ICT initiatives. A unique and virtuous opportunity therefore exists to galvanise political will and action so that, in harness with ICT, the MDGs can meet the criteria for framing the desired objectives of government, business, civil society and international organizations in the common cause of poverty eradication, sustainable human development and good governance.

The innovative and breakthrough elements of the ICT and Internet value chain not only mirror the missing links in the development value chain, but also impinge on precisely the areas of difficulty and contention faced by the MDGs in meeting the 2015 agenda: namely, intellectual property rights; integration of infrastructure; youth and gender empowerment; and, viral growth models for very large scale projects and initiatives. Most experts concede that the MDGs can be attained if and only if ambitious yet realistic nationally-determined priorities and initiatives are also promoted and advocated at the global level. And these globally supported goals and initiatives must embed growth models based on just the kind of sustainable, self-replicating and multi-stakeholder business models and partnerships as evidenced in Internet-based efforts today.

The fact that unique characteristics of ICT if conceived as means and not ends can, in theory, act as powerful development enable does not mean that it will necessarily do so. Perennial cross-sector complexities and issues must be overcome within existing approaches to ICT for Development. Specifically: full demonstration of development impact; integration and prioritization within national development and poverty reduction programmes; policy realignment on basic infrastructure deployment; improved government and donor coordination and cooperation; increased private sector engagement; and, enhanced mechanisms for resource mobilization.

Of all the MDG targets it can be said that ICT has made the most rapid progress to date and is “on-track”. Yet despite the obvious benefits to economic growth, including pro-poor growth, of the global explosion in ICT demand, it is as a generic technology and development enabler (Goal 1-7) rather than a stand-alone production sector (Goal 8) that ICT will most impact the MDGs: through the creation of new social and economic opportunities; the promotion of greater participation in development policies and processes; and, an by increasing the efficiency, accountability and delivery of public services. Yet Goal 8 also suggests a powerful strategic framework for global partnerships to address the unresolved challenges and untapped opportunities of ICT for Development, a framework to get from here to there that must be exploited in 2005.

Against this background, there are five critical areas that must be addressed for the full and effective mainstreaming of ICT for the achievement of the MDGs:

Conclusions & Recommendations

1. Evidence of Impact

Conclusion – The case for mainstreaming ICT for the achievement of the MDGs cannot be made without rigorous analysis and empirical evidence of development impact. Emphasis must shift from simple ICT access to more sophisticated data sets on the improved efficiency of ICT-enabled delivery of public service particularly in LDCs.

Recommendation – Develop and Promote the a common and coherent set of ICT-MDG-based indicators and benchmarks across and within the relevant United Nations agencies, to be disseminated among governments, business and civil society and endorsed at MS+5 and WSIS 2 for the purpose of accelerating ICT deployment in service of the MDGs.

2. Policy Development

Conclusion – National e-strategies need to be linked far more explicitly to national economic development plans and vice versa. The special case of LDCs demands immediate and full integration of national e-strategies within the poverty reduction strategy process, accompanied by enhanced cooperation and coordination among donors.

Recommendation – Promote and Support the prioritisation of ICT for Development in all PRSP and national, regional and global economic development plans as a prerequisite for developing countries in achieving the MDGs, backed by the common voice of academia, governments, business, civil society, and international organizations.

3. Resource Mobilization

Conclusion – There remains a serious deficit in the current approaches and financing mechanisms for bridging the global digital divide. Flows of adequate funds will fail to materialise until scepticism among donor countries is countered, developing country prioritisation is enacted, and the private sector is persuaded of profitable business models for investment.

Recommendation – Promote and support coordinated activities on the part of national governments, donors, the private sector and international organizations to address bottlenecks and gaps, and fulfilment of the Monterrey commitments for 0.7% of GNP contribution to ODA, and comprehensive debt relief for the HIPC nations, with the aim of channelling funds for mainstream ICT in MDG programmes, as well as actively exploring innovative financing mechanisms for pro-poor growth markets.

4. Global Campaign & Alliance

Conclusion - A strategic, multi-stakeholder framework for employing ICT and media in accelerating the achievement of the MDGs is urgently required. The MDGs provide a common denominator and common agenda for the creation of a Global Campaign and Alliance for ICT for Development drawn from actors both within and outside the ICT sector.

Recommendation – Develop and Support a Global ICT Alliance for ICT for Development to be launched at MS+5 and WSIS 2, with the aim of enhancing cooperation, establishing a knowledge network, defining priorities and catalysing Global ICT for Development Initiatives for achievement of the MDGs.

5. Global Initiatives

Conclusion - The sheer ambition of the MDG challenge demands an unprecedented response at the global as well as at national level. Scaling and replication of ICT efforts will require aggregation of knowledge and resources across markets, and innovative breakthrough approaches to meet key price points and economies of scale for MDG delivery.

Recommendation – Develop and Promote Global ICT & MDG Initiatives in sectors where the scaling and replication of ICT interventions will prove of most benefit to the achievement of the MDGs, including economic opportunity for poverty eradication, health and HIV/AIDS, education and training, gender and youth empowerment, and public administration

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