



Harnessing ICTs to Fight Poverty and Promote Development

An infoDev Research Strategy and Work Plan, 2005-2007

March 7, 2005

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1. Introduction

With the guidance and approval of its donors, *infoDev* has revised its overall strategy and structure and developed a new set of priority themes. On this basis, *infoDev* has begun to implement an ambitious new work program designed to address the priority needs of our donors and other partners for knowledge on how to effectively harness ICTs as tools to fight poverty and promote broad-based, sustainable development.

Yet the underlying intellectual framework informing *infoDev*'s work program and thematic priorities has remained mostly implicit, leaving open the risk that, over time, *infoDev*'s work program could become unfocused and "opportunistic", or subject to short-term priorities or interests of a sub-set of its donors or partners. Both to anchor its current work program in a longer-term strategy, and to enable donor consensus around a coherent set of common concerns that drive *infoDev*'s longer-term planning and priorities, the *infoDev* staff is now proposing to the donors a more explicit medium-term Research Strategy for the years 2005-2007. Some donors have, indeed, already expressed a desire for such a Research Strategy.

2. The Challenge

Much enthusiasm, not enough evidence: The ICT-for-development field is at a turning point. After a "bubble" of excessive optimism and enthusiasm in the 1990s that mirrored the broader "bubble" in the ICT economy, there was considerable soul-searching, and substantial skepticism, in the donor community as to whether ICT could really serve as a priority tool for growth and poverty reduction in developing countries. High-profile initiatives of the past several years, such as the Digital Opportunity Task Force, the UN ICT Task Force, and the World Summit on the Information Society, have done little to dispel the doubts of many development professionals about the value of ICT. A proliferation of "pilot projects" of unproven sustainability and scalability, with unclear impact on core development priorities, has further contributed to the doubts.

The failure to mainstream: In the portfolios of most development agencies, ICT remains largely either a vertical silo or an often-random add-on to core operations and country programs. At a time when the development community is recognizing that many developing countries will not reach, or perhaps even approach, most of the Millennium Development Goals by 2015 given present trends, pressures to "return to fundamentals" could erode support in development agencies for ICT-for-development initiatives. At the same time, the decentralization movement in many bilateral aid agencies (moving staff, budget and initiative from headquarters to country offices), and the limited success of ICT advocates in "mainstreaming" ICT within core development programs, could mean that country programs fail to consider, and leverage, ICT in ways that could be supportive of core priorities. Alternatively, lack of adequate knowledge and best practice guidance at the country level (both among donors and their interlocutors in government) could lead to a proliferation of poorly-designed, unsustainable ICT-for-development projects at the country level.

The twin problems of impact and scalability: The proliferation of ICT pilot projects has not led to mainstreaming for two related reasons. First, there is insufficient rigorous evidence of the *impact* of ICT on core development priorities (access to and quality of education, rural livelihoods, health, public sector performance and service delivery). Understanding and documenting impact of ICT interventions is difficult because the effects are often diffuse and dependent on many variables. Second, even where such evidence exists, there is little clarity on how to take successful projects to scale in a way that is sustainable and repeats the desired impact at scale. Taking successful applications to *scale* is never straightforward, both because of the importance of broader enabling conditions and because the desired impact at scale may require fundamentally different models of ICT deployment or use than at the pilot level, for reasons of cost, sustainability, or the nature of the desired change. (For example, a successful pilot providing farmers with price information might have fundamentally different market dynamics, and impact on farmers, if taken to scale in a given country or market segment.) Understanding scalability also requires an attention to both the “micro” and “macro” dimensions of an ICT intervention and their interaction. That is, it requires an understanding both of the specific conditions for successful adoption of ICT in specific environments (schools, firms, government institutions, communities) and of the broader enabling conditions that make possible these specific applications (market structure, policy, regulation, institutional frameworks, etc.) and of how they interact. For this reason, a grounding both in concrete operational work and in broader policy issues is essential. Yet the dialogue between those responsible for these different aspects of the challenge in development agencies is often weak, particularly given that the operational work is addressed by a sectoral department (e.g. education) while the enabling environment issues are handled elsewhere. “ICT strategies” have represented one effort to address this problem, but they have too often started from a “technology push” point of view rather than from a wholistic view of the development challenges facing a country and how ICT can help address those.

A moment of opportunity: It is particularly important, and opportune, for the development community to “make sense” of ICT’s potential as a tool of development and poverty reduction at this time. Recent innovations in technology, applications and business models are increasing the potential, and flexibility, of ICT as a driver of economic and social development and of empowerment of individuals and communities, even the poorest and most isolated. Increasingly affordable communication services, the growth of global networks, and the mobility of many services and knowledge-intensive economic activities made possible by these networks, create new growth opportunities for developing countries. Yet these trends also make more acute the risk that poor policies and unwise investments will leave certain countries further behind in an increasingly open global economy.

Making sense of ICT4D: The fact that these challenges lie at the intersection of several simultaneous arcs of innovation – innovation in technology, in business models, in policy and regulatory frameworks, in demand patterns, in impact of ICT on social and economic organization – makes it much more difficult for developing countries and their partners in the donor community to *make sense* of these challenges and *respond sensibly* to them. The most important effects of the spread of ICT are often the most elusive: their role as an economic and social change agent; the changes they effect in people’s *expectations and behavior*; their ability to enable and engender new forms of economic and social organization. Information and communication are in many ways the oxygen of economic, social, cultural and political interaction, and the dramatically increased multi-directional *flows* of information and communication made possible by ICT effect changes in society and economy that are not easily modeled or understood. At the same time, ICT

can clearly have immediate and tangible positive effects in specific economic and social sectors: education, health, rural development, private sector development, public sector management. Yet even here, the effects are often indirect and diffuse, and dependent on other enabling factors that may have little to do with ICT.

The challenge facing developing countries and the international donor community, then, is to understand and implement the specific sectoral applications of ICT that have been shown to have positive effects on core development goals, while at the same time creating the environment for the broader spread of ICT infrastructure and services across society and economy, so as to engender the broader effects of ICT and create information-rich societies.

3. How can *infoDev* help?

The entire international development community has struggled with this challenge, in an often-uncoordinated fashion. Some lessons have been learned, but they have often not been effectively shared. While every donor is eager for answers to the full extent of this challenge, few have the internal resources or capacity to address it fully. Since the answers are by their nature public goods, it makes sense for the donor community to band together to make sense of ICT and devise solutions – both at the micro level of applications and the macro level of policy and strategy – to this challenge.

InfoDev, as a multi-donor facility with close ties to the global operational capacity of the World Bank Group and equally strong relationships with a large number of other key donors, helps the donor community and developing countries address these challenges in a number of ways.

- **Generating Knowledge:** *infoDev* sponsors, on behalf of all its donors, cutting-edge research and analysis on a variety of ICT-for-development issues, and particularly on those issues that are of importance to a wide range of donors and on the *linkages* among issues;
- **Demonstrating Impact and Scalability:** *infoDev*'s traditional pilot projects could be seen as *proof of concept* exercises, but without adequate attention either to understanding impact or to exploring sustainability and scalability. In its new work program, *infoDev* will focus increasingly both on assessing the impact of successful pilots (both its own and others) and on designing and implementing *proof of scalability* exercises for high-impact pilots that show particular promise, so as to test these projects for sustainability and effectiveness at scale before donors, national governments and/or the private sector become more heavily investing in them. This might include, for example, taking a project that showed promise in using interactive radio for in-service teacher training and scaling it from 1 village to 100 so as to test its effectiveness and impact across a broader sample, with rigorous monitoring and evaluation mechanisms built in.
- **Innovating in models, strategies and applications:** *infoDev* has the mandate, and the luxury, to “think outside the box” on behalf of its donors, exploring new approaches and new models in policy, regulation, financing, delivery, evaluation and partnership in harnessing the full potential of ICT in ways that individual donors, because of institutional or other constraints, might not be able to explore.

- **Making the linkages:** Given that an intelligent and comprehensive approach to ICT-for-development requires an attention to a broad range of issues and their interaction (sectoral applications, investment, policy, regulation, technical innovation, infrastructure, etc.), it is easier to tackle these questions and make the linkages in the context of a free-standing “think tank” that can draw on the diverse expertise of a wide range of partners.
- **Facilitating joint action for impact:** *infoDev* is not primarily a donor-coordination facility. However, there have already been several cases where *infoDev*’s knowledge-based services to its donors have led to increased donor consensus and coordination on specific issues or in specific regions. By helping its donors develop common frameworks and common solutions for challenges they all face, *infoDev* supports the “upstream” consensus-building that makes donor coordination easier and more effective.

4. *infoDev*’s Research Strategy, 2005-2007

Three Themes, Common Questions: *infoDev*’s research strategy for the years 2005-2007 will continue to focus on the three key themes articulated in earlier communications to donors:

- Mainstreaming ICT as tools of development and poverty reduction
- Enabling Access for All
- Scaling up private sector-led ICT innovation, investment and new business creation

These three themes are not separate “silos” but three dimensions of one common challenge of harnessing the power of ICT to fight poverty and promote sustainable, broad-based development. *Innovation* is a common thread; innovation in understanding how ICT can address developing country needs in new ways; in developing businesses and services to answer these needs; and in designing policy, regulatory and investment environments that bring together novel forms of demand with innovative approaches to supply.

The entire research program is informed by several common, and difficult, questions:

- How does one understand a sector whose impact is often diffuse, indirect and difficult to measure?
- How does one understand, and devise policies to promote, a sector which has both vertical aspects (IC infrastructure, ICT as a sector of the economy) and horizontal aspects (ICT as an enabler, as a change agent, as a tool in other sectors)?
- How can we keep an understanding of, and policies for, ICT-for-development rooted in practical applications and needs while not losing sight of the broader, more diffuse (but equally desirable) effects of ICT across economy and society?
- Are there other sectors (e.g. energy?) which have similar horizontal and vertical dimensions, and what can we learn from them?
- Is there a societal “threshold effect” with ICT? Does the transformative power of ICT only take effect once a critical mass of ICT infrastructure, use and human capacity is in place? If so, should “rollout” of ICT infrastructure and services be an urgent priority? How does one create a virtuous circle between ICT supply push with demand pull in developing countries?

- How does one understand the interaction between the role of ICT as change agent and the broader constraints which shape that change, whether at the institutional level (e.g. bureaucratic rigidities and institutional incentives within a government ministry where ICT is being mainstreamed) or at the societal level (e.g. the political economy of ICT sector reform.)

Setting Priorities: *InfoDev's* 2005-2007 Research Strategy is designed to lay out the major themes and questions that will inform *infoDev's* work program for the next 3 years and serve as the basis for setting priorities for specific activities and projects. *Sequencing and priority-setting* will be important; *infoDev* cannot possibly address all these issues at once, but they provide the overall framework within which each year's Work Program will be articulated. Furthermore, in each area, *infoDev's* goal will not be to try to answer every question or cover every topic. It will focus on those issues where:

- There is broad and urgent need and demand in the donor community and among developing countries for better knowledge, guidance, best practice and innovative approaches;
- There is not already a substantial body of rigorous and well-synthesized knowledge easily available to donors in forms that they can easily use;
- There is particular promise for having a marked influence on policy and practice by virtue of the new and innovative work *infoDev* supports.

The Challenge of Scalability: In the next three years, *infoDev* will pay particular attention to the challenge of scalability. That is, we will seek to understand what are the most effective strategies, and the greatest challenges, in scaling up ICT-enabled development solutions from the experimental phase to broader scale (regional or national.) This scalability question has several dimensions, including:

- **Impact at scale:** How can we assess what will be the impact of an ICT solution that has proved valuable on a small scale once it is taken to a larger scale? Are there effective ways to "test" at an intermediate level (e.g. taking a model from 1 village to 50) before devoting resources to a much wider rollout?
- **Enabling Conditions at scale:** Once an ICT solution is taken to scale, do broader enabling conditions (policy and regulatory constraints, institutional disincentives or rigidities, infrastructure, capacity, etc) become more determinative of success? Can we anticipate this in advance, or "tease it out" through intermediate-level experimentation?
- **Public and Private Resources:** If a pilot solution has been publicly financed, does that necessarily mean that public resources should be devoted to scaling it up (or vice versa?) How can private resources (both private investment and the resources of beneficiaries/consumers) be brought to bear at scale, including through new regulatory and business models? What are the gaps in the financial ecosystem in developing countries (venture capital, financial markets, etc.) that prevent ICT entrepreneurs from taking their innovations to scale?
- **Scaling Up What?:** Most importantly, we need to understand better what it means to scale up a solution. If it is really the *impact* of that solution that we want to achieve at scale (better income for farmers, more educational access for girls, more transparent and

efficient local delivery of government services), is the pilot solution really the best candidate for impact at scale, or might another approach be more appropriate?

5. How do we deliver?

infoDev sponsors or facilitates, in cooperation with its donors and a broad range of partners, a variety of knowledge-generating and knowledge-sharing activities that are dynamic and mutually reinforcing – a full suite of *knowledge-based services* for its donors and other partners. These include, *inter alia*, research studies, pilot projects, data collection and analysis, policy toolkits, case studies, workshops, expert advisory services, needs assessments, incubators, practitioner networks, publications (print and electronic) and capacity building/training. All the activities within a thematic area feed on, and provide feedback to, the knowledge generated and shared in the other activities in that thematic area.

Thus, *infoDev* helps develop community of interest between key actors and development practitioners. The objective here is, for example, to help regulators keep track of new technologies and respond “just in time” by adjusting regulatory framework and legislation. With support from *infoDev*, these regulators share knowledge and learn from one another’s experiences to maximize their effectiveness in sector regulation. *infoDev* also works to raise the awareness of non ICT policy makers and regulators, through a rich cross-cutting approach to institutional capacity building.

infoDev delivery mechanisms could be further illustrated by two examples:

- 1) *infoDev*’s just-completed study on *ICT, Growth and Competitiveness in the Caribbean* has benefited greatly from knowledge resources, contacts and data provided by, and input from, colleagues in the Caribbean department of the World Bank and the European Commission’s delegation in the Eastern Caribbean. At the same time, it is serving as a vital resource in their strategy formulation for their ongoing programs in the region. Furthermore, the study will serve as the basis for an upcoming review workshop that will bring together most donors active in the region, government officials from the Caribbean countries, and the local and international private sector, to share ideas and strategies. The deliberations in this workshop will not only improve the final report, but will also help *infoDev* better understand the priority knowledge needs of the region’s decision makers and donors in addressing the challenge of ICT-enabled growth, thus enabling us to plan further work (pilots, data collection, capacity building, country studies, support for Caribbean incubators, etc.) that will prove valuable to these clients while also feeding into *infoDev*’s knowledge base. Finally, *infoDev* will draw more general lessons from this exercise on the design of its country-level and regional analytical work, which will help to enhance future studies of this sort (including one currently being planned for Tanzania.)
- 2) *infoDev* is currently updating its highly successful *Telecommunications Regulation Handbook*, transforming it into an online Toolkit of several modules containing both the original content from the Handbook and new content on cutting-edge issues. This knowledge resource, developed in cooperation with several strategic partners (including the ITU) will serve as the basis for a series of *infoDev*-supported or endorsed training and capacity building activities, expert advisory services, workshops and other knowledge-sharing

activities. These in turn will feed knowledge back into the Toolkit, which will be regularly updated with new evidence, cases, documents and decisions from regulators, data, pricing models, and other resources.

In addition, *infoDev* will increasingly pay attention to, and develop knowledge resources that focus on, *cross-cutting* issues that affect and link two or more of our core themes.

The three following sections present in more details *infoDev* research strategy and action plan for its three main themes:

- Mainstreaming ICT as tools of development and poverty reduction
- Enabling Access for All
- Scaling up private sector-led ICT innovation, investment and new business creation

Each section includes a list of activities which are either under implementation or in preparation to be implemented over the next 10 months.

Mainstreaming ICT as tools of development and poverty reduction

1. Primary Research Question (PRQ)

How can ICT applications and services, appropriately adapted, serve as effective tools of core development objectives, particularly those expressed in the Millennium Development Goals?

2. infoDev's Approach

Strategy: *infoDev's* approach to this question will focus on:

- Concrete evidence-gathering, impact assessment and policy/strategy guidance around specific uses of ICT to support core development objectives in sectors such as education, health, rural development, and gender;
- Analysis of the enabling factors and critical thresholds without which these uses are not sustainable or scalable, or will not have the desired impact;
- An effort to understand the more fundamental needs and demands expressed by these uses, and how ICT can enable new and transformative approaches to addressing these needs.

3. What infoDev is delivering:

The attached Work Program outlines how *infoDev* is addressing the above needs through the dissemination of best practices and toolkits and through institutional capacity building activities to better enable policymaker and donor staff to share experiences, understand the challenges, evaluate options and seize opportunities where ICT-enabled innovations offer cost-effective ways to help meet core development goals and objectives.

InfoDev knowledge creation – primarily in the form of case studies and toolkits – and related dissemination efforts (including policymaker workshops) are specifically targeted at helping donor client countries address and respond to some of their most pressing developmental challenges, most specifically those related to the Millennium Development Goals. These challenges include:

Education: How can ICT applications and services, appropriately adapted, serve as effective tools of core development objectives, particularly those expressed in the Millennium Development Goals related to Education For All and Gender Equity?

More specifically:

1. ***Impact:*** What is the impact of ICT use in education on *outcomes*, achievement, teaching and learning *processes* and *future employment*, and how should this impact be measured?
2. ***Costs:*** What are the costs (including opportunity costs and total cost of ownership) associated with implementing ICTs in education, and how should these costs be calculated?
3. ***Policy:*** What are the necessary *enabling environments* and *proper sequencing* for successful investments related ICT use in education in LDCs, especially those countries struggling to meet EFA/MDG-related goals?

4. **Access:** What is the impact (costs/benefits) of introducing ICTs on *access to education*, especially to girls, students with special needs, and geographically remote, economically disadvantaged, and linguistically different communities?
5. **Teacher training:** What are the most effective uses of ICTs for the *professional development of teachers* in countries struggling to meet EFA/MDG goals, and what are the related enabling/disabling environments?
6. **Efficiency:** What are the issues and emerging best practices related to the implementation of education management information systems and other ICT tools in LDCs to improve efficiencies?

Particular attention will be focused on (a) quality and equality of learning; (b) literacy and skills development; and (c) teachers, finance and quality.

ICT and the Millennium Development Goals: How can ICT applications and services, appropriately adapted, serve as effective tools of core development objectives, particularly those expressed in the Millennium Development Goals?

More specifically:

1. **Rural Livelihoods:** How can ICT improve the effectiveness of, and incomes from, small-scale agriculture? Can ICT improve the livelihoods, and skills, of subsistence farmers and help them move beyond subsistence? Can ICT create new income-generating opportunities relevant to poor, rural, often-illiterate or poorly educated populations? How can ICT help governments – local, regional and national – and the international donor community better monitor, understand, and respond to the needs of the rural poor? How can affordable ICT applications and services appropriate to rural areas better serve the information and communication needs of the rural poor?
2. **Health:** How can ICT support more effective monitoring of health trends and disease outbreaks in developing countries? How can ICT support more effective and widespread pre-service and in-service training and support for health professionals, particularly in rural areas? How can ICT promote innovative and cost-effective forms of diagnosis and care for poor and rural populations?
3. **Gender:** How can ICT support the economic, social and political empowerment of women? How can ICT support the mainstreaming of gender concerns and priorities in donor policy and government programs at all levels?

The Program will evolve in phases, through knowledge creation and dissemination, in the following ways:

- a) Methodically enlarging the scope of activities being investigated and supported, beginning for each theme with a knowledge mapping exercise, moving on to targeted research studies and toolkits, culminating in workshops for policymakers, with feedback from policymaker and donor staff helping to direct the adaptation and re-packaging of existing studies and toolkits to meet more directly on-the-ground needs as well as help explore of new directions for resources related to specific themes, as well as related fields of inquiry;
- b) Targeting specific geographic areas for case studies and outreach, most especially regional groupings within Sub-Saharan Africa, but in Asia as well, based upon local needs and constraints, in consultation with donors;

- c) Addressing specific constraints and developing linkages, as appropriate, such as where ICT-for-development policy rooted in specific, practical applications and needs may contribute to broader, more diffuse (but equally desirable) effects of ICT across economy and society
- d) Impacting the development of related components and sub-components in donor-funded projects, in consultation with government agencies, country teams, and development institutions which are funding projects explicitly addressing the Millennium Development Goals
- e) Innovating in models, strategies and applications, by exploring new approaches and new models in policy, regulation, financing, delivery, evaluation and partnership in harnessing the full potential of ICT; and
- f) Facilitating joint action for impact, where appropriate, with development institutions such as the World Bank, UNESCO, UNDP, and WHO for country and/or regional programs.

**Work Program
(Through December 2005)**

DELIVERABLES	DETAILS
I. Using ICT to benefit the education-related Millennium Development Goals	
Studies and Publications on: <ul style="list-style-type: none"> • Knowledge Map: ICTs in Education • Impact: Monitoring and evaluation • Teacher training • Total Cost of Ownership • Enabling environments • Education Management Information Systems (EMIS) • Impact of ICTs on access to education 	\$600,000
Networking <ul style="list-style-type: none"> • 2 Regional Workshops 	\$100,000
II. Using ICT to Benefit the Millennium Development Goals	
Studies and Publications on: <ul style="list-style-type: none"> • ICT & Health: Knowledge Map • ICT & Health: in-depth studies/toolkits in 3-4 priority areas identified by knowledge map • ICT & Rural Livelihoods: Knowledge Map • ICT & Rural Livelihoods: in-depth studies/toolkits in 3-4 priority areas identified by knowledge map 	\$600,000

Enabling Access For All

1. Primary Research Question (PRQ)

In a fast moving technological environment, how can we develop effective policy, regulatory and investment approaches and models that fully leverage the opportunities created by rapid technological changes and foster business creation and innovation?

2. infoDev's Approach

- Review the relevance and impact of earlier policies
- Examine emerging trends in new technologies and the potential for new business models to leverage these technologies,
- Analyze how traditional approaches, policies and regulations can hamper the new models,
- Develop new communities of interests to address the new paradigm shift.

The first wave of ICT reform which coincided with a dramatic technological advance has left an only partially fulfilled agenda. For the most part, positive impact of the first wave of reform in developing countries were largely accidental, resulting from a combination of internal and external pressure to open the telecom market and the transfer of the GSM cellular technology which had gained economies of scale in from its deployment in more mature markets. Designing and implementing the next phase of reforms is the challenge facing regulators and policy makers. The objective there, is to take advantage of a unique situation created by technological changes to provide access to unserved areas and leverage information and communication infrastructure as an tool for economic growth and competitiveness.

The potential of information and communication infrastructure and network will only be realized when data transmission, Internet connectivity and corporate services needs will be addressed by specific models and tools, including through new policies and regulations. These can not be easily transferred from other countries experiences but will have to be unique to address the specific needs of developing countries: substitution of mobile telephony to fixed line for voice services, the deficiency of the backbone infrastructure, declining and challenged incumbent telecom services providers. Innovation is the key word to respond to this challenge which can be addressed most efficiently by building effective communities of interest between policy makers, regulators, experts, service providers and users.

3. What infoDev is delivering:

The attached Work Program outlines how *infoDev* is addressing the above needs through the dissemination of best practices and toolkits; commissioning innovative studies, building capacity, fostering cooperation between national, regional and global activities in public and private sector; to maximize impact of investments in policy reform and infrastructure on access. InfoDev will leverage its very successful telecommunication handbook and develop a series of toolkits around a strong and active community of interests between regulators, policy makers, experts and development agencies.

Knowledge creation, through case studies, toolkits, workshops, publications and dissemination efforts are focused on some of the program's strategic orientations, and their suite of possible answers to the unmet challenge of achieving access to all:

4. infoDev's Research Strategy on Enabling Access will focus on:

Taking Stock of Impact, and of Current Enabling environment

- a) Have telecom reform processes up to now emphasized too much telecoms as a final consumer good? [voice versus data and access to global information networks]
- b) What kind of impact have telecom reforms had so far on
Business competitiveness in developing countries,
Capacity building and demand creation for Information Society
Migrating traditional economies to the Knowledge economy model
- c) What has the real impact of universal service schemes (Universal Service funds, Output Base Aid schemes, Reverse subsidies, etc.) been? How successful have we been in "going beyond the market" schemes.

Political Economy of Telecom Reform

- a) Do we fully understand and take into account the broader institutional environment within which telecom reforms are implemented? how do we take into account the special role of incumbents as SOEs in developing countries?
- b) How do we take into account the different legal and administrative cultures (e.g., civil versus common law traditions).

Financing infrastructure and ICT services for all

- a) Is the current trend of separating infrastructure from services that these new technologies enable going to deepen? what are the implications of this separation in terms of optimal public/private financing mixes
- b) Are open access models feasible in this context?

New Technologies and Opportunities for Access

- a) What does the fact that legacy networks much less developed in our client countries (as opposed to developed countries) mean in terms of the migration to NGNs, Is this a leapfrog opportunity (i.e., investment in NGNs from the outset, bypassing traditional circuit switched networks)? How should policy and regulatory advice take this into account?
- b) What new regulatory and policy models should emerge to deal with challenges and opportunities related to new technologies, in particular the migration to packet switched networks? How do we reformulate classical regulatory and policy questions in this context (interconnection, licensing, etc.)?
- c) Rethinking Spectrum: should spectrum policies be different in developing countries to take full advantage of wireless/wireline substitution, and the fact some new technologies defeat the spectrum scarcity argument? Should we move towards liberal unlicensed spectrum policies?

**Work Program
(Through December 2005)**

DELIVERABLES	DETAILS
Best Contemporary Practices in Telecommunications Regulation	
Central Knowledge Product for Regulators: 1. Telecommunications Regulation Toolkit; Licensing in an era of convergence Institution of Regulation Radio Spectrum management Pricing, competition, interconnection New technologies Universal services	\$600,000.00 An on-line web based set of modules; articulated around these main themes
<ul style="list-style-type: none"> • FY06 -- multi-language translation of Toolkit; printing and publishing (paper, online, and multimedia) • Expanding scope and assistance including on-line consulting with InfoDev's hotline, and Discussion Forums on InfoDev's web site. • Strategic Consulting: TA contracts to be issued on a case by case basis to feed the Toolkit's knowledge base with case studies and best practices 	\$included above \$150,000 \$100,000 (5/yr)
Central Knowledge Service for Regulators and Policy Makers: Regulateonline.org Live web resource and hotline to regulators including on-line courses, hotline services, and WDR newsletters	\$244,000
Studies and Publications (in FY05 and 06) <ul style="list-style-type: none"> • Case Study on India and VoIP • Political Economy and Telecoms Reform • New Technologies: What do they bring to development • Broadband Toolkit • Scaling-Up Telecom Reform 	\$600,000
Innovative thinking on Financing ICTs	

<p>Studies and Workshops on:</p> <ul style="list-style-type: none"> • Open Access Models Study, analyzing the different models of private / public partnerships for financing backbone infrastructure in Sub-Saharan Africa • Dissemination workshops in London, Maputo and Tunis • Translation into French, Spanish, Arabic(?) and Portuguese for MNA/Africa constituencies 	<p>\$400,000</p>
<p>Capacity Building: Workshops Seminars, newsletters on all above studies pilots and products</p>	<p>Included in the product design itself for the most</p> <p>2 stand-alone CB events, \$100K</p>
<p>New Technologies and impact on Regulation and investments</p>	
<ul style="list-style-type: none"> • Studies and Workshops on “towards universal access with broadband wireless technologies” : Case studies from Brazil, India and Africa • Book on above above studies to be published and translated in French for WSIS2 in Tunis 	<p>Follow-up on previous work done in cooperation with UNICT task force</p> <p>\$250,000</p>

Scaling Up Private Sector-Led ICT Innovation and New Business Creation in Developing Countries

1. Primary Research Question (PRQ)

How can ICT-enabled innovation and entrepreneurship programs contribute to development objectives?

2. infoDev's Approach

Developing countries face considerable challenges in promoting and sustaining information and communication technology (ICT) enabled innovation and new business creation. To help meet these challenges, and to help address the information gap and market failure that exists, *infoDev* seeks to facilitate innovative approaches to expanding the role of the private sector in scaling up successful ICT applications, expanding ICT access, and harnessing ICT as tools of broader economic growth and efficiency in all sectors of their economies.

The program on “Scaling Up Private Sector-Led ICT Innovation and New Business Creation in Developing Countries,” as one of *infoDev*'s three thematic areas, builds on *infoDev*'s ongoing work to support ICT-enabled innovation in developing countries, and is organized around three key pillars:

- I. Expanding and building upon *infoDev*'s Global Network of Business Incubators
- II. Understanding the Constraints to Innovation and New Business Creation
- III. Mainstreaming ICT as a Tool of Growth and Competitiveness

The first pillar draws lessons from *infoDev*'s global network of ICT-enabled business incubators. Placing incubators within the broader “innovation chain” and the broader context of private sector development and finance, the *infoDev* strategy addresses various challenges faced in business incubation.

infoDev's Incubator Initiative provides a window into the challenges innovators and entrepreneurs are facing on the ground in developing countries. The second pillar leverages this unique perspective in order to understand better the fundamental challenges facing ICT-enabled innovation and new business creation across the developing world such as access to growth financing, effective ICT utilization at the firm level, and designing and marketing services and products that address the specific information and communication needs of the poor.

To help developing countries and their donors think more strategically about how ICT can be effectively mainstreamed to improve competitiveness and spur economic growth, the third pillar expands upon the first two by broadening the focus to understand how developing countries can design and implement realistic and effective economic development strategies that harness ICT-enabled, private sector-led growth in an increasingly global economy. To this extent, infoDev is conducting and designing several country and regional studies that will feed an increasingly rich set of knowledge resources, including policy toolkits.

3. What *infoDev* is delivering:

The attached Work Program outlines how *infoDev* is addressing the above needs through the dissemination of best practices and toolkits; fostering cooperation between national, regional and global activities; building of social capital; and institutional capacity building [to face the challenges and grasp the opportunities] for ICT-enabled innovation and entrepreneurship programs that facilitate the sharing of experiences.

Through pilot projects (grants) in developing countries, *infoDev* is assisting existing incubators in bridging the gap between current activities and development potential. The Program also provides technical assistance and support to the planning of new ICT-enabled business incubation programs.

Knowledge creation, through studies, and dissemination efforts are focused on some of the salient issues relating to innovation and new business creation in developing countries including the following challenges:

Enabling environment: What are the key elements of an innovation enabling environment? What regulatory, policy and capacity constraints are required to promote innovation and business creation in developing countries? What is the role of the private and public sector in supporting innovation and creating a healthy business environment?

Financing: What are the financing gaps (and how can we address them) to fund innovation and business creation in developing countries? How do entrepreneurs in developing countries approach raising capital and what are their main sources of financing? How do investors evaluate businesses and measure risk/reward of prospective deals in developing countries?

Regional networks: Are there common challenges facing innovators and incubators globally? What are the challenges that differ regionally? How can business incubators work together to address these challenges nationally, regionally and globally?

Institutional capacity: What are the main institutional constraints for incubators and how can these be addressed?

The Program will evolve in phases, through knowledge creation and dissemination, along the following dimensions:

- g) Widening the spectrum of activities being supported - - types of innovation and entrepreneurship programs being supported; business incubators engaged in outreach to rural and under-served communities or populations having special needs; types of services being provided.
- h) Geographically: through support to programs in different environments and regions, based upon local needs and constraints.
- i) Public-private partnerships: including the scaling up of initiatives that have multiple stakeholders, aimed at promoting innovation and entrepreneurial activities in developing countries.
- j) Assistance with launching programs that have demonstrated, under the Planning process, that viable development objectives can be addressed through business incubation /entrepreneurship and innovation programs; *i.e. move from planning to implementation.*

- k) Addressing specific constraints and developing linkages – such as on the Financing gaps, the Enabling environment, the role of ICT as an enabler in enterprise development and promoting innovation, specific country and regional studies on the challenges to innovation and new business creation, etc.
- l) Through components in larger projects – in consultation with government agencies, country teams, and development institutions which are funding projects; e.g. under programs that promote enterprise (small and medium) creation, private sector innovation and development projects.
- m) Innovate – by examining new models and approaches that address specific challenges; promoting adaptation
- n) Facilitate joint action for impact – with other development institutions such as UNDP, for country or regional programs.

Selected examples of scaling up opportunities:

- Kenya -- the incubator is providing assistance to a team of software developers for the larger, country-wide Water/Infrastructure project.
- Nepal -- where the planning grant, and resulting reports, could be the corner-piece that the Planning Commission may use to bolster its national ICT strategy and support to national programs including the Science Park project on the outskirts of the capital city.
- China -- where the Women's Incubator in Tianjing is scaling up its operations and providing services to more women entrepreneurs. They have gained support from their internal government agencies; and this project can be replicated elsewhere.
- Kazakhstan -- where the incubator's experiences on e-learning can be shared not only within the country, but across regions and in other development projects.
- Uzbekistan -- where the local UNDP office is jointly funding a significant portion of the project that will allow the National Incubator Association to promote enterprise development across distant areas of the country.
- The multi-country (ECA) study on ICTs, innovation, and economic growth in transition countries -- that sheds light on the constraints, enabling conditions, and impact at the firm, industry, and country levels.
- Caribbean Study -- identifying challenges to ICT-based Innovation and Economic Diversification in the Caribbean; which could lead to a project on the setting up of a business incubator, with several virtual sites across the small islands in the region.

**Work Program
(Through June 2006)**

DELIVERABLES	DETAILS																		
I. Expanding & building upon <i>infoDev</i>'s Global Network of Business Incubators																			
Operational Assistance <ul style="list-style-type: none"> • Pilots (On going grants) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Region</u></th> <th style="text-align: center;"><u># of grants</u></th> <th style="text-align: right;"><u>Amount (\$)</u></th> </tr> </thead> <tbody> <tr> <td>Africa</td> <td style="text-align: center;">8</td> <td style="text-align: right;">1,370,000</td> </tr> <tr> <td>Asia (East & South)</td> <td style="text-align: center;">13</td> <td style="text-align: right;">3,020,000</td> </tr> <tr> <td>ECA</td> <td style="text-align: center;">9</td> <td style="text-align: right;">2,070,000</td> </tr> <tr> <td>LAC</td> <td style="text-align: center;">10</td> <td style="text-align: right;">2,750,000</td> </tr> <tr> <td>MENA</td> <td style="text-align: center;">3</td> <td style="text-align: right;">900,000</td> </tr> </tbody> </table> • New pilots (in FY06) 	<u>Region</u>	<u># of grants</u>	<u>Amount (\$)</u>	Africa	8	1,370,000	Asia (East & South)	13	3,020,000	ECA	9	2,070,000	LAC	10	2,750,000	MENA	3	900,000	<p>43 on-going grants totaling \$10,110,000</p> <p>10-15 additional grants for \$1,000,000</p>
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Technical Assistance <ul style="list-style-type: none"> • Central Knowledge Pool: <i>infoDev</i> Incubator Support Center (iDISC) • FY06 -- multi-language translation of Toolkit; improvements; expanding scope and assistance including on-line consulting and Discussion Forums. • Strategic Consulting: TA contracts/grants to be issued following an RFP 	<p>\$500,000</p> <p>\$200,000</p> <p>10-15 contracts totaling \$500,000</p>																		
Networking <ul style="list-style-type: none"> • 4 Regional Workshops held between September – December 2003 • Global Forum held in October 2004 • 5 Regional Workshops planned between May – July 2005 • Global Forum scheduled for September 2005 	<p>\$500,000</p> <p>\$1,500,000</p>																		
Studies and Publications (in FY05 and 06) <ul style="list-style-type: none"> • Toolkit on Business Incubation • Role of Government and enabling environment • Financing gaps and supporting policies • Entrepreneurship and innovation • Role of ICT as an enabler in enterprise promotion and development programs • Case Studies of successful practices in business incubation 	<p>\$800,000</p>																		

II. Understanding the Constraints to Innovation and New Business Creation	
<p>Studies and Workshops on:</p> <ul style="list-style-type: none"> • ICTs, Innovation and Economic Growth in Transition Economies: A Multi-Country Study • Field Research and Analytical Paper, including Country Case Studies, on “Financing Gaps” for ICT Innovators in Developing Countries (as part of Financing Gap study mentioned above) • Serving the Next Billion: Promoting Private Sector Investment and Innovation to Address the Information and Communication Needs of the Poor 	\$500,000
III. ICT as a Tool of Growth and Competitiveness	
<p>Studies and Workshops on:</p> <ul style="list-style-type: none"> • Identifying Challenges to ICT-Based Innovation and Economic Diversification in the Caribbean • Country Studies on the Challenges to Innovation and New Business Creation • Framework Paper – ICTs, Poverty and the Global Economy: Challenges and Opportunities for Developing Countries 	\$500,000