

ICT4D Americas Program Initiative

Description of the program for 2006-2011

International Development Research Centre
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List of Acronyms

ALF	Annual Learning Forum
APC	Association of Progressive Communications
Bellanet	IDRC International Secretariat
CSO	Civil Society Organization
CSPF	Corporate Strategy and Program Framework
DOT Force	Digital Opportunity Task Force
ECLAC	Economic Commission for Latin America and the Caribbean
GEH	Governance, Equity, and Health
GGP	Globalization, Growth, and Poverty
GKP	Global Knowledge Partnership
GSM	Global System Mobile
ICA	Institute for Connectivity in the Americas
ICT	Information and Communication Technology
ICTs	Information and Communication Technologies
ICT4D	Information and Communication Technologies for Development
IDB	Inter-American Development Bank
IDRC	International Development Research Centre
ILO	International Labour Organization
InfoDev	The Information for Development Program – World Bank
IPS	Innovation, Policy, and Science
IS	Information Society
ISOC	Internet Society
IT	Information Technologies
LAC	Latin America and the Caribbean
LACNIC	Latin American and Caribbean Internet Addresses Registry
NGO	Non-Governmental Organization
OAS	Organization of American States
ORBICOM	The International Network of UNESCO Chairs in Communications
PCR	Project Completion Report
PI	Program Initiative
R-PCR	Rolling PCR process
SMEs	Small- and Medium-sized Enterprises
SMME	Small, Medium, and Micro Enterprises
SMS	Short Messaging System
SMC	Senior Management Committee, IDRC
UN	United Nations
UPE	Urban Poverty and Environment
WB	World Bank
WEF	World Economic Forum
WiFi	Wireless Fidelity
WSIS	World Summit on the Information Society

Executive Summary

This document proposes a five-year strategic plan for a new Program Initiative in the “Information and Communication Technologies for Development” (ICT4D) area in Latin America and the Caribbean (LAC), that responds to IDRC’s Corporate Strategy and Program Framework (CSPF) 2006–2011.

The forthcoming programming will integrate the strengths of both Pan Americas and the Institute for Connectivity in the Americas (ICA) approaches. It will also build on the lessons learned by these initiatives in previous programming cycles as well as build upon the LAC regional consultation, background papers and contributions of external reviewers and a variety of other consultative mechanisms. This process and accumulated experience indicate that, if the ICT4D Americas PI is to make a meaningful contribution in addressing some of the region’s main development challenges, it would have to concentrate its work on research initiatives that are aimed at the adoption of adequate policies and conditions for social inclusion and improved socio-economic equity. More specifically, the research agenda should be directed at applied research on ICTs that supports: (a) the creation of decent jobs and the promotion of entrepreneurship among the youth; (b) improvements in the delivery of health and education for the poor; and (c) the development of innovative mechanisms for increased citizen participation and good governance.

Program

As expressed in the current Corporate Strategy and Program Framework, the ICT4D Program Area of IDRC is shifting its programming from a focus on Access, to the Information Economy and Information Society. Working towards that end, ICT4D Americas will focus its programming on three main thematic pillars: *e-economy*, *e-enablers*, and *e-citizenship*, supporting applied research projects on specific issues that pertain to these areas.

In addition to the framework of specific areas of focus provided by these pillars, there are three key cross-cutting issues to which ICT4D Americas will dedicate special attention: *Policy Innovation*, *Appropriate Technologies*, and *Gender Perspective*. Given that these issues have been identified as being increasingly important for ICT4D programming in LAC, and as they are common to all other sub-themes selected, they will be included programmatically as cross-cutting themes and strengthened through a solid research agenda and regional networks of researchers.

e-Economy

The e-economy, a concept that refers in the broad sense to the use of ICTs for product and process innovation across all sectors of the economy has emerged in the last decade as one of the primary engines of productivity and growth in the global economy. The transformation and/or disappearance of certain industries resulting from (or associated with) the rapid spread of ICTs, has evidenced the need for new economic strategies to enhance the capacity of the LAC region to adopt these new tools and exploit their potential in benefit of local economic needs and conditions. Specific topics for applied research under this pillar will be geared towards issues such as: (a) ICTs in the informal economy, (b) SMEs, e-commerce, and employment, (c) Youth, digital, and creative industries and, (d) IP rights and public goods.

e-Enablers

Health and education are universally recognized as issues that are the foundations of a nation’s development, and socio-political and economic stability. They are also a pre-condition for individual development in any modern society. In other words, health and education are the two most important elements for levelling the playing field and increasing the likelihood of a more balanced distribution of resources within and across countries. Consequently, they are areas in which ICT implementation has the potential of producing a direct impact in the rise of more equitable societies. As part of this thematic axis, ICT4D Americas seeks to foster research that explores the ways in which the innovative implementation,

use and appropriation of ICTs in education (e-education) and health (e-health) can contribute to empower vulnerable and marginalized communities in LAC, thereby having a positive effect on regional equity. In terms of sub-themes, ICT4D Americas will be looking at the following issues: (a) education and skills for the e-economy, (b) education at the bottom of the pyramid, (c) e-health for the poor.

e-Citizenship

The concept of e-citizenship is based on emerging notions that traditional governance models are no longer sustainable, and new approaches to citizen participation, governance, and policy-making are required. Terms such as “active citizenship” are beginning to permeate traditional political structures, and new forms of interaction between government and citizens are unfolding. When translated to the realm of ICTs, democratic practices and citizen participation can be strengthened by the use of these tools to support and enhance the collaboration among relevant stakeholders throughout the policy-making cycle without the limitations of space, time, or other physical constraints. ICT4D Americas’ activities will aim at increasing the understanding of the value of ICTs to: (a) increase the transparency and accountability of public services and political institutions in the region (*Open Government: Transparency and Accountability*); (b) promote an increase in the effective participation of low income citizens in governance processes, while protecting their privacy and information rights (*Citizen Participation and Privacy*); (c) expand the current e-government initiatives so as to provide widespread access to public services and information to citizens and marginalized communities (*e-Government for All: Supply and Access*).

Modalities

ICT4D Americas will focus on project modalities that will: (a) enhance the possibility of building successful regional knowledge networks; (b) strengthen mechanisms for capacity building; and (c) build on specific strategies aimed at increasing the effectiveness of policy engagement and policy influence.

The PI faces a number of challenges and risks. Each of the identified risks will be addressed with the most appropriate means at hand. The ICT field, for example, is characterized by fast, ever-changing conditions. Consequently, the PI’s programming approach will remain alert and flexible to respond to new developments in the field. The relative weakness of institutions and researchers to address specific research topics will be addressed through a long-term capacity-building approach allocating funds to build and strengthen research skills on ICT-related issues in the region. Risks and challenges will also be addressed through the on going follow-up, expertise and permanent support of IDRC administrative units.

1. Context and Background

This document proposes a five-year strategic plan for a new Program Initiative in the “Information and Communication Technologies for Development” (ICT4D) area in Latin America and the Caribbean (LAC), that responds to IDRC’s Corporate Strategy and Program Framework (CSPF) 2006–2011.

The CSPF recognize that the current rapid rate of economic and social change throughout the world is associated with an even more fundamental and accelerated change in the way technologies are developing, especially information and communication technologies (ICTs). However, these new technologies and their benefits are unequally distributed among and within countries (often referred to as the “digital divide”) and they not only reflect but also deepen other existing divides (i.e., social, economic, political, cultural, environmental, etc.). While recognizing the challenges associated with ICT, there is growing awareness of the possibilities that these new technologies offer for poverty reduction, employment creation, and sustainable and equitable development.

Building on IDRC’s longstanding experience in the area of ICTs, the new ICT4D program area was established during the initial start-up of CSPF 2000–2005. Responding to the need of addressing both emerging and outstanding issues of ICT access and appropriation, the latest CSPF 2005–10 places greater emphasis on the opportunities and challenges posed by the information economy. At the same time, it retains its distinctive approach to ICT4D by focusing on applied research to foster and strengthen the capacity of developing countries to apply the potential of ICTs to solve development problems.

Likewise, the program will deepen its focus on regional research networks, building the capacity of researchers to work with partners, and scaling-up innovative responses to development challenges. Its overall intent is to produce, disseminate, and foster the application of research results in the policy-making process, in order to promote sustainable and equitable development and reduce poverty.

1.1 Development Challenges and ICTs in LAC

There is growing consensus that in the current interconnected and interdependent world, human development and economic growth rely largely on adequate access and effective use of new information and communication technologies. Hence, a modern infrastructure and advances towards a full integration into the information society are essential.

The management and flow of information, and its further transformation into knowledge, are redefining the processes of social and economic growth. Wealth creation is increasingly linked to the capacity to use information and knowledge effectively in the production and delivery of goods and services. The challenge of finding innovative ways of working and conducting business — using ICT tools — is essential to improve productivity and maintain competitiveness. The same is true in sectors such as education and health; ICT innovations have opened the door for the delivery of services in ways that were unimagined only a few years ago. Politics and governments are also being transformed by the introduction of ICTs in both the provision of government services and in the modernization of democratic practices. The introduction of ICTs in the economic, social, and political life of countries — and the deep transformation they have carried with them — have led to the advancement of new ideas.

Umbrella concepts such as “information society,”¹ tend to include notions such as e-economy, e-government, e-democracy, e-health, e-education, and others that seek to describe these new realities.

Although government, private sector, and civil society leaders are aware that ICTs are an important component of the development equation, it is less clear “how to” mainstream ICTs in the various socio-economic sectors along with the role that these technologies can play in addressing issues of inequity and poverty reduction.

ICTs often emerge in developed markets and are therefore tailored to the needs of wealthier societies. Yet, in most cases these technological innovations also carry with them the potential to serve the needs of society’s poorest members. The development of cellular telephony is one of the most tangible and manifest examples in this regard. It emerged as an expensive solution for business people but soon the price of hardware and services dropped (through innovative pricing and regulatory schemes such as pre-paid cards and calling party pays) and cellular phones became the phones of the poor.

Wireless Fidelity (Wi-Fi), a new low-cost wireless communication system, was first tailored as a computing mobile service for delivery in expensive hotels, airport lounges, and the like. Yet, the fixed version of Wi-Fi can provide Internet access and all its associated benefits to low-income communities, at almost no additional cost.

In Latin America and the Caribbean (LAC), rapid socio-economic changes are increasingly affected by, and dependent on, ICTs as transversal elements that permeate all other aspects of the region’s development. At the national, sub-regional, and regional levels new approaches are emerging as a way to tackle key development priorities such as poverty alleviation, and education and health improvements. ICTs are seen as a key tool to provide innovative solutions to traditional problems.

Several countries have made tangible progress and have been very active and successful in embracing new and emerging technologies and turning them into engines of growth. This is the case in Brazil, Chile, and Costa Rica, now frequently acknowledged as the region’s “technology engines.” Even though these countries have very different socio-economic profiles, they have been able, not only to recognize where they stand in relation to the growing use and demand of new technologies, but also to respond to it through national plans and strategies that promote and facilitate their adoption.

These have placed them as leaders in the region in various key ICT areas, such as electronic government services, widespread adoption of ICTs in the educational system, strong and effective adoption of ICTs by small and medium size enterprises (SMEs), intensive use of electronic commerce, clear and reliable public policies to attract ICT-related investments and industries, and so on. In the case of Brazil, for example, the government is analyzing a new partnership with the World Bank to position the country as a technology supplier for economies in development.²

¹ An Information Society can be conceptualized as being based on technological breakthroughs and is often associated with economic issues and the ICT infrastructure that supports it. Technology has enormously increased the speed and quantity of communications and data transfers, thus transforming every step of the economic process. From this perspective, the spread of information has productivity gains, and consequently, the better the ICT infrastructure and use of information by society, the more aggregative gains there will be in a certain economy.

² *Folha de Sao Paulo*, Brazil, December 16, 2005.

The majority of countries in the region have been slower at mainstreaming ICTs into their development programs and lag behind in incorporating the benefits of the Information Society (IS). Although traditional (voice) communication infrastructure has improved in most countries,³ a significant number of nations have had difficulties in effectively incorporating ICTs into the various components of the national development equation (i.e., education, health, production/trade, political participation, and delivery of public goods and services).

In the education domain, for example, most countries have undertaken efforts to provide computers to schools across the country. Very few of them however, have been able to develop and implement adequate policies for the user communities to appropriate those computers as effective and powerful educational tools. Development of adequate local content, teacher training, and a better understanding of the ways in which ICTs can act as key leverage towards a full insertion into the knowledge society, are all pivotal components often missing in the implementation of national ICT strategies in LAC (Fonseca 2005a). Furthermore, large numbers of students from the poorest groups of society have yet to benefit from the information revolution, thus increasing even further the equity gap that affects the region.

A similar situation can be found in the health sector, where a few selected providers have incorporated cutting-edge medical equipment. Little progress, however, has been made in using ICTs, in particular the Internet, as a valuable innovative tool that can help to expand the reach of services to those who need them the most. Some ICT initiatives applied to health services for the poor that have been tested in other parts of the developing world are yet to be seen in the LAC region, where the great majority of health professionals that have access to computers and the Internet hardly go beyond the use of e-mail as a substitute to voice telephony.⁴

In the production and trade sectors, the adoption and use of ICTs is more encouraging. A number of large companies have fully embraced ICTs for their operations and are pushing medium and smaller companies that interact with them to do the same. Furthermore, some governments have made considerable efforts to support the development of e-procurement with special attention to the promotion of public procurement opportunities for small and medium size enterprises (SMEs). However, there are sources of concern in the statistics that link ICTs with the potential of e-commerce and improvements in productivity. Only 15% of the companies in the region, for example, have access to broadband services, an essential component in e-commerce-related activities. Furthermore, the presence of ICTs among micro producers of low-income groups is practically non-existent.⁵

Governments have also made significant progress in the modernization of public service provision. Several countries have considerably improved the implementation of e-government applications and services. In most cases, however, these developments have concentrated on traditional supply-side applications such as taxation and public procurement. Little progress has been made in increasing the transparency and accountability of the governance process through the use of ICT tools; this would allow for a more active and committed citizen participation in the acts of government.

³ Cellular telephony, for example, has made significant strides in overcoming fixed-line telephony in most countries of the region. The growth has been considerable among low-income population, posing interesting policy questions related to the future of ICTs among the poor of the region. Among the 31 countries of the LAC region for which data is available, only four countries (Costa Rica, Cuba, Saint Kitts and Nevis, and Uruguay) have more main lines per 100 inhabitants than cellular mobile telephone subscribers (ITU 2005).

⁴ A more detailed description of ICTs applied to health services in LAC can be seen in: Velez (2005) and Uturbey et al. (2004); for a more global perspective see: Demiris (2004) and Fleisher and Dechene (2004); regarding the potential of e-health for primary health care delivery see Health Canada (2004).

⁵ For an in-depth description of this situation see Botelho and da Silva Alves (2005); La Rovere and Hasenclever (2004) and Ueki (2003).

Furthermore, the majority of the LAC population has limited access to the Internet and user support policies have been scarce. The result is that only a minority of citizens have benefited from any progress in the supply of e-government services, leaving behind a large number of those with less access to ICTs and the Internet. A couple of countries in the region are the exception; they have implemented user support initiatives such as national programs on digital literacy, user surveys on e-government services, and other related programs.

The current ICT for development (ICT4D) landscape in the LAC region is unfolding in a context dominated by two outstanding features: (a) two companies have come to dominate most segments of the communication service market; and (b) the fast pace of technological innovation remains unabated. Both of these elements can, if unattended, deepen the current socio-economic inequity in the region (affecting the established price schemes, trends of infrastructure and service deployment, and the balance of power among key stakeholders). Innovative, applied research on ICT policy and regulation and on “appropriate” technologies⁶, as cross-cutting issues of ICT4D Americas’ research agenda can offer new thinking and valuable elements to put these developments at the service of more equitable growth in the region.

The rapid transformation that characterizes the ICT4D field and the strategies required to adapt to it, are not new to IDRC. The Centre’s extensive experience in this area provides a solid basis to make a significant contribution from this perspective to the social and economic development in the LAC region.

1.2 The IDRC Experience

PAN, originally coined from the Pan Asia Networking Program, was formally launched in 1995. By 2001, the PAN programs in both regions (Asia and LAC) had sufficiently developed. The emergence of a clearly distinctive niche for PAN activities in the LAC region, rather different from the approach and focus of the program in Asia, justified the creation of the Regional Corporate Project to work on ICTs for development in the Americas. Consequently, it became known as Pan Americas. In its early days, Pan Americas developed its programming with a focus on a selected number of countries in Central America and the Andean region, concentrated on projects with a focus on processes, and worked mainly with non-governmental organizations (NGOs) on issues related to the social impact of Internet policies.

By mid-2003, rapid changes in the ICT environment, the experience gained in the field, input received from key project partners, and a broad consultation with ICT for development stakeholders, motivated reflections and discussions about Pan Americas’ focus, resulting in the program’s course. The new approach reflected a much broader research agenda that included ICTs and economic issues, education, health, and technological innovation. Likewise, its network of partners began to expand to include research institutes, universities, multilateral and regional institutions, and government research institutions, refocusing its attention from processes to applied research outcomes and relevant findings, and broadening its geographic coverage to include the Caribbean and the Southern Cone.

1.3 Progressive ICT4D Policy Influence

The ICT4D area in the Americas during the recent past has been an arena of both applied policy related research and actual development experimentation and learning. The longstanding Pan Americas program had focused principally on civil society appropriation of ICTs in their development work and largely within the Central American and Andean regions of the Americas. The creation of the Institute for

⁶ The term “appropriate technologies” in this document refers to technologies that are the most appropriate to the environment and culture they are intended to support. http://en.wikipedia.org/wiki/Appropriate_technology. For a more detailed elaboration of the concept, see the section on Appropriate Technologies.

Connectivity in the Americas (ICA) led to a new way of working and developed a new set of hemisphere-wide institutional relations with key ICT4D policy and decision-makers in the region.

In the last generation of programming, ICA and Pan Americas worked for three years in a complimentary way, but their goals, strategies, and activities were not fully integrated. While Pan Americas aimed at supporting applied research on the social impacts of ICTs access and use, ICA centered its work on testing, demonstrating and promoting the dissemination of proven ICT models and lessons in multi-stakeholder environments. This included high-ranking decision-makers in governments, NGOs and the private sector. In practice, while ICA strove to reach higher political spheres of governments and the private sector so as to influence public policies and key private decision-making, Pan Americas aimed at building a solid network of researchers across the region that could provide the new knowledge and evidence-based findings required to support policy reforms in the field.

Examples of the projects provide a clear picture of the differences and complementarities between the two programs. In the area of education, for example, ICA funded a project to develop a regional network of national educational portals that would allow for the free circulation of education content among the members of the network. This project established strong institutional relations with the ministers of education of the region, but it was largely an implementation and operational activity and lacked research and substance for policy development. On the other hand, Pan Americas funded the SchoolNets project, an initiative that studies good and weak practices in the assimilation and effective implementation of ICTs in schools of seven countries of the LAC region. This initiative was strong in substance and produced valuable policy recommendations but was not as strong in building institutional relations with the LAC ministers of education office to feed policy recommendations and other research findings.

To tackle this and a number of other limitations, Pan Americas and ICA began to work more closely to build on thematic synergies and find points of convergence in which the two programs could benefit by complementing and strengthening their areas of influence, and at the same time have a broader impact on the region's ICT developmental issues. This was successfully achieved through the twinning process in which project development and implementation was coordinated to seemingly integrate the research and implementation components of each project. An example of these are the Wireless Fidelity (Wi-Fi)⁷ pilots in which ICA funded the building of Wi-Fi networks while Pan Americas supported research to identify and draw lessons from the impact of the deployment of such networks among communities that had before no access to communications of any kind.

The full integration of both of these initiatives into the converged ICT4D Americas program has considerable potential not only for developing high-quality research (given that this is often associated with "lab" conditions created by the "implementation" funding), but also to increase the effectiveness of policy engagement and policy influence. This is especially the case given that high quality research findings are produced and shared with the policy and decision-makers that often become engaged with the initiatives through the more politically visible implementation components of the projects.

Finally, it is important to highlight that, due to the nature of its work, ICA developed widespread working relations with private sector institutions and firms. This helped us gain valuable understanding of the working of the private sector in the ICT arena and provided useful lessons on the modes of engagement of private institutions and firms. This accumulated knowledge has been integrated into the forthcoming programming with the aim of engaging the private sector in the various initiatives that ICT4D Americas

⁷ Wireless Fidelity (Wi-Fi) is a new, low cost broadband wireless communication system (mobile and fixed) that allows not only for the transmission of voice but also (due to its broadband nature) of text, images, sounds and a number of other multimedia applications.

will be developing, in particular, those that could lead to the creation of ICT-based public goods of various types.

The forthcoming programming of ICT4D Americas will integrate the strengths of both Pan Americas and ICA approaches, building on the lessons learned by these initiatives in previous programming cycles.

1.4 Lessons Learned

ICT4D Americas' knowledge and experience in this area has been accumulating on a sustained basis for the past five years. Furthermore, the preparation of this Prospectus resulted in significant knowledge accumulation, through extensive regional consultations with key stakeholders and experts on development matters, an external review, four thematic papers, and presentation of prospectus outlines to the IDRC Board of Governors.⁸ The experience gained in implementing ICT for development projects in the LAC region, combined with the processes of reviewing, consulting, and testing programing modalities and thematic foci, provided valuable lessons not only on how to run the program, but also on which thematic areas to focus the forthcoming programmatic cycle.

In terms of modalities and processes we learned that:

- Having a fully integrated and consolidated approach to programing in the Americas is essential to the smooth and successful implementation of the new PI. The external reviewers and the feedback of stakeholders in the region pointed to the need to merge and consolidate the activities of Pan Americas and ICA into a single operational unit. That process began in September 2005 and will continue for however long ICA remains in operation. Should ICA be discontinued, ICT4D Americas will integrate ICA research partners and institutions into its programing.
- Programing needs to be designed to be inclusive of all sectors. Given the transversal nature of ICTs in all sectors of society, it is key for the success of the PI that initiatives be designed to include all relevant stakeholders (the academic community, NGOs, civil society organizations, private sector entities, government institutions, and the donor community) in the process at different stages of the project life and with different roles.
- Strengthening regional and sub-regional research networks should be at the core of future programing. A number of regional networks have been developed in the recent past — the LAC network of researchers and experts on ICT policy and regulation (known as *DIRSI* in Spanish), the Latin American Network of Schoolnets (*Redal* in Spanish), the Computers for Communities network (CFC), the Latin American Network of Educational Portals (*RELPE* in Spanish), the e-Government Network of Latin America and the Caribbean (*Red Gealc* in Spanish) and others — and several of these are in the early stages of development and have complementarities with some other projects. It has become rather obvious that the strengthening and progressive integration of the work of these networks should bring considerable benefits to all, mainly but not restricted to: (a) learning and sharing of knowledge and experiences across geographic and thematic divides; (b) harmonization and integrated planning of research agendas to achieve complementarities of findings and policy influence strategies; and (c) increased economies of scale in the use of human

⁸ Some of these sources were: (a) *A regional consultation* that took place on 29-30 November 2005 in Montevideo, Uruguay, gathering 25 regional ICT researchers and practitioners from the private, government, non-governmental, and academic sectors; (b) *Four thematic papers* prepared for the regional consultation and the prospectus. The papers were commissioned to LAC experts on the issues of education, e-government, SMEs, and e-health; (c) *An external review* of both Pan Americas and ICA, revealing the strengths and weaknesses of the programs and provided recommendations on possible areas of improvement; (d) *a presentation to the IDRC Board of Governors* held in late October 2005, providing valuable feedback on the first guiding principles and thematic selections upon which this prospectus should be built.

and financial resources, and expansion of their own networks of contacts across the region. Likewise, regional networks operating in a global context require progressive integration with partner networks and institutions both in the South (Africa and Asia) and in the North (mainly Canada, but also Europe and the United States).

- A greater focus on meeting gender needs and interests need to be integrated into the overall programming if the PI is to respond to one of its major concerns: increased socio-economic equity in the LAC region. Although ICT4D in LAC has carried on a number of activities and projects with a gender perspective, it has become obvious that more resources and attention needs to be devoted to this dimension of inequality to adequately respond to the key challenges of development in LAC.

In terms of programmatic themes and possible areas of focus, we learned that:

- Governments are now aware of the important role that ICTs play in any development agenda (although most are often unsure on how to take the next steps towards implementation). A number of major events in the region and in the world, including the World Summit on the Information Society 2003 and 2005 (WSIS), the United Nations ICT Task Force, the G8 Digital Opportunity Task Force (DOT Force), the Global Knowledge Partnership (GKP), the World Economic Forum (WEF-Davos), the Digital Divide Task Force, the Summit of the Americas (2001, 2003, and 2005), as well as continuous media coverage on the boom, bust, and renewed growth of Internet-based activities, have received the attention and raised the awareness of world leaders (including those of the LAC region) on the importance of ICTs for socio-economic development. But it is also true that most of these leaders, their successors, and top decision-makers in the region are having difficulties with the “how to” make this a reality. Hence, upcoming programming will attempt to address this bottleneck affecting the rise of the Information Society in LAC.
- The LAC region, differing from Africa and Asia, has a high proportion of its population located in urban areas. Some 76% of the people living in LAC do so in urban settings. This is a feature of the region that affects significantly the ways in which programming is developed and implemented. Network and service deployment strategies and policies, for example, are significantly different if they are targeted at rural or urban population. Policies to promote the social adoption of ICTs in the education, health and political realm would also differ significantly if they are addressed to schools and health centers in the outskirts of large urban centers than if they are geared to serve communities in remote and rural areas. Hence, ICT4D programming will reflect the fact that, although rural population in the region are among the poorest in each country, the largest number of poor in the region (63% of the total) are located in urban areas.⁹
- Although several countries in the region have experienced economic growth in recent years, this has yet to translate into similar improvements in the distribution of income or the creation of employment. In a region of 534 million people, 221 million (44%) are below the poverty line, and 97 million (19.4%) live in extreme poverty conditions or indigence (ECLAC 2004a), while an estimated 19 million people (close to 11% of the labour force) find themselves among the ranks of the jobless (ILO 2005).¹⁰
- The economic transformations of the 1990s were hand-in-hand with the rise of private provisions of education and health and the subsequent deterioration of services provided by public schools

⁹ de Ferranti, et al. “Más allá de la ciudad: la contribución rural al desarrollo”, The World Bank, 2005.

¹⁰ Furthermore, youth shows prominently among those below the poverty line. In 2002 there were 58 million poor youth, of which 21.2 million were in extreme poverty (ECLAC 2004).

and hospitals. This has derived in a growing gap in the quantity and quality of education and health services provided to low-income populations in the LAC region, making this education and health divide one of the great development challenges facing the region in the coming decade.

- Furthermore, poverty and unemployment have led to rising levels of violent social protests, criminality, insecurity, and institutional fragility. Recent crises in Argentina, Bolivia, and Ecuador have demonstrated the close links that exist between deteriorating economic conditions, and political and social instability.¹¹ Social protests and election results are demanding increased citizen participation in governance and a more transparent and accountable political system.

This learning process and accumulated experience point to the fact that, if the ICT4D Americas PI is to make a meaningful contribution in addressing some of the region's main development challenges, it would have to concentrate its work on research initiatives that are aimed at the adoption of adequate policies and conditions for social inclusion and improved socio-economic equity.

More specifically, the research agenda should be directed at applied research on ICTs that supports: (a) the creation of decent jobs and the promotion of entrepreneurship among the youth; (b) improvements in the delivery of health and education for the poor; and (c) the development of innovative mechanisms for increased citizen participation and good governance.¹²

¹¹ The experience of these countries, however, is not an exception, and resonates with a widespread perception in the region. For example, although the majority of the people in the region believe democracy is the best form of government, 52% would welcome the arrival to power of a non-democratic government if that would solve the economic problems of the region (UNDP 2004).

¹² Programing will be carried out with the full awareness that the region has been subject to important transformations due to globalization, which has exerted varied influences on its growth. On the international geopolitical landscape, emerging powers such as China, India, and some Asian nations are gaining momentum in the economic and technological spheres and exerting an increasing impact in the LAC region on different levels. The growing importance of the Chinese-Latin America relationships in the current world situation questions traditional ways of understanding the place of LAC in the world economy and politics. Commercial exchanges between LAC and China, for example, increased 50.4 percent in 2004 (Mansilla Blanco 2004).

2. Program

2.1 Vision, Mission, and Objectives

Vision

ICT4D Americas' vision is that of a society in which its citizens are aware of the potential of ICTs for development, and are innovative adaptors of ICTs as effective tools used to achieve more equitable and sustainable development in the LAC region.

Mission

Through the support of applied research on pro-poor policies and the deployment and uses of ICTs for development, ICT4D Americas will seek to promote social and economic equity throughout the region so that its citizens can reap the benefits of the emerging knowledge-based society, and can become active participants in it.

Objectives

Through applied research in knowledge creation, capacity building, and awareness-raising among relevant stakeholders in the LAC region, the PI will contribute to:

1. Foster the use and appropriation of ICTs with the aim of: (a) promoting entrepreneurship and decent employment; (b) improving the provision and access to education and health services; and (c) strengthening democratic governance in order to promote more equitable socio-economic conditions.
2. Better understand both the positive and negative impacts that the adoption and use of ICTs can have on low-income and vulnerable communities as well as the gender differentiated access to ICTs, particularly among the most disenfranchised women and girls.
3. Support the development of solid ICT initiatives and processes, in order to promote sound public policies and the development of appropriate technologies that respond to the needs and living conditions of those most affected by the region's inequity.

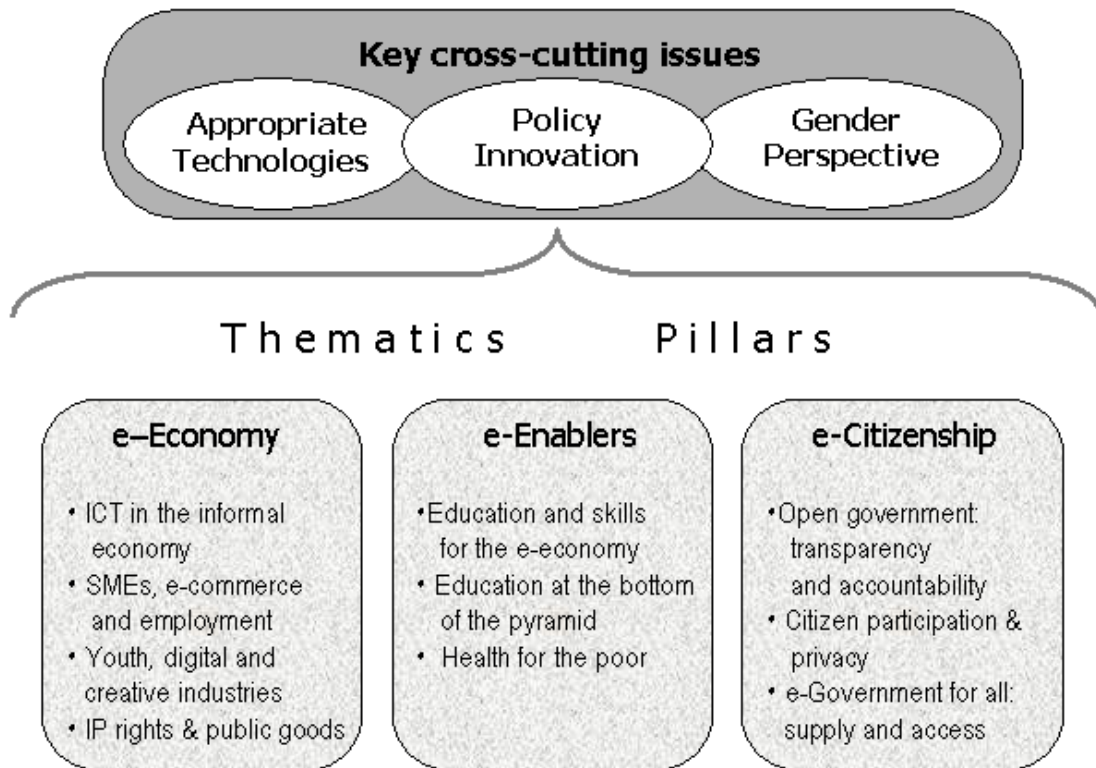
2.2 Research Areas

As expressed in the current CSPF, the ICT4D Program Area of IDRC is shifting its programing focus from Access to the Information Economy and Information Society. Working towards that end, ICT4D Americas will focus its programing on three main thematic pillars: *e-economy*, *e-enablers*, and *e-citizenship*, supporting applied research projects on specific issues that pertain to these areas (Figure 1).

Although the thematic pillars will provide a conceptual framework for specific areas of focus, there are three key cross-cutting issues on which ICT4D Americas will focus special attention: *Policy Innovation*, *Appropriate Technologies*, and *Gender Perspective*. Because these issues have been identified by the PI as increasingly important, and because they are common to all sub-themes, they have received a higher-level ranking. Additionally, they are considered cross-cutting issues and consequently, a solid research agenda and regional networks of researchers will be developed.

These regional research networks will have also a number of other related goals. It is expected, for example, that these networks will increase cooperation with the various planned projects in the PI and provide expertise and knowledge so that all projects within the PI integrate elements of these three key cross-cutting issues.

Figure 1



Furthermore, programing takes into account recent developments at the global level, most clearly reflected in the outcomes of the World Summit on the Information Society (WSIS) and in the regional product of processes such as, e-LAC 2007. This latter one is the Plan of Action developed by countries of the region (governments with inputs from civil society and the private sector) to respond to the issues raised at the global level by the WSIS process that took place in Geneva in 2003 and in Tunis in 2005.

2.3 Cross-Cutting Issues

The study of policy, technology, and gender will be fostered across all three main themes of the ICT4D Americas' programing in order to ensure that all projects pay special attention to these elements and can adopt, adapt, and transfer them in a meaningful way; consequently, vulnerable and marginalized groups at the bottom of the pyramid can effectively benefit from emerging solutions and research findings associated to the potential of ICTs.

Relevant knowledge and experience have been accumulated in relation to key cross-cutting issues that are pivotal to the forthcoming programming period. Projects such as the *Regional Dialogue on the Information Society (DIRSI in Spanish)* (see Box 1), *Wi-Fi for Development*, and *From Words to Action: ICTs, Youth and Gender Equity and Gender Evaluation Methodology for ICT Initiatives*, have been carried out in the cross-cutting areas of policy, technology and gender.

Box 1
Regional Dialogue on the Information Society (DIRSI)

The central objective of this initiative is to support the achievement of pro-poor, pro-market, ICT regulatory and governance regimes in LAC countries, as well as assist in the development of a regional network including: applied and policy-oriented research; case studies; thematic studies; political-economy assessments; etc. Capacity building aimed at researchers, regulators, policy-makers, and other stakeholders is also supported as a way to stimulate macro- and micro-economic assessments of the impact, benefits, and costs of governance and regulatory reforms, as well as ICT adoption in households and communities (project # 103371).

2.3.1 Policy Innovation

The digital environment is characterized by multiple and varied technological developments that are constantly posing new challenges to existing and emerging ICT policies and regulations. As new technologies emerge — impacting education, health, entrepreneurship, and governance — ICT policy directions and strategies are required to reflect and respond to these developments.

This cross-cutting theme will call on projects to contribute to the formulation of innovative and inclusive public policies aimed at addressing the core socio-economic concerns outlined in this document. Innovative public policies suppose a time-span cycle that requires clearly articulated strategic thinking and good negotiating skills in order to reach the higher levels of policy-making; policy influence considerations will therefore have to be taken into account in the early stages of project design.

The PI recognizes that sound public policies are based not only on valuable research findings that can inform policy-making, but on well-trained stakeholders. This is particularly relevant to address gender needs and interests, specifically at the local level. Building capacity and new talent for research and policy analysis of key actors (such as policy-makers, labour union and NGO leaders, researchers, and the public at large) will result in an expansion of policy-making capacities and by extension, in the development of sound and well informed ICTs for development policies. For those reasons, the PI will promote capacity building in ICT policy analysis and policy-making.

2.3.2 “Appropriate” Technologies

As mentioned above, appropriate technologies are those that are most appropriate to the environment and culture they are intended to support.¹³ The term has had different approaches but in general it refers to technology whose risk, cost and value tradeoff is compelling enough to justify continued use in a particular locality by members of a particular community. In practice, it is often something that might be

¹³ The term came into prominence in the early '70s specially related to the energy crisis and the environmental movement, originated by the British economist E. F. Schumacher, who was one of the originators of the concept that appeared in his book “Small is Beautiful” in 1973.

described as using the simplest and most benign level of technology that can effectively achieve an intended purpose.

Therefore within this context, to be appropriate, technology must be connected to the place, resources, economics, culture and impacts of its use. More specifically, in the framework of this prospectus, appropriate technologies need to be understood as the tailoring of technological innovations — both hardware and services — to the needs and demands of the poor.

Innovations in ICT technology can often serve the needs of the poor in very effective and powerful ways. But the possibilities that these technologies offer to low-income communities often go unnoticed or are acknowledged long after the fact because the conceptual link that brings them together is often missing, hard evidence is often not available, and pre-existing regulatory barriers sometimes undermine the possibility of scaling up and broadly disseminating those innovations.

Acknowledging that “appropriate” technological innovations have great potential in addressing some of the key communication problems of the poor, this PI will closely follow innovations in ICTs (such as those in the realm of wireless technologies — WiFi, WiMax, short messaging systems, cellular telephony and the like — VoIP, digitalization of TV and radio platforms, and other Internet-based innovations such as Web 2.0¹⁴) to explore the possible ways in which those innovations can be adapted to respond to those needs and demands.

2.3.3 Gender Perspective

Any approach to the issue of women and ICTs must begin by recognizing that the information economy does not affect men and women in the same way. The gendered nature of the social, cultural, economic, policy, and technology systems, as well as the roles and responsibilities that women and men have according to a socially-defined gender division of labour, are important determinants of a gender approach to ICTs. These different roles are also reflected in the diverging use and response that women and men face in accessing and appropriating new technologies.¹⁵

Furthermore, one of the main challenges faced in the effort to develop gender sensitive public policies is that policy-makers are not aware of the gender dimension, and/or the required policy measures required to correct gender inequity in the region.¹⁶ Inefficient accountability mechanisms limit women’s abilities to make policy-makers respond to their needs and interests.

¹⁴ The concept of “Web 2.0” entails new ways of envisioning the Web with distinctive features such as a meaningful democracy, in the sense that democracy is not in the selection of ideas but in their production. Based on this new concept, people can publish whatever they want; users are involved in adding value to the applications, and although existing standards and use of licences still play a role, restrictions are as few as possible. Following this trend, the PC is no longer the only access device to Internet applications, so new application designs integrate services across handheld devices, PC, and Internet services (O’Reilly 2005).

¹⁵ One area of possible exploration is the fact that, from an economic point of view, women provide the majority of care work and this unpaid work — especially in low- and middle-income countries — brings “positive externalities” to employers (thereby facilitating the process of capital accumulation) because the care and pre-school education of children, and the feeding and care of the workforce improve the quality of the labour force. It constitutes the prime site where “human capital” is formed. The cost of this work is largely borne by women, but the benefits are derived by society more broadly however, little is known of the ways in which ICTs could enhance and expand this dynamic in which women play a crucial role in society.

¹⁶ “The most important barrier to engendering the (ICT policy) process is lack of knowledge and training. Most policy-makers and organizations involved in the policy process ... don’t see the gender dimension until someone makes a very strong case for it (and even then there is some resistance)... very few policy-makers are trained to think from a gender perspective and unless they are educated on how to do so at all steps of the process, we (will) not get gender integrated into policy. I believe that training of policy-makers (both at the country level and international organization level) on how to engender the policy process is of the utmost importance” (Jorge 2002).

In order to contribute to the achievement of gender equality, ICT4D Americas will ensure that research projects supported include gender analysis (including producing gender disaggregated data) from the design through the implementation, through monitoring and evaluation stages of the project cycle, so as to avoid gender-blind research that can inadvertently reinforce gender inequality. Future programing in this area should consider some specific, targeted questions such as: Has new knowledge on ICTs and gender issues been generated and assimilated by researchers and practitioners in the ICTs for development world? Have existing knowledge or findings on gender issues and ICT been used in new, creative, and effective ways? How has the inclusion of gender considerations into ICT programing enhanced research results? How were research results used, by whom, and to what effect? Did research findings on ICTs and gender specific issues inform or influence policy-making?

2.3.4 Thematic Pillars

During the upcoming programmatic period, research initiatives will be concentrated on three thematic pillars: e-economy, e-enablers, and e-citizenship. Below each pillar, a number of research themes have preliminarily been identified. The proposed research themes and tentative research questions are meant to serve as a general guideline of research issues that could be supported, taking into consideration that ICT4D Americas will be responsive to the research agenda suggested by LAC partner institutions. The following sections will: (a) briefly explore the concepts underlying each of the main themes; (b) pose preliminary and tentative research questions; and (c) highlight some of the expected outcomes associated with these areas of research.

2.3.4.1 e-Economy

The e-economy, a concept that refers in the broad sense to the use of ICTs for product and process innovation across all sectors of the economy (which can be also understood as the dynamic system of interactions between the nation's citizens, businesses and the government that capitalize upon on-line technology to achieve an economic or social good) has emerged in the last decade as one of the primary engines of productivity and growth in the global economy.¹⁷

Technology has globally increased the speed and quantity of communications and data transfer, transforming every step of the economic process. From this perspective, the spread of information has productivity gains; thus the better the ICT infrastructure and use of information by society, the more aggregative gains there will be in a certain economy. The transformation and/or disappearance of certain industries resulting from (or associated with) the rapid spread of ICTs, however, has evidenced the need for new economic strategies to enhance the capacity of the LAC region to adopt them and exploit their potential.

Within this context, ICT4D Americas recognizes that LAC's transition towards fully ICT-enabled economies is a complex challenge that involves narrowing the innovation and productivity gaps that exist within and among countries of the region by adopting ICTs to match the productivity performance in key industrial sectors.¹⁸

The current proposed research agenda builds on previous work carried out by the ICT4D programs in the LAC region. In the e-economy pillar, projects such as *The Knowledge Economy Research Grants* (see Box 2), *Telework Research*, *Digital and Creative Industries*, and *SMEs and ICTs* provide the basis for a

¹⁷ Regarding the relation of ICTs and growth, see for example: Castaldi et al. (2004); Heeks (1999); Indjikian and Siegel (2005); Pohjola (2001); and Stiglitz (2003).

¹⁸ <http://www.e-economy.ca/epic/internet/inec2ee-ceace.nsf/en/nl00052e.html>

more solid and in-depth exploration in the next programming period.

Box 2

Knowledge Economy Research in Latin America and Caribbean

ICTs have transformed society and economies, significantly giving rise to new forms of organization that have impacted the production, distribution, and consumption of goods and services. This project aims to support policy-makers and civil society stakeholders in enabling their countries to benefit from an equitable and inclusive expansion of the knowledge economy. It does so by awarding grants on a competitive basis for research on the following themes: (a) Institutions, Innovations, and Knowledge Flows; (b) Employment – Threats and Opportunities Flowing from the Knowledge Economy; (c) Trade and New Business Opportunities in the Knowledge Economy; and (d) Scanning the Horizon of the Knowledge Economy (project # 102497).

Specific topics for applied research under this pillar will attempt to respond to some of the key challenges posed by the inequitable distribution of resources in the region. Towards that end, research will be geared towards issues such as:

ICTs in the informal economy: As of 2004, more than 45% of the labour force (UNDP 2004) operated in the informal sector, while 66% of all new jobs were created in this realm (ECLAC 2004a). This is where the majority of the economic activities of the poor take place. Key stakeholders and ICT4D experts present at the Regional Consultation¹⁹ strongly endorsed the idea of supporting applied research on the ways in which ICTs could contribute to improvements in productivity, and the likely growth and subsequent transition of some of these economic activities to the formal economy. Hence, the PI will focus part of its e-economy research on the ways in which ICTs may contribute to improvements in the informal economy, at the same time paving the way to formalization.

SMEs, e-commerce, and employment: In the 14 largest countries of LAC, there are some 8.4 million companies operating in the formal economy. Nearly 93% of them are micro-enterprises (5 to 10 employees), while only 0,2% are large companies (over 100 employees). During the 1990s micro, small and medium size enterprises became the main driver of job creation in the region, accounting for nine of every 10 jobs created (Botelho and da Silva Alves 2005, p. 7). Countries in the region have become aware of the importance of SMEs in the economy and of their role in job creation, and are providing increased attention to the rise and growth of SMEs. However, most of them still operate in very traditional ways and lag behind in fulfilling the requirements of increasingly integrated, interdependent, and globalized economies.

ICTs, adopted in an adequate manner, can help to achieve higher productivity levels, and can, through e-commerce, open doors to new trading opportunities that were until very recently out of reach for most of the region's enterprises. Hence, research on the most adequate means to integrate ICTs to SMEs is needed to gain a better understanding on the ways in which these technologies can raise the productivity and competitiveness of SMEs in LAC.

Youth, digital, and creative industries: Most creative, cultural, and media industries are undergoing significant changes with the application of digital technologies. Digital content production is becoming a major driver of innovation across content industries, also having an impact in sectors such as education, entertainment, and advertising. Because these industries are

¹⁹ Pan Americas Regional Consultation, November 29-30, 2005, Montevideo, Uruguay.

based on new digital technologies, youth are at ease with these tools and are leading their development. ICT4D Americas will support research on the link between digital technologies and new business applications, analyzing the potential of such tools as drivers for job and wealth creation, particularly for the youth of the region.

IP rights and public goods: Intellectual property rights refer to patents, copyrights, trademarks, designs, etc.. New and innovative ways of treating property rights are emerging and increasingly challenging well-established economic and legal frameworks that have governed IP rights for decades in Western societies (where business is based on notions such as scarcity, exclusivity, and controlled access to products and/or services). The PI will promote applied research on the potential that open and free content, and services have for development, and on how they could benefit a large number of people through innovative business models. Along similar lines, ICT4D Americas will analyze and promote studies aimed at building a better understanding of the potential that ICTs have for the development of public goods²⁰ and new models associated with the production, diffusion, and consumption of digital goods.

The sample research questions offered below provide a reference to the kind of research initiatives that ICT4D Americas would be interested in supporting in the e-economy pillar during the next programmatic period.

- How can ICTs contribute to overcome the challenges posed by the informal economy, youth insertion in the labor market, and unemployment in the region?
- How can e-commerce uses and related ICT applications contribute to improving the productivity and competitiveness of SMEs, in particular those operating in the informal economy?
- How can research and multi-sectoral processes be used to support a more effective integration of the economic activities of the informal economy into the formal one?
- Which public policies are the most adequate to promote the rise of new digital/creative industries and enhance entrepreneurship among the youth of countries in LAC?
- Which models and approaches to IP rights have been implemented in LAC and which ones should be further explored in order to address the challenges posed by increasing copyright constraints?
- Are emerging models of “open” ownership viable alternatives to address traditional problems of development? What changes in policies/regulations are necessary to promote the production of ICT goods and services as public goods to benefit the poor?

Some of the expected outcomes of this programing are aimed at²¹:

1. Deepening the understanding that key policy- and decision-makers have vis-à-vis the role that ICTs play and/or could play (if supported by adequate policy and regulatory reforms) in the informal economy of LAC.
2. The adoption and implementation by government institutions and NGOs of research findings that could lead to more effective and productive uses of ICTs in supporting the economic activities of the poor.

²⁰ A public good possesses two properties: (a) *Non-rivalrous* — its benefits fail to exhibit consumption scarcity; once it has been produced, everyone can benefit from it without diminishing others' enjoyment; and (b) *Non-excludable* — once it has been created, it is very difficult, if not impossible, to prevent access to the good. For further elaboration on this concept see a public good available at http://en.wikipedia.org/wiki/Public_good.

²¹ “Outcomes are defined as changes in the behaviour, relationships, activities, or actions of the people, groups, and organizations with whom a program works directly” (Earl et. al. 2001, p. 1).

3. Increasing awareness among policy-makers on the potential role that ICTs could play in enhancing the competitiveness of SMEs in both the formal and the informal economy, as well as the ways in which technology can open new avenues for trade beyond domestic borders.
4. The development of public policies aimed at promoting the adoption of ICTs as tools for enhanced productivity/competitiveness and trade expansion.
5. Improving, through research findings, the understanding of key policy- and decision-makers of the positive and negative aspects of ICTs on job creation — and the subsequent development of public and private policies in this area.

2.3.4.2 e-Enablers

Health and education are universally recognized as issues that are the foundations of a nation's development, and socio-political and economic stability. They are also a pre-condition for individual development in any modern society. In other words, health and education are the two most important elements for leveling the playing field and increasing the likelihood of a more balanced distribution of resources within and across countries. Consequently, they are areas in which ICT implementation has the potential of producing a direct impact in the rise of more equitable societies.

As part of this thematic axis, ICT4D Americas seeks to foster research that explores the ways in which the innovative implementation, use and appropriation of ICTs in education (e-education)²² and health (e-health)²³ can contribute to empower vulnerable and marginalized communities in LAC, thereby having a positive, leveling effect on regional equity.

In the realm of e-enablers, a number of initiatives have also recently been developed. In education, the *Latin American Network of Schoolnets (Redal* in Spanish) (see Box 3), the *Latin American Network of Educational Portals (RELPE* in Spanish), and *Computers for Communities (CFC)* are among the most representative ones. *Capacity Building for Health Care Providers on Innovative ICT Tools, Disaster Prevention and Management in the Caribbean*, as well as *Attending the Needs of Displaced Populations in Colombia* are good examples of early work in the area of health.

These various activities have led to significant experience and knowledge accumulation in the area of education, and regrettably, a less extensive one in the area of health. A number of projects in the area of education have been carried out by both Pan Americas and ICA, providing a good understanding of the issue, a broad network of researchers and experts in the field, and links with public and private institutions, leading to a strong basis for further research in this area.

In the case of health, programming is still in the early stages. Consultations with experts in the field have contributed to the identification of some of the bottlenecks that should be addressed in this area (i.e., privacy of health information, regulatory frameworks, validation of services provided through the Internet, capacity building of health providers, effectiveness of health information systems and access,

²² e-Education refers to the use of ICTs to approach questions of education, learning, and capacity development. The principal trends in the use of digital technologies applied to education would include among others: computer-assisted instruction; computer literacy; content dissemination and multi-media resources for self-directed instruction; technology-enriched learning environments; projects based on the use of the Internet; virtual and on-line learning resources and initiatives.

²³ e-Health is an emerging field in the intersection of medical informatics, public health, and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and globally by using information and communication technologies (remove)-put ICTs.

etc.), including issues related to the impact that environmental degradation can have on health. For all these reasons, the PI will learn from, collaborate with, and seek to support, other PIs within the Centre that have extensive experience in this area.

Box 3
Schoolnets Latin America

This project supports a qualitative study of the operation of seven exemplary schoolnets in Latin America (the project has a long history and a widespread reach). A team of researchers examined aspects such as management, audience, mission, financing and sustainability, infrastructure, pedagogy, activities, impacts, regulatory context, and the influence of external models in selected schoolnets. The researchers also documented best practices and identified key factors in the schools' successes. Results and findings are being presented as a series of recommendations to decision-makers about the integration of new ICTs in education (project # 102073).

In terms of sub-themes, ICT4D Americas will be looking at the following issues:

Education and skills for the e-economy: The transition towards a knowledge-based economy is based on the acquisition and application of knowledge as a driving force for new processes, businesses, and industries. Thus, the demand for workers with appropriate skills has increased dramatically. Technical and “soft” skills are both important components in the knowledge-based economy.²⁴ This line of programming will support and disseminate applied research related to the skills required to be an active participant of the labour market in an increasingly knowledge-based economy.

Education at the bottom of the pyramid: For the 44% of the population of LAC that finds itself below the poverty line (ECLAC 2004a), the issue for the next decade is not related to the new skills required for the emerging knowledge-based economy, but rather on: (a) how to access an education of reasonable quality and relevant to their needs; and (b) how to keep their children in the formal educational system until they can attain a level of education that would allow them to compete for a decent job in the future. Women and girls face additional constraints that have to be addressed. This line of research within the PI will focus on the ways in which ICTs can (or cannot) improve access and retention, as well as enhance cognition and motivation among students from low income and vulnerable communities.

e-Health for the poor: The health sector in LAC faces a number of key challenges, such as the equitable access to health care services, the reduction of costs, the necessary increase of disease-preventive measures among low-income and vulnerable populations, among others. Digital technologies and ICT-based solutions provide a powerful tool to change the ways in which health services are managed and delivered to the population at large, and to low income and marginalized communities, in particular. ICTs and the Internet, for example, can bring to these communities (at low cost) contacts with larger health centres located in urban areas, opening access to health prevention measures, consultations, updated valuable medical information, coordination in the treatment of patients, adequate and timely distribution of medicines, collection and effective distribution of valuable data on profiles and patterns of threatening epidemics,

²⁴ In the first category, the types of skills considered are those related to information technology, systems, and processes. In the latter category, communications, creativity, analytical thinking, cognitive ability, flexibility, and judgement are the skills identified for the eventual success of individuals operating in the knowledge economy.

contagious diseases and other ailments, among others. Attention will also be paid to the relationship between environmental degradation and its impact on the health of the LAC population. Hence, ICT4D Americas will attempt to better understand and communicate to key stakeholders in this area, the ways in which ICTs can help overcome existing and emerging health challenges in the region.

The sample research questions offered below provide a reference to the kind of research initiatives that ICT4D Americas would be interested in supporting in the e-enablers pillar during the next programmatic cycle:

- Are ICTs effective and efficient tools to create the necessary capacities and skills for LAC to enter into the e-economy? What changes in the current curricula and education systems in LAC are needed to prepare new generations for the requirements of the e-economy?
- What ICT-related policies and institutional reforms are required to better prepare the region's labour force for its insertion into the e-economy? What role can be played in this process by professional training and the vast network of professional training centres and institutions in the region? What are the lessons learned from leading sectors/countries in this area?
- How can ICTs contribute to the school retention rates and the stimulation of students coming from underprivileged communities?
- What kind of policies and public/private partnerships might be required to reach adequate levels of education among the poor?
- How can ICTs play a role in a more equitable delivery of health services in the region (including more equitable health outcomes for men and women)? How can ICTs support current efforts to take health preventive measures and combat some of the main ailments that currently affect low-income communities?
- How can applied research help to address some of the main environment-related health problems posed by the rapid expansion of ICTs in the region? What are the environmental and socio-economic implications of the uncontrolled increase of electronic waste (e-waste) and what are their health-related challenges?

Some of the expected outcomes of this programming are aimed at:

1. Producing knowledge and policy tools that address the new ways in which ICT innovations can support better health and education for the poor.
2. Fostering the capacity of a larger number of high quality researchers, capable of analyzing and presenting in an effective fashion, both the opportunities and constraints of ICT tools in the delivery of health and education services to low-income communities.
3. Consolidating stronger regional networks of researchers, sharing knowledge and experience on these issues, and developing on-line and on-site programs and curricula to build capacity among young researchers.
4. Increasing awareness among health and education policy-makers on the role of ICTs in relation to the more significant development challenges in these areas.

2.3.4.3 e-Citizenship

The concept of e-citizenship is based on emerging notions that traditional governance models are no longer sustainable, and new approaches to citizen participation, governance, and policy-making are required. Terms such as "active citizenship" are beginning to permeate traditional political structures, and new forms of interaction between government and citizens are unfolding. The concept of "active

citizenship” refers to the notion that citizen participation increases government effectiveness through the timely identification of problems, as well as in the resolution of conflicts and the building of consensus for the effective implementation of policies (Marsh 2000). This model assumes a relationship between governments and civil society in which citizens engage in an active fashion in the definition of both the processes and the content of public policies (OECD 2003b). The approach assumes that the solution to social problems is dispersed through society, and, therefore, seeks ways to strengthen decision-making mechanisms based on the contrast of divergent views, opinions, values, and information, as a key strategy in the collaborative development of public policies. From a gender perspective, citizenship is understood not simply as an abstract characteristic, but as “active citizenship” that is, “implying participation and agency.”

When translated to the realm of ICTs, the notion of “active citizenship” is directly linked to the concept of e-democracy, as opposed to that of e-government. E-democracy refers to the use of ICTs to support and enhance the collaboration among relevant stakeholders throughout the policy-making cycle without the limitations of space, time, or other physical constraints often imposed in the communication process of democracy (Kubicek and Westholm 2003). E-government, instead, refers to the use of information and communications technologies in the internal processes of government, and the delivery of government products and services to citizens.

In the area of e-citizenship, considerable knowledge and experience has been accumulated through a selected number of projects, such as *Internet, Privacy, and the Judiciary in LAC “Heredia Rules”* (see Box 4), one of the higher-impact projects, as well as other valuable initiatives such as the *e-Government Network of Latin America and the Caribbean (Red Gealc in Spanish)*, and the educational portal for public servants developed in Mexico, known as *@Campus Mexico*.

Box 4
Internet, Privacy and the Judiciary

The Internet has significantly changed the dissemination of court rulings, increasing citizen access to the information through Web sites and search engines managed by courts of justice and private businesses. Most LAC countries have enacted new laws for the protection of privacy and personal data. However, these laws have not generated a corresponding change in the formulation of court and tribunal decisions. Working with judiciaries in LAC, this project promotes a balance between the advantages provided by ICTs in the dissemination of judicial information, and the risks to privacy that could lead to discrimination against vulnerable groups. It raises awareness of issues in provincial and supreme courts, and develops corrective procedures to protect privacy rights and improve the management of judicial information on the Internet (project # 101107).

ICT4D Americas’ activities will aim at increasing the understanding of the value of ICTs to: (a) increase the transparency and accountability of public services and political institutions in the region (*Open Government: Transparency and Accountability*); (b) promote an increase in the effective participation of low income citizens in governance processes, while protecting their privacy and information rights (*Citizen Participation and Privacy*); (c) expand the current e-government initiatives so as to provide widespread access to public services and information to citizens and marginalized communities (*e-Government for All: Supply and Access*).²⁵

²⁵ There are strong disparities in e-government development in the region: “Latin America shows wide variation in the use of e-government (from 60% in Chile, which today is the fifth country in the world in terms of e-government use, to 32% in Bolivia, Nicaragua and Uruguay, all of which rank 74 in the world)” (Altman 2002, p. 11).

*Open Government*²⁶ –*Transparency and Accountability*: In the LAC region the legitimacy of public institutions and governments is being questioned mostly because of the lack of transparency and accountability. Recent surveys show, for example, that some 78% of the population considers that governments do not act in a way that responds to the will of the people that voted, while some 72% considers that there has been no progress in the fight against corruption (UNDP 2004). ICTs, given the very nature of the technology and its applications, can help in considerably increasing the transparency of public processes and procedures, improving, in this way, the accountability of public servants and political leaders.²⁷ With the aim of addressing this challenge, ICT4D Americas will concentrate part of its forthcoming programming on applied research to develop policy recommendations on this matter.

Citizen Participation and Privacy: Aside from transparency and accountability, citizens in the region are demanding a more active role in the policy process. The widespread rise of social protests and unrest in recent times is a clear indicator of the demand of citizens' participation in the public policy- and decision-making process. As a powerful communication tool, ICTs can provide an unprecedented platform for citizen participation in the governance process. That very same engagement, however, could open the doors for the manipulation of private citizen information, with subsequent challenges posed to the privacy of those individuals. For these reasons, programming will include the generation of innovative strategies for on-line citizen participation, addressing as well the privacy and information security challenges posed by it.

e-Government for All – Supply and Access: Governments in the region have made significant progress in the implementation of e-government services. Several countries are recognized as leaders in this sector not only in the LAC region, but as early adopters on a global scale. The challenge lays in the fact that e-government services require access to a PC connected to the Internet, as well as basic knowledge and skills on ICT usage to be able to properly manage the platform and benefit from the services. Given that large numbers of the population in the region still do not have access to the Internet, nor the knowledge required to fully appropriate these tools, e-government in the region has been at the service of the wealthiest groups in society.²⁸ As part of this sub-theme, the PI will support research that raises awareness of the problem and provides policy recommendations to deal with the situation.

The sample research questions offered below provide a reference to the kind of research initiatives that ICT4D Americas would consider supporting in the e-citizenship pillar during the next programmatic cycle.

- How can Internet deployment and use be adapted and enhanced so that the most vulnerable groups of LAC's society can have a more equitable access to public knowledge and information?
- How can LAC communities gain access to ICT tools in order to exercise citizen rights, and how can e-democracy mechanisms affect their options?
- How do disadvantaged communities benefit from the transformations produced by emerging e-government services?

²⁶ Open government presupposes a dynamic balance between the demands of civil society and governments' response to them. Under this model, civil society not only poses demands but also offers solutions, actively participates in public matters, and imposes controls on the public sector for proper accountability. Government, on the other hand, takes into account the demands and proposals of civil society, is accountable for its actions, and seeks to find consensus over public matters to legitimize its existence (Reilly 2002, p. a).

²⁷ For an in-depth discussion of the problems of "citizen of low-intensity," "lack of accountability," and "satisfaction with democracy" in LAC, see: Altman (2002); Mainwaring and Welna (2003); Norris (2001); and O'Donnell et al. (2004).

²⁸ Reflecting this situation, a recent survey in the region showed that some 39% of the people in the region (a number similar to those below the poverty line) argue that because they are poor, government institutions do not treat them the same way they treat other citizens (UNDP 2004).

- What are the public policies and national strategies required to build the link between e-government services and public access centres (such as telecentres) so as to serve the needs of the most disadvantaged groups?
- How does the increased use of ICT tools and networked services impact privacy, especially that of disenfranchised communities?

Some of the expected outcomes of this programming are aimed at:

1. Generating locally-produced content and research outputs that would help communities and policy-makers to better understand the role that ICTs can play in: (a) allowing marginalized citizens to benefit from on-line government services and to actively participate in policy-making and governance processes; and (b) increasing the transparency and accountability of governments in the region.
2. Actively building capacity among community leaders and leading social science thinkers, to increase the likelihood of well-informed and solid proposals to transform current governance practices in LAC.
3. Broadly disseminating new knowledge and showcasing good practices on on-line citizen participation and transparency, in order to increase the awareness and early adoption of ICTs as tools for the modernization of the political systems (currently lacking public trust and credibility due to non-transparent and non-accountable governing practices).

2.4 Emerging Issues

The prospectus includes key emerging issues in LAC in the next years (such as digital/creative industries, telework, public goods and new forms of ownership of digital products, transparency and accountability, etc.), hence this section is not a parallel list of other topics to be addressed, but aims at identifying emerging themes to explore: (a) their relevance in the development agenda, (b) the possibilities that IDRC has to add value in the building of knowledge on these subjects, and (c) explore potential partnerships within and outside IDRC to carry on this exploration.

The prospectus is designed to focus on applied research that would serve low-income communities in the region. However, the benefits of ICTs for the poor go beyond targeted developments for those communities. In a globalized economy, the progress achieved by a country's innovations and the assimilation of emerging industries can have, if supported by adequate policies, significant spill-over effects on low income communities. Hence, the ICT-related topics of this section are more geared towards economic, scientific, political, and social issues at the global level.

- *Global networks and new industries*: Rapid developments in science paired with the rise of ICTs and global networks have led to deep transformations in the global economy, giving rise to a wide range of new industries (i.e., nano-technology, biotechnology, bio-informatics, software, online services, new materials, new sources of energy, etc.). Acknowledging the important role that Canada plays and has committed to play in S&T issues at a global level²⁹, as well as the re-emergence of innovation in the development discourse³⁰, ICT4D Americas will closely collaborate with partners within IDRC (such as IPS) and outside the Center to explore emerging issues that relate to the role of ICTs in the rapid development of bio and nano-technology and

²⁹ As stated by Canada's Prime Minister as a response to the February 2004 Speech from the Throne, "Our long-term goal as a country should be to devote no less than 5% of our R&D investment to a knowledge-based approach to develop assistance for less fortunate countries".

³⁰ "Strengthening and Situating S&T Programming in IDRC", BOG 2005 (03) 07.

other emerging knowledge industries in the LAC region.³¹

- *Hybrid infrastructure and global research:* Scientists play a key role in national development and their contributions to economic growth and human well-being are essential to achieve long-term sustainable development in a country. Advanced knowledge, however, is spread across the world in centers of excellence and top research institutions located mostly in the northern hemisphere. In the past, scientists needed to migrate overseas to be in touch with cutting-edge research and achieve solid professional development. Today, thanks to innovations in ICTs and the Internet, they can do so from their offices in their home countries. Yet to be able to do so, universities need to be linked to the high-speed research networks that are emerging across the globe. In the case of Latin America great progress has been achieved in that regard. However, the cost of communication services remains high and constitutes one of the main hurdles to the long-term sustainability of such initiatives. Universities in the region are exploring alternative means of communication (hybrid infrastructure that includes electric grids and fibre optic networks of public utilities) to reduce costs and increase services to underserved academic centers. This is an area where applied research could provide valuable contributions in the generation of new knowledge related to the institutional and regulatory/legal implications of such developments.
- *Rising powers and ICTs:* Rising powers in the international arena, such as Brazil, India and China (BrIC) have undergone rapid changes in the economic and technological fields. This has led to a new global geopolitical landscape in which the reconfiguration of global information and technological flows and the revival of technology-based industrialism (with strong emphasis on ICTs) in the South generate new and unprecedented challenges and opportunities for development. In the particular case of LAC, ICT4D Americas will look not only at the regional role that an emerging power like Brazil can play, but also at the contributions that other ICT leaders (such as Chile, Mexico and Costa Rica) can provide in terms of the ICT policies and strategies adopted and lessons that less resourced neighbours can adopt to move ahead to a more information and knowledge intensive societies.

3. Programing Modalities

Consistent with the programmatic approach suggested for the new prospectus period (2006-2011), the PI has elaborated a few but important mechanisms and approaches to carry on its programing in the field. This section also looks in some detail at the challenges and risks faced by the PI as it moves to carry on its planned programing for the next five years.

³¹ For countries in LAC it is important to carefully explore the strategic value and potential of each of these industries vis-à-vis forthcoming developments in the global economy. Countries in the region are beginning to embrace some of these industries in a rather ad-hoc and fragmented way, and without a clear understanding of the role that ICTs can play in enhancing the performance of producers. Emerging issues where research could be undertaken include the role of ICTs in: (a) the development of molecular manufacturing and its impact on the reduction of costs of devices (including ICT devices), (b) the rise of innovative biotechnology tools, such as bio-informatics (i.e. through web-based open advanced information databases), and (c) advances in biochip development and drug improvements (i.e. cataloguing, scientific research and related applications).

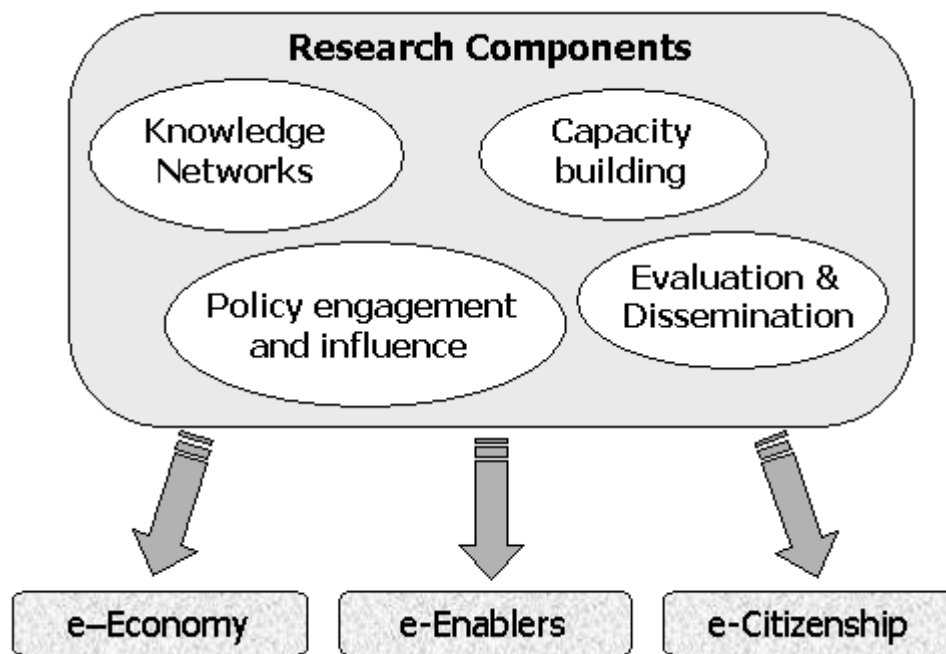
3.1 Modalities

ICT4D Americas will focus on project modalities that would: (a) enhance the possibility of building successful regional knowledge networks; (b) strengthen mechanisms for capacity building; and (c) build on specific strategies aimed at increasing the effectiveness of policy engagement and influence (see Figure 2). Particular attention will also be paid to issues of dissemination and evaluation (see sections 5 and 7 of this document).

3.1.1 Regional Knowledge Networks

Latin America and the Caribbean are experiencing a considerable increase in the number of ICT related projects and initiatives being undertaken at the local and national levels. However, as these experiences continue to multiply with varying degrees of success, there is an emerging need for higher value-added, scaled-up regional initiatives that tackle applied research and implementation from a comparative, multi-country perspective.

Figure 2



This PI will continue to strengthen regional networks of ICT practitioners, while fostering their links and interaction with other sub-regional and global networks. Work in this area will include the consolidation of new networks of South-South and South-North collaboration, as a way to promote knowledge exchange and expert interaction.

The role of regional networks will be particularly important in relation to development and implementation of the three cross-cutting themes raised in the thematic matrix (policy innovation, appropriate technologies, and gender perspective). The PI will aim at building regional networks of experts in these three areas, thus providing valuable support and resources on these themes to other projects and initiatives. These networks will also develop their own research agendas, aiming to deepen

the regional knowledge and understanding on these issues.

Pilot experiences in single countries will be supported when designed with a clear regional outlook, focusing on the value of testing innovative approaches to policy, technology, capacity building, or mechanisms that demonstrate value-added ICTs in the various areas supported by this PI. These pilots are seen as unique opportunities for experimental ICT4D innovation.

Furthermore, as ICTs continue to evolve as an increasingly transversal issue within the socio-economic and political spheres, this development also becomes a highly multi-disciplinary endeavor that involves a wide range of disciplines and areas of expertise. With the view of contributing to articulate the broader set of actors and sectors that have become interested and involved in the field, ICT4D Americas will continue to expand its project partner's role to new academic institutions as well as private and public organizations, in addition to the existing civil society partner organizations.

3.1.2 Capacity Building

Building the capacity of the region's researchers remains at the core of ICT4D Americas' activities. With the aim of building capacity among young researchers, the PI will work with universities and professional training institutions in the region to increase the number of ICT4D courses that are taught. The PI will also explore the possibility of allocating part of its resources to developing a regional masters program (a blend of on-line and face-to-face components/requirements) on ICTs for development. Capacity building of a younger generation of researchers will also be achieved through mentoring programs that will be introduced in the various initiatives (mainly in the cases where regional network of experts on a particular theme has evolved).

The PI also plans to promote, in a more systematic fashion, the institutional strengthening of project partners by providing capacity building and follow-up on the key components of the project cycle (through Outcome Mapping and other evaluation methodologies), as well as the effective integration of gender perspectives into the funded initiatives.

3.1.3 Policy Engagement and Influence

Experts have pointed out that the influence of research in policy processes is rather indirect and usually takes place after a long period of time, during which ideas and concepts are filtered and massaged through the different levels of the political systems. Eventually, this process may lead to changes in the way policy-makers perceive problems and propose solutions. Within this framework, ICT4D Americas will continue supporting the systematization of existing knowledge, experience and expertise, and their transformation into deliverables that can be effectively disseminated and used by ICT stakeholders and policy-makers in the region.³²

3.2 Challenges and Risks

In the implementation of its work, the PI faces a number of challenges and risks. Below are a few examples of these.

3.2.1 Fast-changing Conditions

The ICT field is characterized by fast, ever-changing conditions, in which innovation and the emergence

³² Lindquist, corroborated by Neilson (2001). IDRC Evaluation Unit, http://www.idrc.ca/en/ev-26266-201-1-DO_TOPIC.html.

of groundbreaking technologies and leading-edge tools can render research findings quickly obsolete. Consequently, the PI's programming approach will remain alert and flexible to respond to new developments in the field. Exploratory projects and short-term complementary activities could help mitigate the risks involved in such situations.

3.2.2 Existing Research Capacity on Emerging Issues

As a field where innovation and emerging issues exercise an important influence on the way programming develops, regional research skills and experience are at the core of ICT4D Americas' work; consequently, there is the problem of the relative weakness of institutions and researchers to address specific topics. The problem is two-fold. On one hand, the topic could be relatively new and there is a scarcity of well-trained researchers in the subject. On the other, research institutions in LAC suffer from a scarcity of financial resources, which often limits their ability to generate solid research. To address these challenges, ICT4D Americas will undertake a long-term approach to its programming, while at the same time allocate funds to build and strengthen research capacity on ICT-related issues in the region.

3.2.3 Exposure to Political Issues and Neutrality of Research Findings

The exposure of the Centre to political issues through projects where policy influence requires strong advocacy roles by researchers and their institutions, poses risks that need to be mitigated. The PI will reinforce, from the project inception, mechanisms of peer-review involving feedback from a wide variety of actors, so as to neutralize the perception of "politization" of the research results and findings.

3.2.4 Networks Support

Regional and thematic networks often face the tendency of becoming a closed circle of peers, limiting their activities to information exchange without contributing to knowledge and content creation. They also face the risk of donor's dependence (sustainability challenge) among others. Acknowledging this situation, ICT4D Americas will promote a more encompassing approach to networks creation and support, taking into account methodological, logistical, and financial aspects of networks and networking activities.

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