



**INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN SUPPORT OF
SOUTH AMERICAN COMPETITIVENESS AND INTEGRATION**

ACTION PLAN

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**REGIONAL INFRASTRUCTURE INTEGRATION IN SOUTH AMERICA INITIATIVE
(IIRSA)**

Executive Summary

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The technical and administrative leadership of the study was the responsibility of Juan Belt, of the Infrastructure and Finance Division of the IADB.

The report was prepared by a team made up of: Peter Stern, consultant (telecommunications); Claudia de Francisco, Martha Rodríguez and Carlos Forero, consultants (Connectivity Agendas and government content and services online); Francisco J. Proenza de FAO (telecenters and sectoral contents) and Juan Belt.

Francisco J. Proenza of FAO's Investment Centre put together the report, as part of a continuing collaborative effort between FAO and the Bank in support of ICT development in Latin America and the Caribbean.

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Contents of the Executive Summary

<i>Introduction</i>	<i>i</i>
<i>Connectivity Agendas</i>	<i>i</i>
<i>Infrastructure</i>	<i>iii</i>
<i>Telecenters</i>	<i>v</i>
<i>Government Content and Services On-line</i>	<i>ix</i>
<i>Action Plan</i>	<i>xi</i>
<i>The New Institutional Paradigm: Interaction through Networks</i>	<i>xi</i>
<i>Salient Features and Costs</i>	<i>xii</i>
<i>The Proposals</i>	<i>xiii</i>
<i>Geographic Coverage</i>	<i>xv</i>
<i>Concluding Remarks</i>	<i>xv</i>

Executive Summary

Introduction

This document reviews the current status of Information and Communication Technologies in South America and proposes an Action Plan that could be implemented within IIRSA to encourage an increase in the use of ICTs, strengthen competitiveness and promote the region's economic, social and cultural integration. The proposed Plan focuses on four issues that are presently of critical importance to South America: i) Connectivity Agendas; ii) Telecommunications infrastructure; iii) Telecenters and iv) government content and services on-line.

The development of ICTs calls for a comprehensive multi-sector approach involving much interaction among many and varied stakeholders; a set of features that make necessary the introduction of significant adjustments in the way institutions operate, particularly government agencies. Furthermore, the shift of nations towards increasing production of information-related goods and services has fundamental implications for the role of the State. With the number of public goods and the prevalence of network-related externalities increasing, a modern, viable, effective State is of utmost importance.

Connectivity Agendas

A Connectivity Agenda is a State policy that engages the public, entrepreneurial and academic sectors as well as civil society in a combined, coordinated, continuous and long-term effort to facilitate an efficient transition of a country towards a new knowledge and information-based society.

The significance of a Connectivity Agenda lays in the implementation of a formal, effective mechanism for: the identification and budgetary support of State investment initiatives in ICTs that are properly grounded and have a high impact potential; and the organization and guidance of public management arrangements that provide the required participative multi-sectoral and inter-agency coordination and oversight that is required to ensure their success. A Connectivity Agenda covers strategies geared to providing for: i) widespread access to information and communications infrastructure, ii) the education and training of all citizens at every school level, iii) increased productivity and competitiveness of industry; iv) the promotion of national content on the Internet; v) the provision of government content and services on-line (e-Government).

A country's Connectivity Agenda needs to be developed in cooperation with the productive sector, academia, State agencies and the community at large, but should be actively headed by the executive branch of Government.

The current state of Connectivity Agendas in IIRSA countries may be summarized as follows:

- *All countries are considering education-related programs and projects using ICTs. Specific projects are actively being developed in Argentina, Brazil, Chile, Colombia, Peru and Venezuela.*
- *Almost all countries have infrastructure development projects, most of which are targeted to rural and marginal urban areas that are insufficiently profitable for private investment to serve. Argentina, Brazil, Chile, Colombia, Peru and Venezuela have also implemented shared Internet access (telecenter) projects.*
- *Some countries – e.g. Brazil, Chile, Colombia and Venezuela - have identified and are even implementing projects that promote ICT-supported increases in entrepreneurial productivity and competitiveness through, for instance, e-commerce, e-invoicing, single window transaction and business development services, and telecenter programs supportive of small enterprise development.*
- *Practically all South American countries have some form of strategic initiative to foster the development of local content. Those of Argentina, Brazil, Chile, Colombia and Venezuela are especially noteworthy.*
- *Policies have been defined and projects are being implemented in support of enterprises directly engaged in the production of information technology products and services; especially software, in Brazil, Chile, Colombia and Venezuela.*
- *Some projects in the region are truly unique and noteworthy. These include: the specialized telecenter projects in Brazil and Chile, both of which seek to support the development of micro and medium size enterprises; the advanced research and development activities in Brazil on high energy physics, bio-informatics and spatial research; Peru's efforts to provide services to micro-enterprises through the extensive existing network of (mostly urban) cybercafes. (cabinas públicas).*

In the last couple of years ICT forums and conferences have become commonplace in South America. Yet, despite speaking the same language in most countries and sharing many cultural traits, and having comparable needs and facing similar constraints, not much has been accomplished. The new economic setting requires an action oriented agenda that is practical and that provides for swift concerted joint effort to address regional ICT development needs (Action Plan, Project 1).

Infrastructure

The telecommunications market in the region has been open for several years, but in most South American countries an incumbent operator is still dominant and, even worse, significant barriers of entry still face new potential operators. Save for a few exceptions, investments in the sector have fallen sharply.

Overall, Argentina, Bolivia, Brazil, Chile, Peru and Venezuela have modern regulatory frameworks. But, in some areas, there is room for improvement.

- In those countries where there is no distinction between dominant and non-dominant operators, and in those areas where competition is keen, regulation should be lighter based on best practices.*
- With respect to the licensing regime, the requirements for value added services, including the provision of Internet, should be loosened.*
- In the interconnection regime, a standard needs to be introduced in order to require dominant operators to submit a Basic Interconnection Offer to the regulatory agency.*
- It is necessary to reinforce the independence of the regulatory agency with respect to the government under which it functions and, in some instances, also in relation to the operators.*
- There are also situations in which it is important to loosen regulatory agency procedures in order to make them more efficient.*
- Greater participation of all involved parties through consensus needs to be encouraged so that sector policy and regulatory decision-making better fit the circumstances.*

In Colombia, Ecuador and Paraguay the regulatory institutional structure needs to be strengthened and consolidated. The independence and impartiality of the regulatory agency with regard to operators and the government needs to be reinforced. In Ecuador and Colombia, structures in which there are overlapping mandates should be revised.

Ecuador, Uruguay and Guyana need to reassess the legal and regulatory framework, with the participation of all stakeholders. Colombia and Suriname are completing the review of their regulatory frameworks and are considering the enactment of new telecommunications laws before July 2003. In Guyana, negotiations between the government and the dominant operator must be supported, in order to eliminate the exclusivity that has become a serious constraint to ICT development. In Uruguay, the first legislative initiative for opening up the market came to a standstill in 2002, and it is advisable that a suitable telecommunications policy be sanctioned.

Notwithstanding enormous efforts throughout the region to reform and restructure the telecommunications sector, there remain significant barriers that prevent greater competition between operators and hinder investment in infrastructure development.

*The existing barriers related to the **regulatory institutional framework** include the following:*

- i) unpredictable, variable regulatory frameworks,*
- ii) lack of clarity in the distribution of institutional responsibilities,*
- iii) insufficient consultation mechanisms and limited stakeholder participation.*

*There are also **deficiencies in the operational capacity** of some regulators:*

- iv) lack of regulatory agency independence and impartiality,*
- v) insufficient resources to provide for an adequate set of norms and regulatory pronouncements regarding economic regulation,*
- vi) inadequate appreciation of the risk associated with investment projects, and*
- vii) inappropriate regulation in some cases and over-regulation in others.*

*The **tax regime** presents another set of barriers:*

- viii) The tax burden on the telecommunications sector is very high in several South American countries, adversely affecting investors, operators, users and consumers, and discouraging investment.*

The following are some of the more promising sectoral policy options that could be implemented to better leverage existing resources and promote new investments:

- i) Breakdown of the local loop, which although promising, involves a complex regulatory process before it can be successfully implemented.*
- ii) Make use available broadband resources through:

identification of possibilities for using fiber-optic network facilities that are presently under the domain of public utilities and other government agencies, so that they are used to serve marginal areas (Action Plan, Study 1);

analysis of support requirements of the Latin American Cooperation of Advanced Networks (CLARA), to advance the interconnection of national research and education networks in Latin America using high-speed links. (Action Plan, Study 2); and*

review of the feasibility of establishing and operating a regional Network Access Point (NAP) or several sub-regional NAPs, and the provision of technical assistance in the establishment of domestic NAPs to countries where these do not exist (Action Plan, Study 3).

- iii) Support to private commercial efforts to develop wireless systems' to serve marginal areas, experimenting with a model based on market pricing of services, and a parallel program of subsidies to low-income individuals and small enterprises (Action Plan, Project 7).*
- iv) Follow-up and document the experiences of private enterprises that are developing enough capacity to serve the connectivity needs of their own private networks and, in addition, also provide telecommunications services to their customers and the public at large (Action Plan, Study 1)*
- v) Encourage technological development and experimentation with new technologies, e.g., WiFi, PLC, to increase competition and stimulate the expansion in rural connectivity at low cost (Action Plan, Project 7).*

The main regional agency for infrastructure development is the Latin American Forum on Telecommunications' Regulatory Bodies (Regulatel). Nineteen countries are represented in Regulatel's membership, of which 10 are South American countries. Regulatel regularly brings together regulatory agency officials to discuss and review key issues of regional interest pertaining to telecommunications policy, strategy and regulation. Its main constraint is a lack of resources to implement an independent agenda for technical support and exchange among its members (Action Plan, Project 1).

Telecenters

Telecenters are a way of providing connectivity and computer services to the low-income sector of the population at a reasonable cost. These facilities share the cost of access to ICTs, by offering services to the public at large. This report focuses on those telecenters that provide Internet services, since it is this technology that offers new opportunities for distance telecommunication services and applications, and because the management and operation of telecenters that provide Internet connectivity is a more complex undertaking.

*Ideally a telecenter should increase the welfare of a low-income target population, be relatively easy to replicate and have good prospects of being sustainable. These three objectives are important, but the latter is the one that is most difficult to achieve. The annual operating costs of a telecenter are similar to or even higher than investment costs. **Installing a telecenter is easy; the hard part is to keep it running.***

If kiosks and small telecenters with only one computer are included in the count, South American governments sponsored the installation of over 4,900 telecenters in the past few years. Argentina has had the most ambitious program. Not all of the centers that have been established are still in operation.

Ongoing plans for 2003-2004 include the installation of an additional 10,000 telecenters, requiring an investment of over US\$ 200 million.

*Two of the past and planned programs reviewed in the report (one in Brazil and another in Paraguay) are **urban** programs, addressed mostly to low-income sectors. Another two programs (one in Brazil and another in Chile) **aim to serve small and micro-enterprises**. The remaining programs reviewed are primarily targeted at inhabitants of small towns in **rural** areas thus representing a governmental response to the market's inability to serve rural communities on a purely commercial basis.*

State programs have used three main schemes to support telecenter establishment:

- i) direct selection of site and operating institution by the State (for instance, CTC Program in Argentina, Telecentros de Prefeitura de São Paulo and Infocentros in Venezuela);*
- ii) minimum subsidy programs, commonly used by Telecommunication Development Funds - Subtel in Chile, COMPARTEL in Colombia, FITEL in Peru;*
- iii) investment funds where small local entities compete directly for the subsidies provided by government (Chile – Sercotec – Ministry of Economy; and Brazil - SEBRAE-MDIC-CDI).*

Direct selection entails a risk of political meddling in the process, as well as the potential for bureaucratization and squandering of scarce fiscal resources. Minimum subsidy schemes are appropriate wherever connectivity infrastructure development is required, but are limited in their ability to meet the needs of low-income groups. Investment Funds rely more on local institutions and are therefore in principle more suitable to provide for poor populations, but they are difficult to apply where important infrastructure developments are needed. They also call for careful design and implementation arrangements, in order to avoid political interference from compromising the effectiveness of the process of selecting sites and awarding subsidies.

In South America, there are several noteworthy efforts to increase the impact of telecenters on the needy, including:

- i) establishment of telecenters with the dual purpose of serving the school and the community at large (Chile, Guyana);*

- ii) *support to micro and small entrepreneurs as part of a new telecenter development program (Brazil, Chile) or by expanding the services provided by existing centers (Peru);*
- iii) *sponsorship of community projects applying ICTc (Brazil, Colombia);*
- iv) *promotion of community networks to encourage social change (several countries);*
- v) *use of open source software by the telecenter program of the Prefeitura de São Paulo (Action Plan, Project 5);*
- vi) *sponsorship of network formation through the minimum subsidy selection scheme, as applied by Subtel in Chile, to encourage alliances between different sectors of society; and*
- vii) *use of community radio stations, in conjunction with telecenters and with Internet-aided information exchange networks, as a means of extending services to remote rural communities that are very needy but also expensive and difficult to serve.*

There are two major phases in the evolution of telecenters in which the State can and should provide support, always with a view to achieving sustainability and high social impact. The first one refers to the initial establishment period and the second one to the consolidation of centers and the enhancement of their social impact. These two phases are not necessarily sequential; they may be implemented in parallel. But, of course, without telecenters in place, the second phase cannot take effect.

- *In urban areas with good infrastructure it generally makes no sense to promote the establishment of State-subsidized telecenters. A powerful educational and dissemination campaign on the possibilities offered by the Internet could instead be a very effective means of encouraging the installation of privately run telecenters (e.g. cybercafes, cabinas publicas, locutorios).*
- *It is in rural areas and small towns where State support becomes critical during the initial set up phase. Where the sustainability of a telecenter is questionable, as would be the case of very small, remote, low productivity communities, a support strategy should focus on viable alternatives, including for example the support of rural radio stations. In somewhat larger more prosperous rural communities, where the chances of telecenter sustainability are greater, the kinds of telecenters that can be established will for the most part be small (e.g. say 1 to 3 computers). State support should be based on merit contests, either following a minimum subsidy scheme or the kind of competitive funding more commonly used by community investment funds.*

- *At the local level, the institutions responsible for these centers may be small businesses, NGOs or educational institutions. Local governments can also potentially perform well as administrators, but in practice they are often compromised by political interference to the detriment of sustainability, particularly in poor communities where telecenters have a high profile.*
- *The installation of rural telecenters must also envisage the development of inter-institutional alliances to enable: i) the sharing of connectivity and costs, in order to maximize use and impact, and ii) an increase in the customer base of the center, as the various institutions participating in the alliance encourage their members to make use of the facilities. The State can encourage and nurture these partnerships, but cannot force them into existence. Instead, they will have to be formed voluntarily at the local level by the local partners on their own initiative.*

***The second phase, one of telecenter consolidation,** may be launched simultaneously or shortly after the installation of the centers. The kinds of activities that governments may support during this phase - for the benefit of both rural and urban communities - include efforts to reach out to communities and to low income groups, and the provision of government content and services online.*

Virtual regional networks that support telecenters can provide an important backing to national initiatives and to individual telecenters. In Latin America and the Caribbean, the Somos@telecentros network, established and maintained with IDRC support, has an extensive membership of telecenter operators sponsored mainly by civil society organizations, and offers a large array of services to this community. Other initiatives directly or indirectly support these efforts, such as, for example, the Fundación Redes y Desarrollo (FUNREDES), which promotes the application of ICTs throughout the region and the enhancement of the social impact of technological development.

Currently, the principal undertaking in Latin America that seeks to apply and develop ICTs with integration as a key feature is the @lis project (€ 85 million). It makes grant awards to those undertakings executed by alliances between institutions and enterprises in Latin America and associates in Europe. The projects are led by the partner institutions located in Europe, even in instances in which the advanced technology is found in IIRSA member countries.

Many regional gatherings discuss connectivity and policies favoring access to marginal areas and an expansion in services to low-income populations. These events tend to be used to promote a specific model and, for the most part, focus on general policy concerns. They are seldom used for deliberate consideration of sound analytical studies or well documented best practices, or to discuss options for concerted action on practical matters of common concern.

The experiments and innovations presently underway in South America are in general well conceived and have good prospects of successful replication throughout the region. Regretfully, there is little dialogue and discussion among countries and these experiences

are not well known. They deserve careful scrutiny regarding their impact and sustainability, as part of an open debate focused on very practical matters, with full participation of government agencies, private companies and civil society institutions (Action Plan, Project 1).

Government Content and Services On-line

IIRSA countries lag behind with respect to the number and level of maturity of government services available on-line. Most South American portals are in a first stage of development, offering general information, a catalogue of rules and regulations and services and, in some cases, information on State procurement procedures. For the most part, interaction between institutions and citizens is not offered; and some government portals are still “under construction”, lack some of the content purportedly available, or have many broken links.

Overall, government portals in South America do not offer a comprehensive overview of the State. Neither are they oriented to citizens’ needs, but instead present information on services and paperwork requirements. They offer access to the central government and only in exceptional cases do they include links and are well articulated with regional and municipal government sites.

On balance, there is clear awareness in the region of the opportunity cost of not developing government services on-line. There is less awareness of the risks associated with investments in ICTs, of the importance of developing mechanisms that provide for coordination, control, follow-up and citizen consultation, and of the high costs of developing bad, ineffective on-line services.

- ICT use by the government of Chile to expedite and provide quality services to its citizenry is noteworthy; perhaps the most advanced in South America. Other countries, including Brazil and Colombia, also offer many examples of best practices from which other countries may learn.*
- There is considerable room for implementing collaborative projects among the countries of the region, a potential unexploited to this date in any practical sense.*
- In most countries the government has appointed an agency responsible for guiding and coordinating e-Government at all State levels, in some cases with the participation of the private sector. Rarely is this designation made operational or supported with the required budgetary, institutional and regulatory resources.*
- With respect to stakeholder participation, there is a trend towards involving all central government agencies; a development that needs to be further advanced by engaging other governmental authorities, particularly those with responsibilities at regional and municipal levels.*

- *In general it is not clear how universities, the entrepreneurial sector and civil society participate in these initiatives. These sectors could make important contributions to the design, execution, follow-up and monitoring and control.*

The significant efforts made in this sphere and the achievements realized in some countries of South America, enable the identification of best practices and the establishment of an advisory and traineeship and information exchange system among peers, to facilitate the acquisition of practical knowledge regarding the design and implementation of strategies and projects in other countries (Action Plan, Project 1).

The generally low levels of access to infrastructure within the region tend to hold back governmental offers of content and services online. Since there is no effective demand, there is little value in supplying these services. This is most evident with respect to specialized sectoral content and services.

- *Most of the micro and small enterprises in the region do not have access to ICTs but there are countries where this is changing, particularly in urban city areas that have a large number of commercial telecenters. Many of these small enterprises are very weak. It is going to be those firms **with highly qualified personnel** that will be better able to profit from the opportunities offered by technology and thus increase their competitiveness. In the new environment, high quality entrepreneurial development services, the possibility of supplying products and acquiring inputs on virtual markets or facilitated by virtual interaction, and the setting up of networks and alliances among companies, gain added importance. Despite the significance of micro, small and medium enterprises throughout the region, and the rapid increase in sites (both public and private) offering contents and services geared to serve them, there is practically no information available regarding the quality or effectiveness of these initiatives. Exchange of materials and of experiences is increasing but has not been systematic. Project 2 of the Action Plan proposes to fill this gap by encouraging alliances among stakeholders and by establishing a system of appraisal of existing sites that relies on user feedback.*
- *Efforts to convey information and services of interest to farmers and buyers of agricultural goods and services are common throughout the region, with an important participation of the entrepreneurial and private sectors. Once again, these are mostly targeted to the rather small sector that is already connected to the web, i.e. the commercial or agricultural exporting sector and the entrepreneurial investors or purchasers from abroad. The agricultural information agencies of the hemisphere have been making noteworthy efforts to work together, taking advantage of the opportunities opened by ICTs. In 2002, these agencies agreed to establish the Market Information Organization of the Americas, as a network for exchanging information and services to promote trade in agricultural products. (Action Plan, Project 3).*

- *In countries where school connectivity is widespread, government portals to serve teachers and education have gained in importance. In Argentina, Educ.ar, and in Chile, Educarchile.cl, are exemplary, for the quality of their offerings and their popularity amongst users. The Chilean government has offered to make available the technological platform, the educational contents, the software developed by the Fundación Chile, and the necessary technical assistance, to enable Latin American countries to adapt Educarchile.cl's developments to their own curricular setting. The first step has been the installation of Educarchile.cl, and a similar site is to be installed in the Dominican Republic. It is a significant collaborative effort in a matter of vital importance to the enhancement of regional competitiveness (Action Plan, Project 4).*

Action Plan

The New Institutional Paradigm: Interaction through Networks

In the modern world, administrative structures need to be light and agile, strategic alliances take on added significance, and an institution's ability to respond swiftly is a major determinant of survival. This new paradigm is imposing new requirements on managers in general and, particularly on those in the public administrations of the region – both at the national and international levels. The major difference between public agencies, and companies and NGOs, is in the consequences of delays in adjusting to the new paradigm. Whereas a company or NGO that does not adapt its strategies and structures will perish, a public agency can in most cases survive and languish endlessly, no matter how irrelevant or ineffective are the fruits of its labor.

Modernization of the telecommunications sector and universalization of ICT use is necessarily a multidisciplinary undertaking that calls for cooperation and concerted action by a multiplicity of organizations and economic and social agents. The participation and interaction of a wide range of stakeholders – entrepreneurs, researchers, NGOs and public administration authorities - in networks that provide for the exchange of experiences and knowledge on ICTs can facilitate the updating of State institutions by upgrading the knowledge of their officials regarding recent innovations and best practices. Furthermore, and more importantly, if such networks are structured so that they facilitate critical, open analysis of political decisions and negotiations of national interest, or if they enable the participation of a wide range of sectors of society in the supervision of the implementation of specific projects, they can also modify the incentive structure that public officials face and contribute to making State action more effective.

*Seen from this perspective, **the formation of public-private-civil society alliances is a key element in any strategy that aims to provide for universal access and ICT development in South America.** When it is an integral part of a regional initiative, the potential beneficial effects of network interaction on the region's public institutions may be maximized, at the same time that communication and exchange is encouraged among users and beneficiaries with similar interests throughout the continent.*

Networks are generally formed and disbanded easily and frequently. Many originate and are the product of individual initiative and prevail thanks to the tenacity and perseverance people who are committed to a common purpose, in the context of a not very formal institutional structure. This informality is what makes networks effective, but it is also a major institutional weakness. Since networks operate on a fragile institutional foundation, many collaborative initiatives on the Internet never take off. Hence the importance for networking projects to be grounded on a sound institutional structure, with a prior background of joint work and good continuity prospects or that they focus on achieving a specific short term objective. This feature of networks has served as a guiding principle in the design of the projects and studies proposed.

Salient Features and Costs

The Action Plan proposes seven projects and four studies.

*The first project envisages the **Formation of three networks that are strategic to the development of ICTs**; and deserves the highest priority. If the IIRSA initiative must limit its actions to a few activities, its efforts should be concentrated on this project.*

*Six **Special Opportunities** are also proposed, involving investments in areas of current import.*

*The four **studies** proposed also address current priority concerns, but deserve more thorough investigation before concrete lines of action may be determined.*

The Plan comprises an investment program of US\$ 16.2 million. This figure includes all kinds of studies (US\$ 1.1 million) plus project implementation costs of about US\$ 15,1 million. It also includes a substantial input from the parties involved. Investment resources required may be summarized as follows:

	<i>Number of operations</i>	<i>----- US\$ 000 -----</i>		
		<i>Studies</i>	<i>Implementation</i>	<i>Total</i>
<i>Strategic networks</i>	1	240	6 900	7 140
<i>Special opportunities</i>	6	445	8 200	8 645
<i>Sub-total</i>		685	15 100	15 785
<i>Studies</i>	4	395		395
<i>Total</i>		1 070	15 100	16 170

The Proposals

Project 1 on Information and Communication Technologies for South American competitiveness and integration, will support the activities of three networks for exchanging experiences and knowledge, and the integration of their work in a coordinated action agenda.

The first network will provide for interaction between public agencies entrusted with Connectivity Agendas in the different countries, to enhance effectiveness, efficiency and impact. It encompasses a training program for professionals and institutions that participate in the implementation of the Agendas and e-Government initiatives.

The second network will promote exchange between government, companies, academia and civil society, to help develop sustainable telecenters and to address policy issues related to enhancing the social and economic impact of ICTs. The development of products and services that are of practical use to telecenter managers and end users is envisaged. Gatherings and virtual conferences are also foreseen, providing for the exchange of experiences and the presentation of best practices.

The third network focuses on telecommunications regulators. It seeks to enhance the professional competence of regulators, increase independence in the regulatory framework, revive private investment and stimulate competition in the telecommunications sector, and provide greater protection to consumers. It proposes the consolidation of Regulatel, the Forum of Latin American Regulatory Bodies as an independent regional agency; the creation of a network of experts to give technical support in specialized matters; increase collaboration and exchange in economic regulation issues; and set up a training program in finance and in business planning and management.

The following joint actions are also foreseen: a consolidated web site and an annual Congress to deal with specific matters of importance and interest to the 3 networks.

The project will last five years. The cost of pre-investment studies is estimated at US\$ 240,000 (international cooperation). Implementation of the project will require an estimated US\$ 6.9 million.

*The six **Special Opportunities** proposed are the following.*

Project 2. On-line content and services for developing the micro, small and medium-sized companies. *It aims at improving quality and effectiveness of the entrepreneurial development services offered on-line to micro and SMEs. It will fund meetings and the setting up of alliances between public and private agencies rendering on-line entrepreneurial development services; the implementation of a Portal for on-line product and services assessment and follow-up, and key studies.*

Duration: 4 years Pre-investment cost US\$50,000

Project cost: US\$ 1,600,000

Project 3. Support to the network of market information organizations in the Americas. Establishment of an integrated system of communication and automated electronic exchange of information among members of the network of market information organizations in the Americas, considering homogeneous and quality features in the generation, processing and dissemination of information on agricultural products and markets in each country.

Duration: 4 years Pre-investment cost US\$40,000

Project cost: US\$ 900,000

Project 4. Production and exchange of contents and applications in support the Latin American network of educational portals. Proposes the set up of a system for producing and sharing educational contents and specialized applications at the regional level, to support the work of the educational portals being established throughout Latin America. The project leverages the accomplishments of education portals in Argentina, Chile and Ecuador, and soon also in the Dominican Republic, as well as the Chilean initiative that is currently assisting other countries to help establish national portals.

Duration: 6 years Pre-investment cost: US\$ 50,000

Project cost: US\$ 3,000,000

Project 5. Regional Coordination regarding the use of open source software in public initiatives. This project will support high level interaction between governments of the region on the use of Open Source Software. It will facilitate the identification of appropriate practices with respect to open source software procurement by public agencies, foster the sharing of open source software between the region's public agencies, and help develop a coordinated approach regarding this type of purchases.

Duration: 3 years Pre-investment cost: US\$75,000

Project cost: US\$ 600,000

Project 6. Assistance to countries participating in free trade negotiations.

Duration: 5 years Pre-investment cost: US\$100,000

Project cost: US\$ 800,000

Project 7. Development and application of commercial models to extend connectivity to rural and marginal urban areas using wireless technologies. Design and implementation of a sustainable commercial broadband model using land-based wireless line of sight systems or low earth orbit (LEO) satellite systems, and support of promising experiments with new technologies (in principle, WiFi and PLC).

Duration: 2 years Pre-investment cost: US\$50,000

Project cost: US\$ 1,300,000

The proposed **studies** are the following:

- i) *Feasibility of harnessing existing excess broadband resources presently under the control of State institutions;*
- ii) *Feasibility of a program of assistance to countries that lack high-speed networks for education and research purposes, and support to the CLARA initiative to help interconnect national networks;*
- iii) *Feasibility of establishing and operating regional or sub-regional NAPs and support requirements for IIRSA members wanting to establish their own country NAPs;*
- iv) *Feasibility of utilizing existing idle satellite capacity at favorable prices.*

Geographic Scope

The country coverage of the Action Plan is the same as IIRSA's, except for those proposals for which prior existence of a well established institutional network called for a different geographical grouping.

Guyana and Suriname have been included in practically all proposals. Nevertheless, when it refers to ICTs, network integration using languages that are so different from Spanish and Portuguese, as are those spoken in Suriname (Dutch is the official language and English is commonly spoken) and in Guyana (English), can be complex and costly.

IIRSA authorities should weigh these considerations when deciding on the final configuration of the Plan, taking into account various alternatives and options, including, for example, the possibility of combining the IIRSA Action Plan proposals with those of the Puebla-Panama Plan; and the preparation of a separate Action Plan, targeted at serving the specific needs of the English-speaking countries of the Caribbean Basin.

Concluding Remarks

Latin American and Caribbean integration have been regional aspirations since colonial times, but, prior to the Internet, the peoples of Latin America and the Caribbean communicated very little with each other. Lower telephone costs and e-mail, chatting and electronic networks have changed the landscape, but there is still a long way to go.

There is considerable room for government action at regional South American level to help leverage the economies of scale and public goods attributes and externalities that are common features of ICTs, and that could help overcome some of the main obstacles that limit regional competitiveness. Moving forward requires ICT development, but also

involves the adoption of a parallel agenda to overcome limitations in spheres that have little to do with technology or connectivity, but that are nevertheless fundamental for regional competitiveness to be furthered. Competitive countries are those which vigorously pursue ICT development, but they are also those that have sound macroeconomic management, solid institutions that protect the rule of law and property rights, public agencies that are effective and transparent and experience low levels of corruption, and in which all citizens feels and take part in the decision making process and share in the fruits of growth and prosperity.

ICT development requires a comprehensive integrated approach, wide participation and close communication and interaction among the different social stakeholders and a streamlining of the organizational structures and functioning of the public agencies in the region. These are fundamental changes in which cooperation between countries can make an enormous contribution. They are also changes that are essential to the development of ICTs, to enhance regional competitiveness and to achieve a greater degree of integration in South America.