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Monitoring eLAC2007: Progress and current state of development of Latin American and Caribbean information societies

**Observatory for the Information Society in Latin
America and the Caribbean (OSILAC)**



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America and the Caribbean (OSILAC)



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Executive Summary

eLAC2007 is the 2005-2007 Regional Plan of Action on the Information Society for Latin America and the Caribbean (LAC). It is an agenda regionally arranged around the importance of the Technologies of Information and Communication (TIC) for the social and economic development of the region. The plan includes 30 thematic areas and 70 short-term activities. It is designed to foster long-range implementation of the Plan of Action of the World Summit on the Information Society (2003-2005), which was formulated in the framework of the Millennium Development Goals (MDGs). It is a tool of mediation between the needs of the countries of the region and the pace of world development, aimed at facilitating regional cooperation and sharing of best practices, creating economies of scale, and reducing costs in time and learning involved in the adoption of ICTs.

The monitoring and supervision phase is vital to a successful policy, since it allows for assessment of both impact and policy implementation. The region's governments have therefore requested that the ECLAC Secretariat "maintain and develop, in coordination with the countries of Latin America and the Caribbean and in accordance with the relevant agreements reached at the World Summit on the Information Society and in regional meetings, indicators for the ongoing assessment and dissemination of progress achieved in the region, especially with respect to the goals of eLAC2007". They specifically referred to ensuring that monitoring the Plan of Action be an integral part of implementing eLAC2007 Goal 27. Such integration is especially important given that eLAC2007 is a short-term plan, and that assessment will be required in developing a new plan to address emerging challenges. Aware of the limitations and problems of this process, the ECLAC Observatory for the Information Society in Latin America and the Caribbean (OSILAC) has undertaken the task of monitoring progress toward achieving the eLAC2007 goals. This document presents its findings. The exercise focused on 27 of the 30 goals and outlines the situation in critical areas to the development of the information society in the region, in order to identify pending digital challenges.

The eLAC2007 goals are grouped into five critical areas of action designated by the region's countries: digital access and inclusion; creation of capacities and knowledge; efficiency and transparency of public services contents, and instruments of policy for an empowering environment. The activities are an attempt to achieve three types of potential benefits, providing feedback for ongoing changes:

- **Strengthen regional projects:** Strengthen regional initiatives and cooperation projects, in order to take advantage of the synergies of collective, coordinated efforts.
- **Drive strategy:** Encourage initiatives and results in specific areas, establishing lines of action and defining indicators of progress in the development of the region's information societies.
- **Expand knowledge:** Increase knowledge and understanding in critical areas to defining, designing, implementing and evaluating policy.

Of the 70 eLAC2007 activities, 63 are action-oriented, while 7 are oriented to the achievement of quantitatively measurable results. The former are designed to drive strategy, enable regional projects and increase knowledge in areas that are critical to the development of information societies, while the quantitatively measurable activities are designed exclusively for the purpose of driving strategy. The activities that are clearly defined in quantitative terms are designed to achieve quantifiable results, though successful monitoring requires that there be data and indicators, and/or the funding needed for the collection of data. Action-oriented activities are, of course, more difficult to measure, since they take the form of studies, projects, coordination activities, strengthening of initiatives, creation of regulatory models and frameworks, etc. OSILAC's monitoring of the Regional Plan of Action takes account of whether the activities are quantitative or non-quantitative in nature, as well as of their potential benefits. The monitoring therefore takes a variety of forms, in order to address the various methodological problems involved.

The results of the monitoring point to conclusions in two areas. The first relates to the region's progress in developing information societies. The second is the issue of feedback for designing plans of action for digital development, and the appropriateness or inappropriateness of the existing design.

Monitoring of the Regional Plan of Action indicates that there has been major progress in the development of the region's information societies. Of the 27 action-oriented areas monitored, 15 show progress or strong progress, while 12 shows moderate or insufficient progress. Table 1 summarizes progress in each of the areas of activity monitored. It should be emphasized that each area includes a range of activities, and that, as would be expected, progress is not uniform among countries. For example, eLAC2007 Goal 15, which relates to e-government, includes eight different activities. The fact that there has been progress in one area does not imply that progress has been equivalent across the different activities, or in each of the 33 LAC countries. The conclusion is a perception resulting on the results of monitoring, that drifts to distinguish the existence of a greater or smaller degree of efforts in the assembly of the region, relating to a more extensive thematic area. There may well be progress on specific aspects and in particular cases that are not reflected in the general classifications shown in Table I.

TABLE I
PROGRESS TOWARD eLAC2007 GOALS

Area	Goal	Amount of progress
A. Digital access and inclusion	1 Regional infrastructure	Progress
	2 Community centres	Strong progress
	3 Online schools and libraries	Progress
	4 Online health centres	No progress
	5 Employment	Moderate progress
	6 Local government	Strong progress
	7 Alternative technologies	Moderate progress
B. Capacity-building and knowledge creation	8 Software	Moderate progress
	9 Training	Progress
	10 Research and education networks	Strong progress
	11 Science and technology	No progress
	12 Businesses	Progress
	13 Creative and content industries	Progress
	14 Internet governance	Progress
C. Governmental transparency and efficiency	15 e-Government	Progress
	16 e-Education	Strong progress
	17 e-Health	No progress
	18 Disasters	No progress
	19 e-Justice	Moderate progress
	20 Environmental protection	Moderate progress
	21 Public information and cultural patrimony	Progress
D. Policy instruments	22 National strategies	Progress
	23 Financing	No progress
	24 Universal access policies	No progress
	25 Legislative framework	No progress
	26 Indicators and measurement	Strong progress
E. Empowering environment	27 Monitoring of the World Summit and execution of eLAC2007	Strong progress

Source: Author's compilation.

Note: The evaluations present a general impression of the advancement of the region as a whole in each of the thematic areas. It is important to clarify that the region's advancement not necessarily is in agreement with the progress and level of activity of the eLAC2007 Working Groups. For example, Working Groups on Financing (23) and Legislative Frameworks (25) have been very active, however the progress of the entire region is subject to inertias outside of the circle of influence of these Working Groups, especially in the short-term perspective of only three years.

Monitoring of eLAC2007 provided information on progress in the region's information societies and on the design of the Plan of Action. Five conclusions emerged:

1) The conceptual distinction between access, capacities, applications and policies may lead to an unintegrated approach to digital development.

Progress toward the goal of capacity-building and knowledge creation, as well as toward that of increasing digital access and inclusion, has been greater than in the areas of governmental transparency and efficiency, development of electronic applications, and development and implementation of policy instruments (see Table 1). Five of the seven goals in which no progress was evident belong to the second group, while 9 of the 15 goals showing progress or strong progress belong to the first one.

The conceptual distinction between access, capacities, applications and policies is based on a technological view that has proven highly useful in research on, and analysis of, information societies. It aids in understanding the phenomenon, its dynamics and the relationships between the different components of the development of information societies. While there is no debate over the analytical advantages of this scheme,

eLAC2007 monitoring suggests that the use of this conceptual framework in policymaking may lead to an unintegrated approach to digital development.

There is a danger of interpreting access and capacities as ends in themselves, rather than as means. In a non-academic, policy-oriented context, it may be useful to adopt a sectorial approach based on the beneficiaries and targets of digital development—e.g., considering the realities in areas such as education, health, government, business and communities, etc.. Within each of these sectors, the development of access, capacities, applications and policy should be approached holistically. This is particularly true in view of the virtuous circle that links these areas. Access promotes use, which is needed to develop capacity, while capacity in turn generates demand for electronic applications and content, which in their turn increase demand for access. Thus, work must be conducted simultaneously in each of these areas, and policies addressing the specific needs of each economic and social sector must be integrated. ICT development must follow a society's general scheme of organization, not the reverse.

Conclusion: *Structuring a plan of action based on the beneficiaries and targets of digital development, promoting integral development for access, capacities, electronic applications and policy.*

2) eLAC2007 produces major benefits as a public-private “metaplatform” for regional cooperation

eLAC2007 is designed as a “metaplatform” for public and private activities. Many of the actions set forth in the plan are executed by private entities and networks in the region, with the support of government. The specifics of digital development, as well as the horizontal, generic nature of ICTs and the current speed of innovation, make close cooperation between the public and private sectors essential. Major progress can be seen in these activities, which are led and encouraged by private entities in civil society, as well as by academic networks, foundations and firms. Given the similarities and inherent relationships of various facets of digital development between the public and private sectors, there may be positive impact in areas that are the exclusive domain of the public sector. This fact underlines the fundamental role of eLAC2007 as a “metaplatform” embracing public and private activity for regional cooperation by providing greater visibility for players in both spheres, facilitating interaction, coordination and cooperation among them.

Conclusion: *The scheme of a public-private “metaplatform” for regional cooperation in digital development should be maintained.*

3) Digital development in the public sphere is clearly uneven from country to country.

Analysis of activities designed to achieve quantifiable results, focused mostly on indicators of ICT access and connectivity, indicates that progress is less uniform from country to country in the region in activities overseen by government, as opposed to areas handled by the private sector. For example, differences between countries in regard to the extent of connectivity in local governments and public schools are as great as, if not greater than, differences in connectivity among businesses and among private schools. This demonstrates the vital role of government actions in the public sphere. The fact that some countries have advanced significantly, while others at a similar stage of socioeconomic development have not, highlights the fact that progress is possible in

developing countries, and that practical solutions appropriate to regional realities can be found.

For activities designed to be measured by quantifiable results, indicators can be established. This allows governmental entities to identify the countries that are leading in different areas, adopt best practices, and share experiences with other governmental entities. This exchange is one of the most important benefits of eLAC2007. Monitoring of eLAC2007 shows that quantitative monitoring makes it possible to utilize differences between countries as a catalyst for development.

Conclusion: *Monitoring of activities should be intensified as a means of identifying best practices and of facilitating the sharing of experience among the region's governments.*

4) Activities designed with a view to achieving quantifiable results are less useful when indicators are imprecise or relative, rather than absolute.

Given that the subject of ICTs is a new one, some countries do not yet have systematic processes for establishing indicators for activities oriented to achieving quantifiable results, and there are no time series to facilitate periodic evaluation. Thus, during the process of creating eLAC2007, a number of ambiguous indicators were adopted. For example, some activities are aimed simply at achieving “considerable increase,” and some indicators are relative rather than absolute (e.g., “doubling the number of...” a given variable). In only 7 of the 70 activities were absolute parameters established (e.g., “connect one third of the population...” or “reduce coverage to 20,000 individuals”). Though there was controversy during the negotiations leading up to approval of eLAC2007 over the level of specificity, monitoring of eLAC2007 has shown that this scheme promotes a learning process in regard to policy measurement and monitoring, while aiding in the assessment of results and in identifying best practices.

One conclusion is that some of eLAC's quantifiable goals were out of line with the realities of the region. The order of magnitude of the difference between the desired ends and the actual reality reveals the paucity of knowledge often used as a basis for formulating public policy in the region. However, the mere fact of having attempted to define a regional average encouraged further analysis of the issues, thus elevating the discussion to a more mature level. One of the lessons learned in regard to relative indicators is that such indicators are problematic in a region as diverse as Latin America and the Caribbean. Given an extremely low starting point, the “doubling” of a figure may involve growth of a mere 1% to 2%; at the same time, if the starting point is higher, it may pose an unattainable growth target of 60% or 120%. Moreover, relying on regional averages ignores diversity, inevitably meaning that some countries will be far above, others far below, the figures cited.

Still, from the regional perspective that upholds eLAC, this diversity among the countries is not a crucial factor, since the goal is to bring the region, as a whole, to a certain level. In this context, defining absolute values oriented to achieving a target average regional level helps to identify the countries most advanced in specific areas; this, in turn, helps other countries identify best practices, thus engendering regional cooperation activities.

Conclusion: *For activities with quantifiable results, reference indicators should be formulated as absolute values oriented to a regional average.*

5) Action-oriented activities show more progress when a specific mechanism is used, and/or when there are clearly recognizable contributing partners.

Analysis of action-oriented activities, based on the monitoring of eLAC2007 shows the greatest progress in those related to enabling regional projects and to expanding knowledge, while indicating that these were easiest to support when a mechanism of action had been defined. In some cases, the partners that were expected to assist in achieving the goal were not specifically identified in the plan, though it ultimately became clear which entities would be suited for the task. Thus, good progress occurred in cases where the plan specified how actions were to be carried out, whether through a working group, or through the assistance of a specialized agency or network—acting as the leading partner—with the necessary resources, contacts and institutional structure.

One specific case worth noting involves goals designed to expand knowledge. All of the activities associated with these goals are action-oriented, and are primarily associated with working groups. Six of the new working groups created as part of eLAC2007 are associated with areas that have shown the greatest progress. The areas in which the most notable advances took place are those that had support from a regional agency specializing in the target issue. In such cases, the synergies of working in collaboration with an established institution are clear. Such arrangements facilitate efforts by providing established channels within which to work—leading, in some cases, to even surpassing the initial objectives of the working groups.

Conclusion: *The mechanism through which action-oriented activities are to be carried out should be defined.*

I. eLAC2007 Regional Plan of Action

1. Origins, characteristics and importance

The Regional Plan of Action on the Information Society for Latin America and the Caribbean, covering the years 2005-2007 (eLAC2007), is a regionally coordinated policy agenda that recognizes the importance of information and communication technologies (ICTs) for the economic and social development of the countries of the region. As a product of the World Summit on the Information Society (WSIS, 2003-2005), its objective is to make adaptations in the region to address the ambitious goals of the global community, intermediating between the needs of the region's countries and the pace of world development.

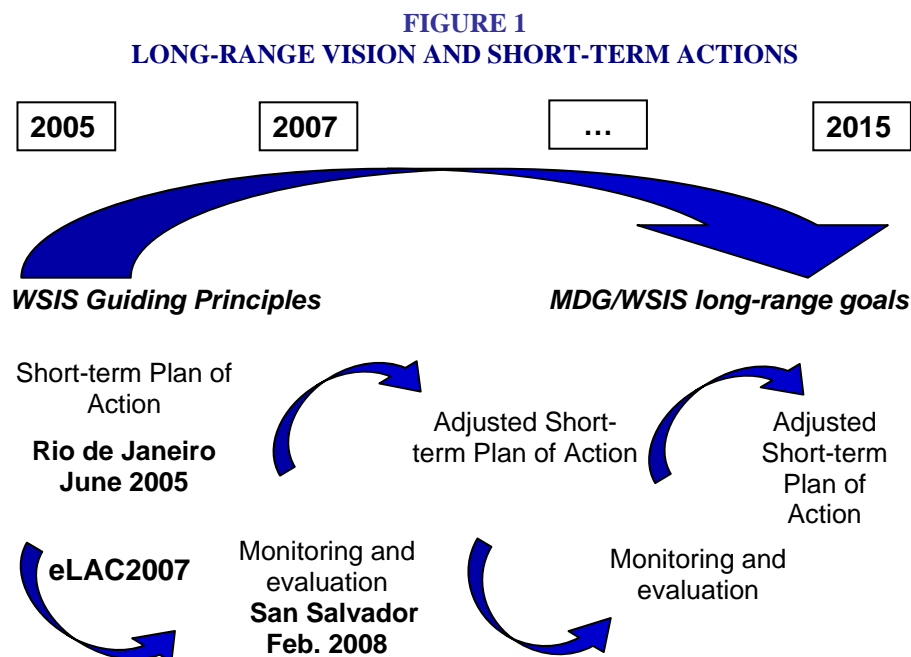
The Regional Plan of Action for ICTs, as a policy effort, arises from the region's consensus on the relation between the incorporation, creation and dissemination of information and knowledge, and the positive impact of these on productivity, growth, the welfare of the region's countries, the efficiency and transparency of the region's public sector, and the overall quality of life. This suggests the emergence of an empowering environment that encourages the implementation of public policy designed to coordinate and advance the various efforts and initiatives already under way in the countries, in order to increase access to infrastructure and incorporate the use of ICTs in different areas of activity in the region's societies.

There has been a gradual growth in the cooperative policy efforts of the countries, involving the public sector, the private sector and civil society in an attempt to make new technologies and digital networks instruments of economic and social development. This trend has been furthered by the global concern for ICTs. At the WSIS, a consensual political commitment involving 175 countries was reached, resulting in a Declaration of Principles that set forth 67 guiding principles and a Plan of Action comprising 167 broad goals—global challenges to be achieved by 2015 in the context of the Millennium Development Goals (MDGs), which are also keyed to that year.

As the WSIS process unfolded, the need to formulate and develop a Plan of Action specific to the region became clear, since the WSIS process represents a consensus between the world's most and least advanced countries, and since most of the 167 actions are not directly relevant to Latin America and the Caribbean. Thus, the belief that it was urgent for the region to identify its own priorities and issues led to the creation of a Regional Plan of Action, with 30 goals and 70 specific activities for the 2005-2007 period (see <http://www.cepal.org/SocInfo/eLAC>).

Thus, the plan is a means of furthering progress toward both the MDGs and the WSIS goals, giving due consideration to the region's own needs and realities.

In view of the dynamic nature of the ICT sector, the Plan of Action, though inspired by the long-range vision (oriented to 2015) that emerged from the WSIS and MDG processes, is a short-term strategy. This short-term formulation provides an opportunity to review the achievement of goals and to reformulate objectives as goals are met, while at the same time considering new needs that emerge from the dynamic evolution of the technologies themselves. Thus, eLAC2007 plays an intermediating role between global goals and the specific circumstances and needs of the region's countries.



Source: Author's compilation.

As WSIS approached, the region focused on building a political consensus and a common strategic vision. It made a noteworthy effort to formulate political declarations on the strategic orientation and guiding principles that should govern public policy in this area.¹ The Regional Ministerial Conference in Rio de Janeiro, held in June 2005, represented the culmination of a number of years of dialogue on the relation between ICTs, growth and equity. The strategic discussion led, in turn, to a more operational focus designed to create opportunities for cooperation, sharing of best practices, creation of economies of scale and reduction of learning costs. The countries hoped to make these opportunities a reality through the Regional Plan of Action for the Information Society, eLAC2007.

¹ This effort is reflected in—among other things—the following declarations: Declaration of Florianopolis (July 2000), Declaration of Itacuruça (October 2000), Decision made by the Ministers of Foreign Relations at the Rio Group to form a workgroup on information technologies (March 2001), Rio de Janeiro Declaration on ICT for Development (June 2001), Connectivity Agenda for the Americas and Plan of Action of Quito (August 2002), Declaration of Bavaro (January 2003) and the Rio de Janeiro Commitment (June 2005).

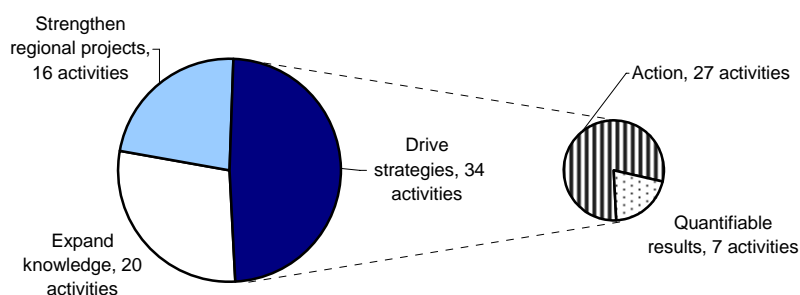
2. Structure and content

In accordance with its role as an intermediary between world requirements and regional realities, the plan is organised around three types of potential benefits, providing feedback as the plan unfolds:

- **Strengthen regional projects:** intends to reinforce initiatives and projects of regional cooperation, in order to obtain benefits from the synergy of a joint work coordinated. For it, it resorts to the existing regional organizations specialized in private themes, or in its defect, the integration instances creation is prompted and regional cooperation.
- **Drive strategy:** Encourage initiatives and results in specific areas, establishing lines of action and defining indicators of progress in the development of the region's information societies.
- **Expand knowledge:** Increase knowledge and understanding in critical areas to defining, designing, implementing and evaluating policy. The elaboration of studies through working groups, connected with prominent agencies in the theme, aims at a better comprehension of complex and new themes.

The activities of eLAC2007 can be classified in terms of these guidelines. Most of the 70 activities in the plan are action-based, inasmuch as they are associated with strengthening regional projects and deepening knowledge on critical issues. To drive strategies, eLAC2007 includes, on one hand, action-based activities and, on the other, activities that can be quantitatively measured. This situation is illustrated in the chart below.

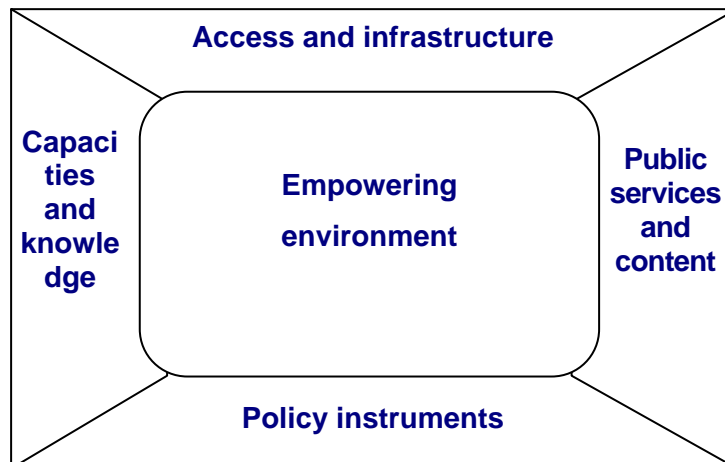
CHART A
DISTRIBUTION OF eLAC2007 ACTIVITIES



Source: Author's compilation.

The region's countries have identified five critical areas to the digital policy agenda. These include access to infrastructure, creation of capacities and knowledge, efficiency and transparency of public content and services, policy instruments, and providing an empowering environment. Figure 2 shows these five areas of action in relation to the eLAC2007 structure.

FIGURE 2
STRUCTURE OF eLAC2007 REGIONAL PLAN OF ACTION



Source: Author's compilation.

eLAC2007 is organised in five chapters, corresponding to the above-cited areas. The horizon for concluding each activity is between 2005 and 2007. Table II shows the Regional Plan of Action.

TABLE II
PLAN OF ACTION FOR THE INFORMATION SOCIETY IN LATIN AMERICA
AND THE CARIBBEAN eLAC 2007

GOAL	ACTIVITY	TIMEFRAME
	A. Digital access and inclusion	
1 Regional infrastructure	Promote the development of regional ICT infrastructure, including broadband capacity, through backbones interconnecting existing network access points (NAPs) with root servers, mirror servers and traffic exchange points.	Mid-2007
	Conduct regional studies to guide the development of this infrastructure, taking account of the need to increase security and build confidence, as well as of ICT cost-benefit factors in the context of existing international, regional and subregional agreements.	Mid-2006
	Promote the creation of sustainable schemes and models for ICT penetration in the various countries of the region, along with the creation of local partnership proposals designed to enhance connectivity, especially in disadvantaged areas.	Mid-2007
2 Community centres	Considering different subregional, national and local realities:	
	Reduce by half the national average number of potential users per Internet access centre available to the community, or reduce coverage to 20,000 individuals per public or private centre.	Mid-2007
	Promote quality, ensure the sustainability of Internet access centres, and involve the community within a framework that respects cultural diversity and the needs of disabled persons, in accordance with international standards.	Mid-2007
	Provide training and information services, including, among other things, local community radio and television.	Mid-2007
3 Online schools and libraries	Support locally-based communications media, and back projects that combine the use of traditional communications media with new technologies, in order to facilitate the use of local languages, document and preserve local patrimony—including landscapes and biological diversity—and reach rural, isolated and nomadic communities.	Mid-2007
	Considering local realities, especially in rural, isolated or marginal areas: Double the number of public schools and libraries connected to the Internet or provide for the connection of one third of these, installing broadband where possible. Place special emphasis on rural, isolated and marginal areas, adapting the application of ICTs in education to local realities.	Mid-2007

GOAL	ACTIVITY	TIMEFRAME
	Substantially increase the number of computers per student in educational institutions, and promote their effective use for learning.	Mid-2007
	Train at least one third of teachers in ICTs.	Mid-2007
4 Online health centres	Double the number of health centres and hospitals in the region that are connected to the Internet, or achieve connections for at least one third of them.	Mid-2007
	Promote ICT training programmes in health centres and hospitals.	Mid-2007
5 Work	Create a regional working group to:	
	Promote the creation of ICT capacities for the development of new forms of work and telework and promote their use, especially as related to local job creation.	Mid-2007
	Promote creation of a network of social actors to facilitate sharing of experiences and formulation of proposals designed to create local jobs.	Mid-2007
	Maintain updated information on skills and knowledge needed for the region's inclusive, sustainable development.	Mid-2007
6 Local government	Connect at least one half of local urban governments and one third of rural local governments to the Internet, ensuring a minimum level of ICT capacity among personnel in local governments.	Mid-2007
	Promote synergy between local and national governments as related to the provision of both digital and analog services, supporting national ICT providers, applications and content.	Mid-2007
	Promote ICT training programmes for local public employees.	Mid-2007
	Stimulate the development of local information and access to it, taking account of local and indigenous languages and the needs of the disabled.	Mid-2007
	Disseminate ICT access models for remote or rural areas, in order to promote the adoption of these technologies for the purpose of improving local governmental administration and to make local production more competitive.	Mid-2007
7 Alternative technologies	In the framework of existing efforts, and with ongoing dialogue with the private sector and other segments of society:	
	Create a regional working group to develop proposals on alternatives and strategies for the development of digital television and other wired and wireless technologies in Latin America and the Caribbean, with attention to standards, interactiveness and applications to facilitate universal access.	Mid-2007
	The group's activities should include pilot tests of digital television and other available interactive technologies, under different conditions and in different countries within the region.	Mid-2007
B. Creation of capacities and knowledge		
GOAL	ACTIVITY	TIMEFRAME
8 Software	In the context of social inclusion and efficiency, create a regional working group to share experiences and criteria for the development and use of open-source and free software. Include studies of technical, economic, organisational, training and security challenges.	End of 2006
	In the context of social inclusion and efficiency, the group will also analyse the use of proprietary software, with a view to disseminating best practices and maximising efficiency, coexistence with other forms of licensing, interoperability and possibilities for migration of technologies.	End of 2006
	Promote and create incentives for development of the software, content, applications and computer services industries, using a range of instruments, such as appropriate legal frameworks, strengthening the academic-business relationship, encouraging complementary and cooperative business alliances, training human resources and expanding access to markets.	Mid-2007
9 Training	Using content designed for indigenous peoples and communities, train at least 2.5% of the working-age population in ICT skills annually, taking account of gender equity, and focusing on businesspersons, professionals and workers in SMEs; public employees; disadvantaged, marginalized or vulnerable communities; and the unemployed.	Mid-2007
	Create and disseminate ICT training programmes for women, designed to improve insertion in the labour market, develop innovative potential and strengthen networks of solidarity at the national and regional levels.	Mid-2007

GOAL	ACTIVITY	TIMEFRAME
10 Research and education networks	Develop and expand advanced ICT-based research and education networks nationally, subregionally (especially in the Caribbean) and regionally, and strengthen existing networks such as the Latin American Cooperation of Advanced Networks (CLARA).	End of 2006
	Interconnect these networks with similar networks in other regions.	End of 2006
11 Science and technology	Promote national, subregional and regional networks to facilitate interaction and cooperation among scientific and technological institutions involved in local productive systems, and promote the creation of technology parks and poles to carry out innovative activities for the production of high value-added goods and services in the region's countries.	Mid-2007
	Promote development of the technological industries in the area of inputs and technology for infrastructure development and maintenance.	Mid-2007
	Encourage the production and regional sharing of local, national and regional content to enhance citizen participation and human development, and promote their use by and for all of society's actors, focusing especially on science, technology, digital inclusion and occupational training.	Mid-2006
12 Businesses	Encourage ICT training and support strategies for micro, small and medium-size enterprises and ventures.	Mid-2007
13 Creative and content-producing industries	Create a regional working group with participation from all interested groups, in order to investigate the status of, and challenges facing, creative and content-development industries, establishing regional cooperation mechanisms, and seeking solutions to common problems, such as that of funding an intangible-goods economy, distribution of the region's cultural and communications goods and services, and enhancement of local capacity to produce content with respect for diversity and cultural identities.	Mid-2006
	In local communities, help to develop a network of social actors committed to producing and disseminating cultural goods that contribute to the strengthening of regional identity and local employment.	Mid-2007
	Taking social initiatives into account, and with attention to cultural and linguistic diversity and identity, support communications media based in local communities to promote the creation of original content addressing local needs for information and development.	Mid-2007
	Implement the "Geneva principles" adopted in the first phase of the World Summit, particularly those relating to multilaterality, transparency and democracy, in Internet governance and with regard to initiatives already under way.	
14 Internet governance	Encourage dialogue, exchange and regional cooperation on countries' experiences with Internet governance, Internet administration and resource training (domain names, IP numbers and protocols), international interconnection costs, cybersecurity, spam and related institutional and technological issues.	Mid-2007
	Participate actively in the work of the United Nations Group on Internet Governance during its duration.	End of 2005

C. Public transparency and efficiency

GOAL	ACTIVITY	TIMEFRAME
15 Electronic government	Create and/or strengthen tools for dialogue on electronic government services, such as the e-Government Network of Latin America and the Caribbean (Red de gobierno electrónico de América Latina y el Caribe, or REDGEALC), and promote regional cooperation for the transfer of technologies, platforms, applications and computer programs, along with the associated knowledge, skills and best practices.	Mid-2007
	Establish a working group to create an agenda of priorities for the implementation of interoperability standards in e-government services.	Mid-2006
	Promote the electronic integration of public administration systems through single windows, in order to streamline procedures and improve intragovernmental processes.	Mid-2007
	Foster the use of digital/electronic signatures in governmental operations involving both government employees and citizens.	Mid-2007
	Promote the adoption of models for data security and preservation in all government organisations, in order to create confidence in the digital information managed and provided by the State.	Mid-2007
	Promote the adoption or development of electronic means of payment, and create incentives for the use of electronic transactions with the State.	Mid-2007

GOAL	ACTIVITY	TIMEFRAME
	Develop mechanisms for contracting with government via electronic means.	Mid-2007
	Promote the creation of mechanisms to standardize and consolidate georeferenced information, as a tool for governmental and private-sector decisionmaking.	Mid-2007
16 Electronic education	Promote and strengthen national networks involving educational Internet portals, including public-sector, private-sector and civil society initiatives, with special attention to the Millennium Development Goals concerning universal primary schooling and multicultural content, particularly in relation to indigenous peoples.	Mid-2007
	Link national educational portals with a view to creating a network of Latin American and Caribbean educational websites to facilitate the sharing of experiences and content, and promote the adoption, localization and development of educational content for dissemination through this network.	Mid-2007
17 Electronic health	Promote and strengthen national healthcare networks, including initiatives by the public sector, private sector and civil society.	Mid-2007
	Promote and strengthen regional health information networks, such as those of the Pan-American Health Organization and the Latin American and Caribbean Centre for Health Sciences Information (BIREME), with attention to convergence toward common interoperability standards, exchange of computer applications and programs, and virtual health information library portals.	Mid-2007
18 Disasters	Strengthen the regional and international linking of digital networks to prevent disasters, providing for regional management and coordination of disaster assistance.	Mid-2007
19 Electronic justice	Encourage existing regional initiatives to integrate ICTs in national systems of justice, e.g., the electronic justice project of the supreme courts of the Ibero-American countries.	Mid-2006
	Implement a regional agenda to integrate ICTs in systems of justice.	Mid-2006
20 Environmental protection	Promote and strengthen existing regional initiatives for the use of ICTs in environmental protection and sustainable use of natural resources, providing for participation by the public and private sectors, civil society and indigenous peoples and communities.	Mid-2007
21 Public information and cultural patrimony	Promote and encourage initiatives and policies that provide citizens wider access to public information and to cultural, historical, scientific and educational patrimony through the use of ICTs, including preservation of patrimony through electronic media.	Mid-2007
	Promote regional dialogue for sharing of experiences, as well as for the dissemination and adaptation of best practices.	Mid-2007
D. Policy instruments		
GOAL	ACTIVITY	TIMEFRAME
22 National strategies	Create or establish plans for an organisation to coordinate national strategies in each of the region's countries, providing for participation by civil society and the private sector.	November 2005
	Promote and strengthen national plans of action for development of the information society in all of the region's countries, ensuring participation by civil society and the private sector, as well as by relevant public-sector entities.	Mid-2007
23 Funding	Create a working group with members of public-sector, private-sector, subregional, regional and international bodies, to assess national and regional funding needs for the development of ICTs.	November 2005
	Considering subregional, regional and international funding agencies and the particularities of each country, suggest initiatives to optimise the use of financial resources and instruments, and propose new ones where necessary, in order to mobilise greater resources.	Mid-2007
24 Universal access policies	With active participation from civil society, the private sector and academia, examine public policy for universal access, broadening the concept to cover all ICTs, in order to move toward a second generation of universal access programmes.	Mid-2006
	With active participation from civil society, the private sector and academia, carry out and support systematic efforts for regional dialogue on technology convergence, as well as public policy designed to reduce Internet costs and provide universal access, so as to include lower-income sectors and rural or isolated populations.	Mid-2007
25	Establish subregional working groups to promote and develop policies to harmonise	November 2005

GOAL	ACTIVITY	TIMEFRAME
Legislative framework	regulations and standards, in order to create legal frameworks that create confidence and security, at both the national and regional levels, with special attention to legislation to protect privacy and personal information, computer crime and crime committed via ICTs, spam, and electronic or digital signatures and contracts, as a framework for development of the information society.	
26 Indicators and measurement	Through technical cooperation programmes, support and promote the strengthening of institutions and methodologies and the development of indicators of ICT access and use, differentiated by gender and social group, in accordance with ITU definitions regarding indicators of community access, taking into account the recommendations of the parallel event at the World Summit regarding measurement of the information society, and the ongoing evolution of indicators, incorporating them in statistical questionnaires and instruments appropriate to the region.	Mid-2007
	Conduct comparative studies on the economic and social impact of ICTs, focusing particularly on previously agreed national and international development objectives, including the Millennium Development Goals and the goals embodied in the World Summit Plan of Action relating to indigenous peoples.	Mid-2007
	Hold annual technical seminars with the participation of national and regional statistics organisations such as the Observatory for the Information Society in Latin America and the Caribbean (OSILAC).	Mid-2007
E. An empowering environment		
27	Create a regional mechanism to monitor issues identified by the World Summit, and implement eLAC2007, as it unfolds in light of the conditions and priorities of each country, taking advantage of existing regional cooperation organisations, within the framework of their capacities and skills, and working in close collaboration with civil society, the private sector and academia, while remaining cognizant of the agreements of the Geneva and Tunis phases of the World Summit process, as well as the Bávaro and Rio de Janeiro regional conferences.	Mid-2006
28	Promote concrete actions of solidarity and assistance to facilitate access to the benefits of the information society for the region's less developed countries, the small developing insular States, and others that face special obstacles in implementing their national strategies for development of the information society.	Mid-2006
29	Develop concrete regional initiatives and proposals to overcome obstacles to the effective execution of national strategies for development of the information society arising from economic, commercial and financial factors, exploring formulas such as lightening the debt load to encourage investment that promotes the development of infrastructure, and providing training in ICT use and development.	Mid-2006
30	Request that the ITU and relevant regional organisations periodically report to the Summit monitoring mechanism on activities to safeguard the use of the radio spectrum for the public interest, pursuant to the principle of legality, and in full observance of relevant international laws and agreements, as well as of national and international regulations.	Mid-2006

Source: Ministerial Conference of Rio de Janeiro, June 2005.

3. The eLAC 2007 monitoring process

At the thirty-first session of the Economic Commission for Latin America and the Caribbean, held in Uruguay from March 20 to 24, 2006, the region's governments requested that the ECLAC Secretariat "maintain and develop indicators that provide for ongoing assessment and dissemination of advances in the region, especially in regard to the eLAC2007 goals." These included "supporting countries that participate in the regional follow-up meeting to evaluate execution of the Regional Plan of Action and to reinvigorate it in the framework of the

Millennium Development Goals process, along with the objectives and goals of the World Summit on the Information Society Plan of Action.”² Accordingly, ECLAC has assumed the task of strengthening its previous work in monitoring advances in the framework of the Regional Plan of Action, through its Observatory for the Information Society in Latin America and the Caribbean (OSILAC), which receives financial support from the Institute for Connectivity in the Americas (ICA)—part of the International Development Research Centre (IDRC)—and from the European Commission’s @LIS programme.

Monitoring of eLAC2007 should consider the features of the plan itself, taking into account the fact that it is comprised of goals and activities covering a wide spectrum of actions (access, capacities, content, policy instruments). It must also recognize the different potential benefits being sought, including activities with different objectives: in some cases, to generate action, in others to produce quantifiable results. Thus, monitoring fulfillment of the eLAC2007 goals is a challenging and complex task, given the differing degrees of difficulty in monitoring the various activities.

Easily quantifiable activities include results-based activities, which can be quantified when the relevant data and indicators are available, and provided there is funding to collect the data. Those designed to generate specific actions are considered more difficult to monitor because they involve studies, projects, coordination and strengthening of initiatives, formulation of models and frameworks to establish standards, creation of oversight entities, etc. These goals only are susceptible to be measures by means of their inventory or illustrating the situation that justifies the execution of a politics particularly. Thus, with time, results will make it possible to determine progress toward implementing the policies, as well as their impact.

The task of establishing indicators and monitoring an action plan, which can also serve as an instrument for designing public policy, is difficult—given that, due to the horizontal nature of information societies, it involves multiple countries and issues—but it is necessary. Despite this challenge, it is essential in order to provide countries feedback on their progress toward meeting the goals. This requires systematic monitoring of implementation, so as to adjust courses of action and redefine objectives in line with changes in the dynamics of the ICTs themselves.

Quantification and measurement of the activities of a regional plan of action on a new and innovative issue, such as the development of the information society, is a major challenge. Due to the novelty of the issue, it is often the case that indicators have not been developed, or that information on actions and initiatives relating to ICTs in the region has not been recorded. In other cases, data exist, but the channels for centralizing and collecting them, and thus the ability to generate information, are not yet in place.

The information presented in this document does not claim, therefore, to be complete or exhaustive. It is based on an ongoing process of data collection being conducted by OSILAC, which has compiled information from different sources and countries. These include national statistics agencies, administrative records of governmental institutions, academic and private sources, and public sources such as the Internet, studies, journalistic media and project reports, as well as data produced by OSILAC itself for the purpose of monitoring certain goals.

The present monitoring exercise is the third of its type, and is an attempt to outline the region’s situation so as to delineate the challenges remaining in the area of digital technology. The methodology is based on the lessons learned in the two previous documents, “Benchmarking the Plan of Action of the World Summit on the Information Society (WSIS) in Latin America and the Caribbean” (Hilbert and Olaya, January 2005) and “Where do Latin America and the Caribbean Stand in Relation to the eLAC2007 Plan of Action?” (OSILAC, November 2005, see

² Resolution 629 (XXXI), Report on the Thirty-First Session of the Economic Commission for Latin America and the Caribbean, Uruguay, March 20-24, 2006, <http://www.cepal.org/pses31/>.

<http://www.cepal.org/SocInfo/OSILAC>). This third exercise focuses on 27 of the 30 eLAC2007 goals, attempting to make specific measurements in the case of quantifiable goals, while in the others attempting to detail the status of information society issues.

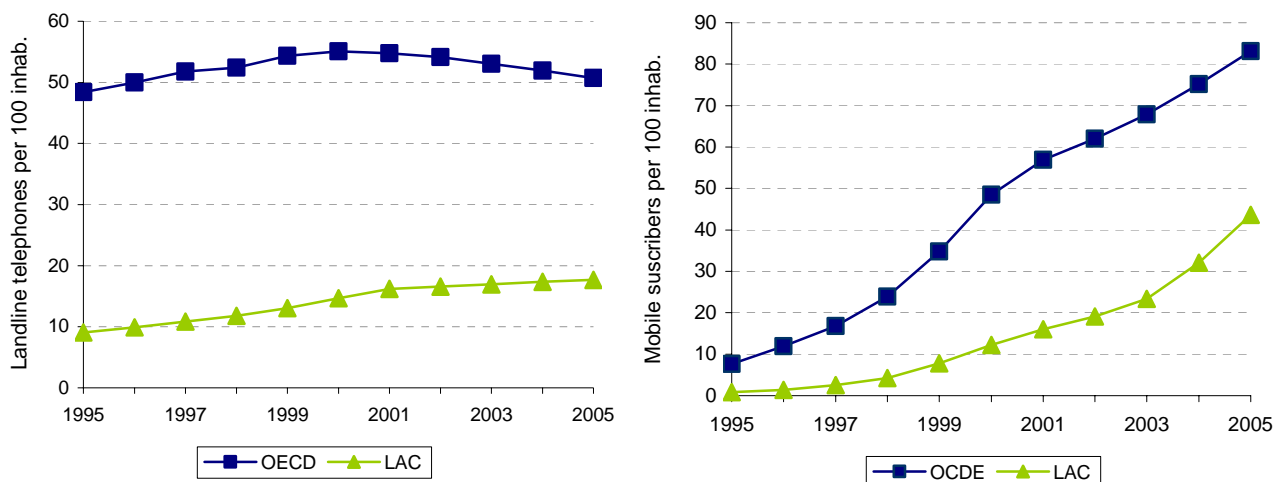
Mindful of these limitations, OSILAC has worked for a year on monitoring the eLAC2007 Plan of Action (August 2006 – August 2007). The expectation is that this exercise will continue, since monitoring ICT progress achieved through policy is fundamental to strengthening the development of information societies in the region.

II. Information societies in Latin America from an international perspective

As tools for processing and transmitting information, ICTs are general-purpose technologies that have positive effects on economic growth and on people's quality of life. However, one must have these technologies, and utilize them effectively, in order to obtain the benefits. The developed countries have led the way in the adoption of ICTs. The fact that they quickly achieved high levels of access to these technologies and developed capabilities for using them has accentuated the existing socioeconomic gap between developed and developing countries, giving rise to what is known internationally as the digital divide. Given that ICTs evolve rapidly, with the continuous emergence of new technologies, this digital divide is constantly widening. Those who already have access to technologies are the first to appropriate the new ones. Thus, the daunting task of closing the digital gap constitutes a moving target.

The digital gap began with fixed telephony, followed by mobile telephony, computing and the Internet. Chart B shows changes in the penetration of fixed and mobile telephony in the region countries and in the countries of the Organization for Economic Cooperation and Development (OECD), which comprises 30 more-developed countries (with Mexico the only region country in the group). In the case of fixed telephones, the most developed countries reached high levels of penetration, over 50%, before 1995, and have maintained these levels, though a slight decline has occurred since 2000. Meanwhile, in the region, the penetration of fixed telephony showed sustained growth between 1995 and 2005, leading to a telephone density of 18% in 2005. At the same time, developed countries rapidly expanded access to mobile telephony, distancing themselves quickly from the region countries until 2003, when this gap began to narrow with the increased expansion in the region. In the OECD countries, growth stagnated once the 50% penetration level was reached. The countries of the region—at 44% in 2005—are approaching this level. It remains to be seen whether the rapid growth of the last several years will continue.

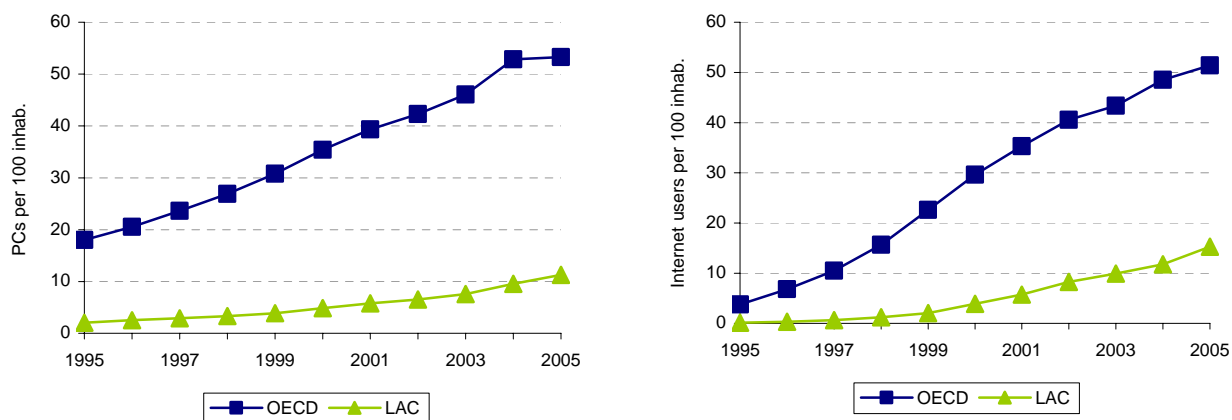
CHART B
PENETRATION OF FIXED AND MOBILE TELEPHONY IN
THE REGION AND OECD, 1995-2005
(Percentages)



Source: OSILAC, with ITU data, "World Telecommunications Indicators Database," 2006.

Given the cost of computers, it is not surprising that, as Chart C indicates, the OECD countries adopted the technology more rapidly than did the countries of the region (50% versus 10% as of 2005). In the more-developed countries, the spread of computers in the population seems to have stalled since 2003, whereas it has continued in the region. The Internet has grown strongly since its commercial beginnings in the mid-1990s, reaching nearly 50% penetration in the OECD countries and 15% in the region. It is noteworthy that Internet penetration in the developed countries is nearly as extensive as that of computers, while in Latin America and the Caribbean in 2005, Internet penetration surpasses that of computers, what indicates a tendency toward the shared access of this technology in the region as a solution for connectivity.

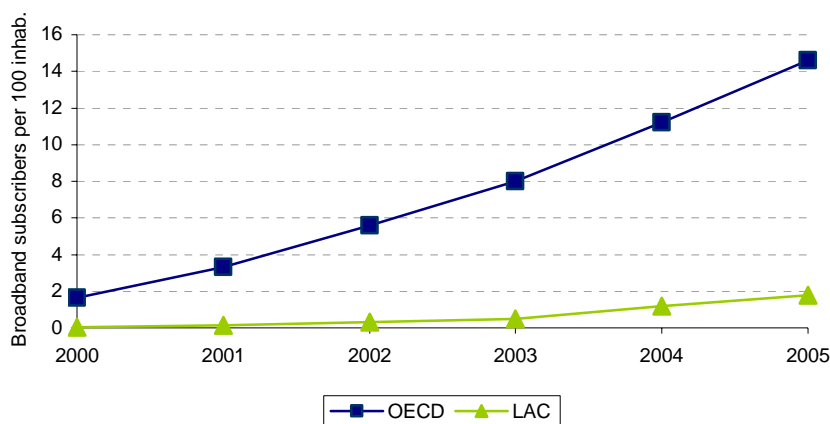
CHART C
COMPUTER AND INTERNET PENETRATION IN THE REGION AND OECD, 1995-2005
(Percentages)



Source: OSILAC, with TU data, "World Telecommunications Indicators Database," 2006.

Broadband Internet in the region, the most recently introduced technology for access to the information society, shows a sharp differential with the developed countries. As indicated in Chart D, this technology has spread rapidly in the OECD countries, while growth has been relatively slow in the region, with penetration reaching only 2%, eighth time less the level found in the more-developed countries.

CHART D
BROADBAND INTERNET PENETRATION, 2000 – 2005
(Percentages)



Source: OSILAC, with ITU data, "World Telecommunications Indicators Database," 2006.

Though indicators of ICT access are a key factor in assessing the region e-readiness for the information society, they are not the only aspect that must be considered. As this document makes clear, the development of digital capacities involves a wide range of factors. Some international organisations have created aggregate indices, reflecting various different methodologies and variables associated with the development of the information society, in attempts to measure the preparedness of countries and regions with respect to this objective. In addition to access, these indicators include the educational levels of the populations, their ability to use ICTs effectively, the development of electronic applications, the existence of an appropriate legal framework conducive to the implementation of electronic solutions, the presence of relevant policies, a suitable business environment, etc. In the view of OSILAC, this approach may be misleading, since important information is lost in aggregating the data. It therefore prefers a disaggregated approach to indicators for the various relevant factors, as reflected in this document. However, analysis of aggregated indicators may provide a preliminary sense of the status of digital development in the countries.

Below, Table B shows e-readiness by world region, in comparison with the world leader in e-readiness. It takes the regional average of the index in relation to the average world-leader score, expressing the higher score as the value 1, and expressing each region's position based on that maximum value. A total of 12 world rankings for the years 2004-2005 were examined: ArCo, ITU Digital Access Index (DAI), ITU Digital Opportunity Index (DOI), Economist Intelligence Unit e-readiness Index (EIU), UN DESA Index of Knowledge Societies (IKS), World Bank Institute Knowledge Economy Index (KEI), World Economic Forum Network Readiness Index (NRI), Orbicom, UNDP Technology Achievement Index (TAI), UNCTAD Index of ICT Diffusion, UN DESA e-government e-Readiness Index (UNPAN) and the World Bank ICT Index (WBICT).

Averaging these 12 indices, it is evident that the higher-income countries lead in the building of information societies. The region is in second position among the developing economies, behind Eastern Europe and Central Asia, but ahead of Western and Pacific Asia, the Middle East and North Africa, South Africa and Sub-Saharan Africa (see Table III).

TABLE III
INFORMATION SOCIETY E-READINESS ACCORDING TO WORLD REGION, IN
RELATION TO THE WORLD'S LEADING REGION, 2004-2005

Region/e-Readiness index	Region's average index in relation to average indices of world's leading region (Reference value of leader = 1)								The region's position among 6 developing regions
	High income: OECD	High income, non-OECD	Eastern Europe and Central Asia	Latin America and the Caribbean	Western and Pacific Asia	Middle East and North Africa	South Asia	Sub-Saharan Africa	
ArCo	1.00	0.69	0.6	0.49	0.35	0.42	0.25	0.22	2
DAI	1.00	0.84	0.61	0.61	0.43	0.48	0.36	0.25	2
DOI	0.97	1.00	0.64	0.52	0.53	0.52	0.39	0.39	3
EIU	1.00	0.87	0.6	0.6	0.51	0.42	0.46	0.57	1
HDI	1.00	0.93	0.83	0.82	0.73	0.73	0.64	0.51	2
IKS	1.00	0.94	0.77	0.69	0.72	0.65	Data	0.4	3
KEI	1.00	0.77	0.62	0.49	0.43	0.38	0.25	0.23	2
NRI	1.00	0.88	0.36	0.19	0.5	0.43	0.25	0.14	5
Orbicom	1.00	0.68	0.44	0.36	0.22	0.23	0.11	0.12	2
TAI	1.00	0.83	0.72	0.5	0.53	0.41	0.28	0.26	3
UNCTAD	1.00	0.79	0.48	0.47	0.39	0.39	0.37	0.31	2
UNPAN	1.00	0.63	0.62	0.57	0.37	0.39	0.37	0.3	2
Average	0.998	0.821	0.608	0.526	0.476	0.454	0.339	0.308	2.4

Source: ECLAC, United Nations, 2007, <http://www.cepal.org/SocInfo>

Note: The average of the e-Readiness indices is based on the 12 world rankings for the 2004-2005 year: ArCo, ITU Digital Access Index (DAI), ITU Digital Opportunity Index (DOI), Economist Intelligence Unit e-readiness Index (EIU), UN DESA Index of Knowledge Societies (IKS), World Bank Institute Knowledge Economy Index (KEI), World Economic Forum Network Readiness Index (NRI), Orbicom, UNDP Technology Achievement Index (TAI), UNCTAD Index of ICT Diffusion, UN DESA e-Government e-Readiness Index (UNPAN) and the World Bank ICT Index (WBICT).

Conducting a similar exercise with the subregions of Latin America and the Caribbean (Central America, Caribbean, Southern Cone and Andean Region), the average index for each subregion, in relation to the average of the region index, was used to create each index, and the region's average index was set at one as a reference value, so as to be able to analyze each subregion's e-readiness in relation to that of the region overall. It is necessary to cause to note that the parameters of reference utilized in the Table III are not the same of the Table IV, while in the first one the value of reference 1 is defined in relation to the leader, in the other this value is the regional average, being able to exist values that denote upper or lower positions in relation to the average.

Averaging the twelve e-readiness indices cited above, it can be seen that the Southern Cone countries are leading in terms of development for the information society, followed by the Caribbean countries. Both of these are above the regional average, while the indices for Central American and the Andean Region are below the regional average, with the Andean index being the lowest of the subregions (see Table IV). The Andean Region's low score in the World Economic Forum's Network Readiness Index (NRI) is of particular note. This index is comprised of subjective indicators, based on the opinion of business leaders—one more reason to use caution in interpreting these indices.

TABLE IV
DEGREE OF READINESS FOR THE INFORMATION SOCIETY IN SUBREGIONS,
IN RELATION TO THE REGIONAL AVERAGE, 2004-2005
(Average index of the subregion in relation to the average Latin America index. Reference value =1)

Region/ e-Readiness index	Southern Cone	Caribbean	Latin America and the Caribbean	Central America	Andean Redgion
ArCo	1,19	0,91	1,00	0,97	1,03
DAI	1,11	1,07	1,00	0,85	0,93
DOI	1,12	s.d.	1,00	1,09	0,88
EIU	1,13	1,01	1,00	1,10	0,87
IKS	1,02	0,82	1,00	1,11	0,91
KEI	1,26	0,93	1,00	0,91	0,89
NRI	1,62	1,74	1,00	0,69	0,31
Orbicom	1,35	0,99	1,00	0,84	0,88
TAI	1,14	0,97	1,00	1,00	0,93
UNCTAD	1,14	1,03	1,00	0,90	0,90
UNPAN	1,28	0,91	1,00	0,95	1,07
WBICT	1,11	0,94	1,00	0,97	0,98
HDI	1,06	1,00	1,00	0,96	0,97
Average	1, 19	1,03	1,00	0,95	0,89

Source: ECLAC, United Nations, 2007, <http://www.cepal.org/SocInfo>

Note: The average of the e-Readiness indices is based on the 12 world rankings for the 2004-2005 year: ArCo, ITU Digital Access Index (DAI), ITU Digital Opportunity Index (DOI), Economist Intelligence Unit e-readiness index (EIU), UN DESA Index of Knowledge Societies (IKS), World Bank Institute Knowledge Economy Index (KEI), World Economic Forum Network Readiness Index (NRI), Orbicom, UNDP Technology Achievement Index (TAI), UNCTAD Index of ICT Diffusion, UN DESA e-government e-Readiness Index (UNPAN) and the World Bank ICT Index (WBICT).

Following are the results of the monitoring of seven eLAC2007 goals relating to digital access and inclusion, nine relating to the creation of capacities, knowledge and content, seven relating to public efficiency and transparency, five relating to policy instruments, and one relating to the empowering environment. The objective of providing and analysing the information given here is to detail the status of the region's countries in relation to the specific issues addressed in the eLAC2007 goals, according to the activities associated with them.

III. Access and digital inclusion

The access and digital goals are:

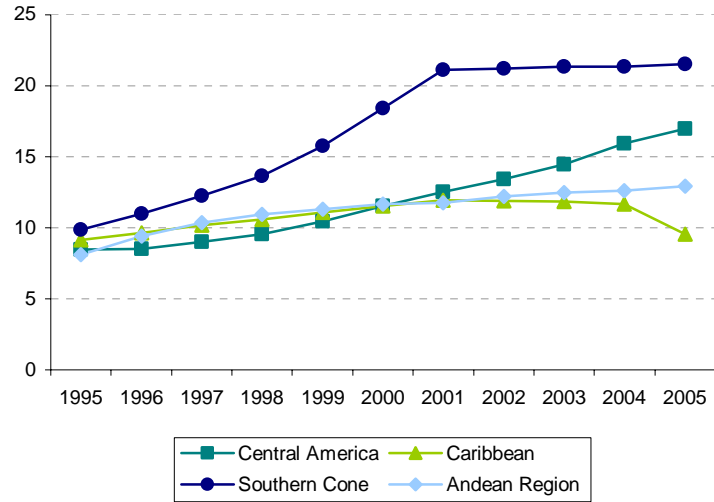
- Goal 1: Regional infrastructure
- Goal 2: Community centres
- Goal 3: Online schools and libraries
- Goal 4: Online health centres
- Goal 5: Work
- Goal 6: Local government
- Goal 7: Alternative technologies

Goal 1: Regional infrastructure

Expanding access: an advance in different paces

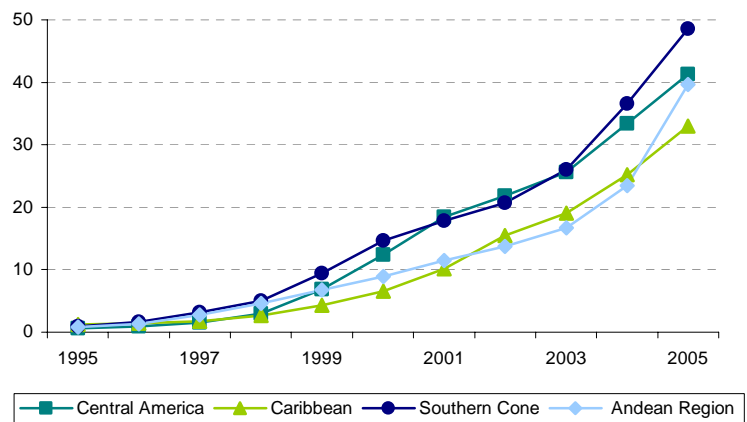
- The first eLAC2007 goal is to promote the development of regional ICT infrastructure. The penetration of telephone service has increased enormously in Latin America and the Caribbean since the 1990s. In most of the countries, this followed the privatization and regulatory reforms that occurred in many of the region's countries. Consistent with world trends, growth of fixed telephony has been relatively slow, with mobile service growing at twice the rate as fixed.
- While the region as a whole shows growth, the rate varies from subregion to subregion. The Southern Cone has the highest penetration rates in the region in both fixed and mobile telephony, though the differential has been and continues to be greater in fixed, with 20 lines per 100 inhabitants in 2005, followed by 17 for Central America, 13 for the Andean Region and 10 for the Caribbean. Mobile telephony penetration in 2005 was 49% in the Southern Cone, 41% in Central America, 39% in the Andean Region and 33% in the Caribbean.
- Mobile telephony provides a solution to expanding telephone access for the region, due to its lower infrastructure costs and more accessible service costs for consumers, principally because of the prepaid mode, which does not require subscription and facilitates access among lower-income sectors.

CHART 1
FIXED TELEPHONY PENETRATION IN THE LATIN AMERICAN AND CARIBBEAN SUBREGIONS,¹ 1995-2005
(Fixed lines/100 inhabitants)



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database", 2006.

CHART 2
MOBILE TELEPHONE PENETRATION IN THE LATIN AMERICAN AND CARIBBEAN SUBREGIONS,¹ 1995-2005
(Subscribers/100 inhabitants)



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database", 2006.

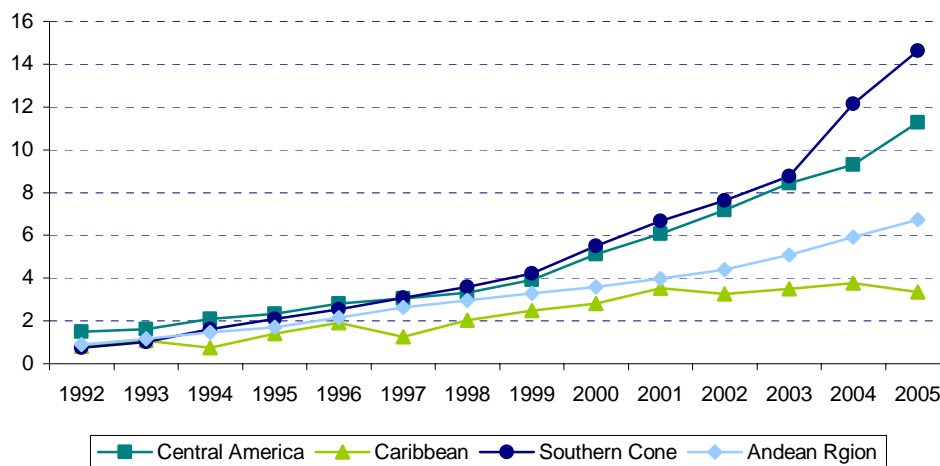
Goal 1: Regional infrastructure

The slow growth of Internet

- Just as the development of telephony was a challenge for the region's countries in the 1990s and the beginning of the 2000s, providing widespread Internet access is currently the major challenge.
- There has been sustained growth in Internet penetration over the last few years in the various subregions of Latin America and the Caribbean (see Chart 4). Thus, penetration in 2005 was 18 Internet users per 100 inhabitants for the Southern Cone, 15 for Central America, 14 for the Caribbean and 12 for the Andean Region, representing average growth of over 55% since 2003.
- This progress is not highly encouraging in comparison with other regions of the world, such as Eastern Europe, where penetration levels were comparable but growth rates were over 70% for the same period.
- Increased Internet access is related, among other things, with computer ownership, which shows the greatest progress in the Southern Cone, followed by Central America, putting these two subregions at practically double the penetration of the Andean and Caribbean regions, where growth has slowed and—in the latter case— even stalled (see Chart 3).
- High-speed (broadband) access is the most recent technology, and the one with the greatest potential for exchange of information. As Chart 5 indicates, its penetration is greatest in the Southern Cone countries, where increased growth since 2003 brought the figure to 3 subscribers per 100 inhabitants by 2005, double the level in the other subregions.

Challenge: Promote the spread of solutions to increase bandwidth and take advantage of emerging complementarities among different technologies available in the region, taking into account advances in mobile telephony.

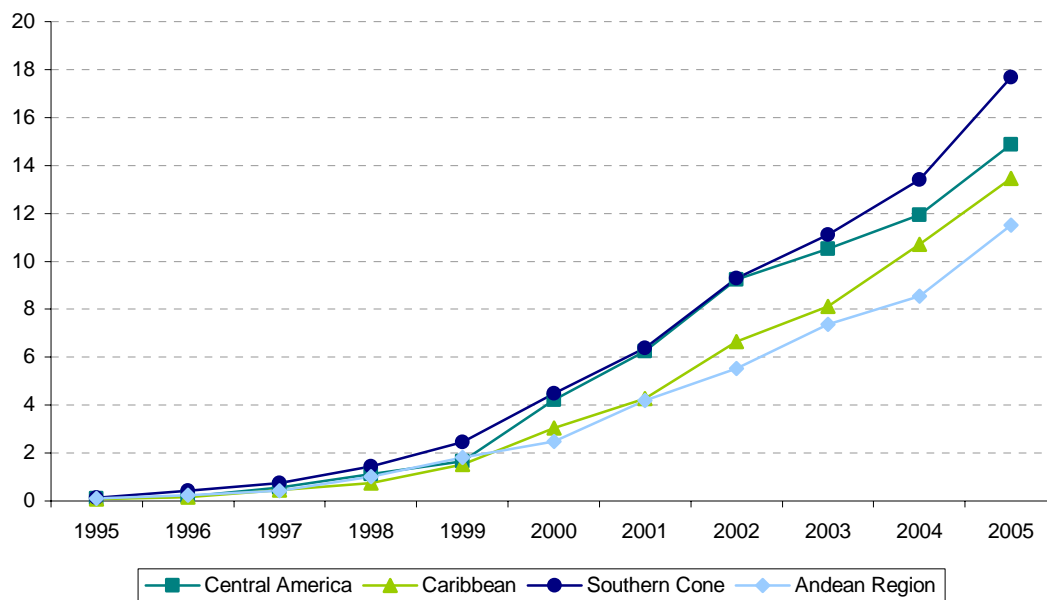
CHART 3
COMPUTER PENETRATION IN THE LATIN AMERICAN AND CARIBBEAN SUBREGIONS, ¹1992-2005
(PCs/100 inhabitants)



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.

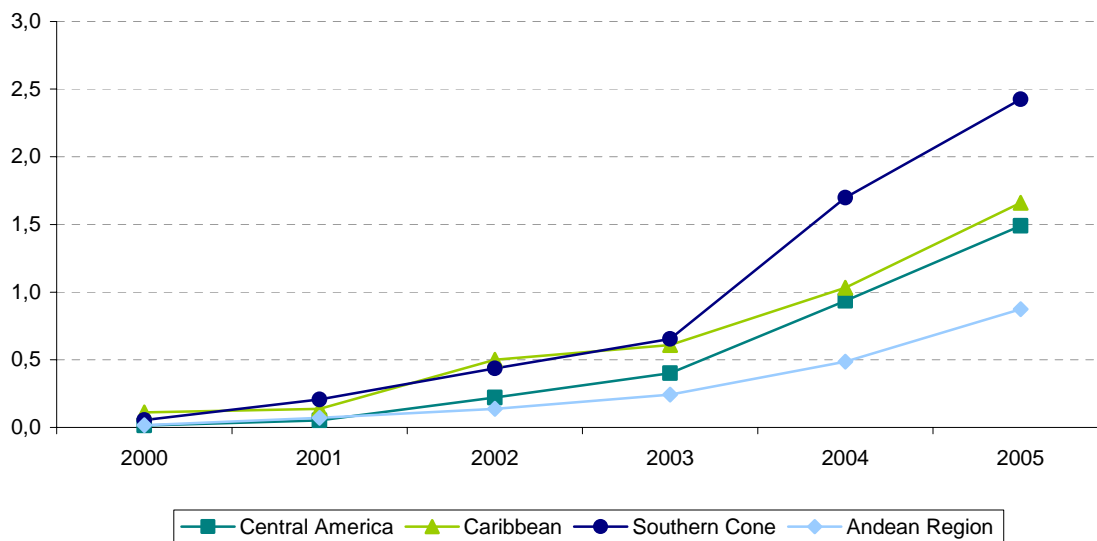
Goal 1: Regional infrastructure

CHART 4
INTERNET PENETRATION IN THE LATIN AMERICAN AND CARIBBEAN SUBREGIONS, ¹1995-2005
(Internet users/100 inhabitants)



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.

CHART 5
BROADBAND PENETRATION BY SUBREGIONS, ¹2000-2005
(Broadband subscribers/100 inhabitants)



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.

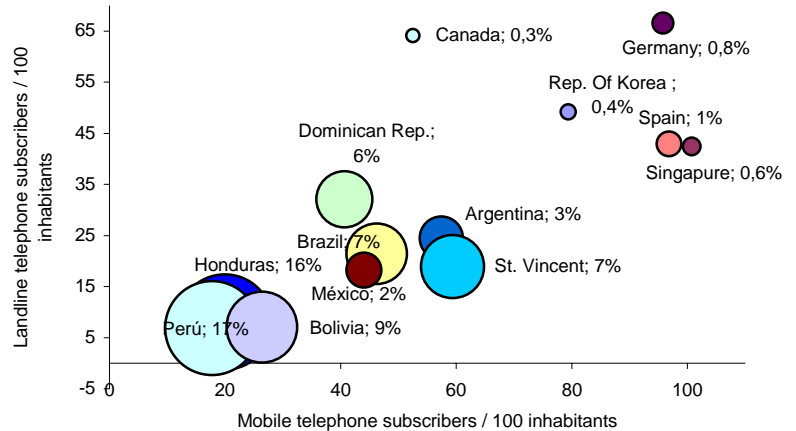
Goal 1: Regional infrastructure

Income: the limiting factor in ICT access

- Mobile and Internet user rates are still high in relation to per capita income, compared with competitive markets in developed countries.
- Mobile telephone rates in the region represent 9% of per capita income, as compared with 1% in the developed countries. The highest rates (on the order of 16%) are seen in Peru and Honduras (see Chart 6). Notably, users of prepaid service represent over 80% of the mobile market², indicating that high penetration in terms of the number of mobile telephones does not necessarily mean a high volume of traffic.
- Monthly Internet connection rates represent 12% of monthly per capita income in the region, compared with less than 1% in the developed countries. In Honduras, Guatemala and Bolivia, the rates are over 25% and represent the lowest levels of Internet penetration in the region (see Chart 7).
- Income levels continue to be one of the principal obstacles to expansion of these services.

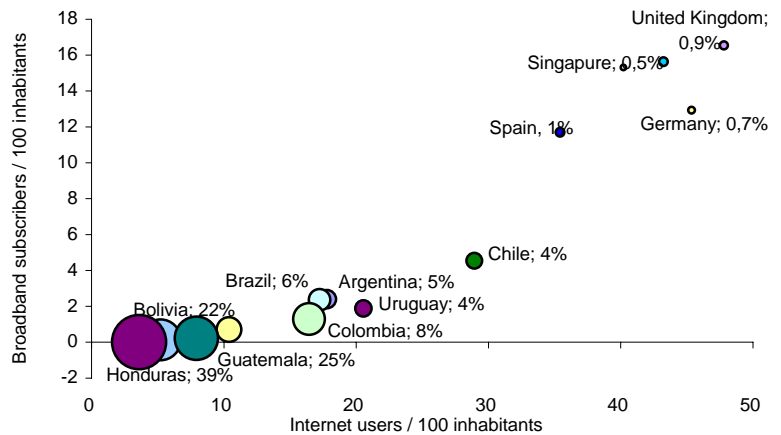
Challenge: Seeking solutions to promote the real traffic in the networks, and therefore its use, beyond the promotion of the penetration of teams.

CHART 6
PENETRATION OF FIXED AND MOBILE TELEPHONY, AND COST OF MOBILE TELEPHONE USE AS A PERCENTAGE OF MONTHLY PER CAPITA INCOME, 2005



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.
 Note: The size of the bubbles is proportional to the cost of 100 minutes of local mobile telephone calling as a percentage of monthly per capita income. The figure for each country is placed next to the country name.

CHART 7
INTERNET AND BROADBAND PENETRATION, AND INTERNET CONNECTION RATES AS A PERCENTAGE OF MONTHLY PER CAPITA INCOME, 2005



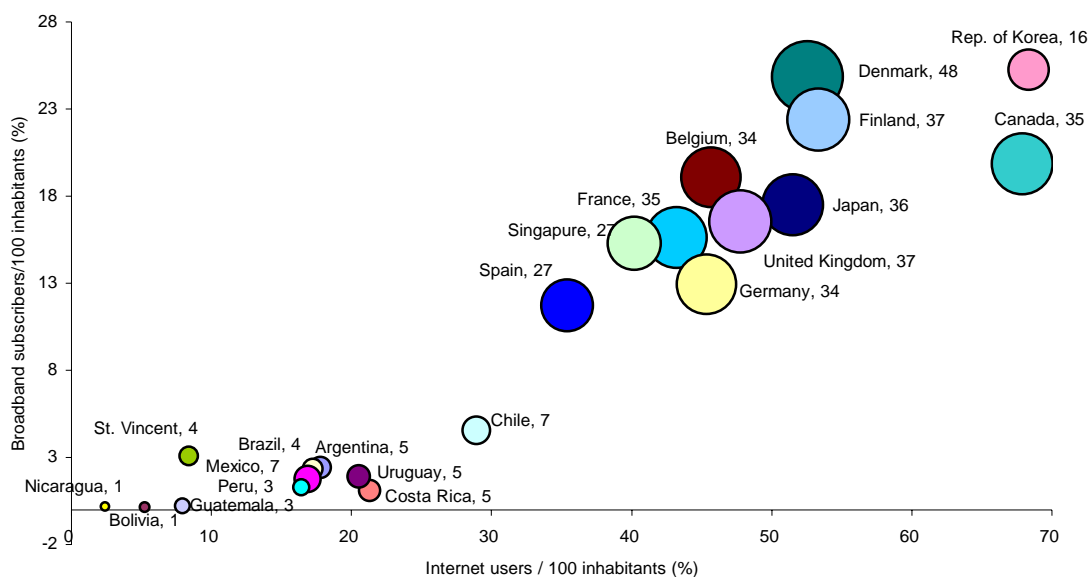
Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.
 Note: The size of the bubbles is proportional to the monthly cost of 20 hours of dial-up Internet access (including the cost of the telephone service) as a percentage of monthly per capita income. The cost of broadband access is shown in cases where it is lower than dial-up access. The respective figures appear next to the country names.

Goal 1: Regional infrastructure

Broadband Internet access: a growing challenge

- Between 2003 and 2005, Internet penetration in the region's countries rose from 10 to 15 users per 100 inhabitants, while broadband access increased from 0.5% to 2%.
 - Though this trend shows promise, penetration remains low, and growth appears insufficient to diminish the gap with the developed countries. The region has 15 Internet users per 100 inhabitants, while the OECD countries have 51, and the gap is greater in broadband, where it is 2% versus 15%.
 - Penetration levels are increasingly linked with per capita income, but even at similar income levels there are significant differences. This indicates that the non-income factors are affecting the spread of this technology.
 - Changes in Internet connectivity indicate that as penetration of this service increases, broadband penetration also increases. However, given the potential of current computer applications and of solutions based on high-speed networks, there is an urgent need, in the region's countries, to access these technologies so as to bring benefits to all economic and social sectors.
- Challenge:** Explore what factors, other than income, are affecting the spread of Internet access, and determine whether there is a real possibility of leapfrogging immediately to broadband solutions, without transiting the narrow-band phase.

CHART 8
INTERNET PENETRATION, BROADBAND PENETRATION AND PER CAPITA GDP, 2005



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.

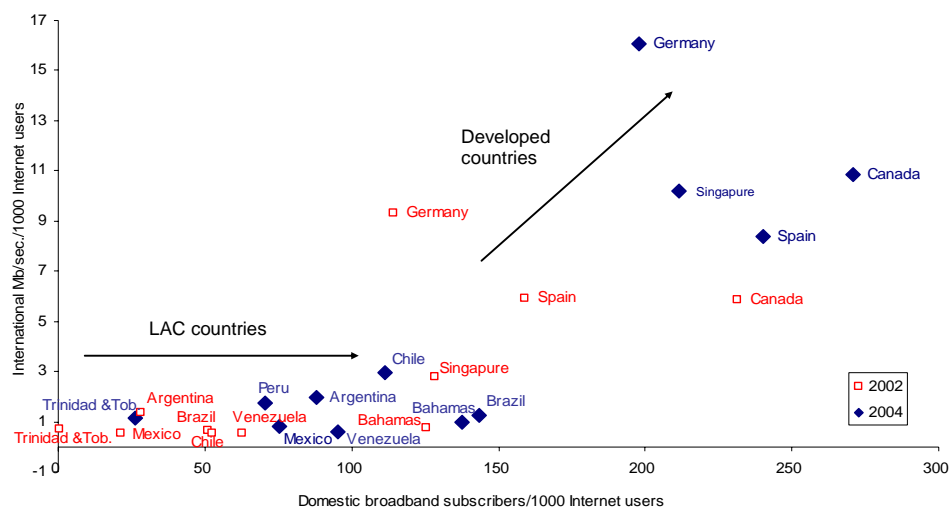
Note: The size of the bubbles is proportional to per capita income. The figures are expressed in millions of US dollars, and appear beside the names of the countries to which they apply.

Goal 1: Regional infrastructure

Speed Connection: a new dimension of the digital gap

- Bandwidth is an international indicator that reflects the capacity to become part of the information society at the global level, and thus, to have access to the worldwide web and its contents. The international demand for bandwidth can limit or facilitate broadband penetration within a country, meeting demands for speed connection and quality.
 - The Latin American and Caribbean countries had approximately 1.5 Mb of international bandwidth per second per inhabitant in 2004, while countries with more advanced economies had between 7 and 15 Mb/sec.
 - While the developed countries maintained a balance between growth of their international bandwidth capacity and growth of residential broadband subscribers between 2002 and 2004, the countries of Latin America and the Caribbean increased the second of the two factors far more than the first. Thus, the penetration of broadband subscriptions is being promoted in these countries, without a parallel expansion of the capacity for connecting these users to the worldwide web.
 - This implies a new dimension of the digital gap, i.e., a gap not only in access, but in connection speed and capacity to transmit information. This dimension becomes more important as the Internet is increasingly dominated by more advanced online services, such as audio, video, and electronic solutions in government, education, health, business, etc.
- Challenge:** Study the international connectivity challenges for Latin America and the Caribbean, and their implications for domestic broadband growth within the countries.

CHART 9
CHANGE IN INTERNATIONAL BROADBAND CAPACITY AND BROADBAND PENETRATION,
2002-2004



Source: OSILAC, with data from ITU, "World Telecommunications Indicators Database," 2006.

Goal 1: Regional infrastructure

Internet access points (IAPs): a solution to optimize Internet traffic

- Network access points (NAPs) make it possible for Internet service providers (ISPs) or international backbone providers (IBPs) to partner and exchange data packets directly. There are two levels of partnership. One is physical, taking the form of interconnecting networks; the other is institutional, involving the creation of an organization based on commercial and organizational agreements between members.
- Interconnection allows for more efficient use of the Internet, making it unnecessary to send some of the traffic through international connections, by interconnecting small and medium-sized ISPs, thus reducing costs and local congestion. A reduction in these costs can also lead to lower access costs for subscribers.
- Network access points (NAPs) may be collaborative or commercial, depending on the nature of the parties involved. In some cases, they include only ISPs or IBPs, in others only academic and research networks, while in yet other cases the model used may be a combination of these. Collaborative NAPs are generally not involved in business, while commercial NAPs offer their own services based on the services provided by their members through the members' facilities.³
- In Latin America and the Caribbean there tends to be at least one NAP per country (see Table1). The ISP connection is generally the result of commercial necessity. Chile is the only country in the region, and one of the few in the world, where there is regulation, oriented to improving the quality of services.
- Though the benefits of NAPs are interesting and desirable in terms of lower cost and higher quality of traffic, regional NAP initiatives have not thrived. Notable in this respect are efforts in the last few years by LACNIC, the Latin American and Caribbean Internet Addresses Registry, to work with NAPs to provide opportunities for communication, information exchange and debate on regional interconnection, its funding, traffic quality and measurement, etc.

Challenge: Promote national and regional NAPs to increase the efficiency of Internet traffic. Closely coordinate the work of private and governmental groups, while promoting greater regional integration through entities such as LACNIC, REGULATEL and CITEL.

Goal 1: Regional infrastructure

TABLE 1
NETWORK ACCESS POINTS IN LATIN AMERICA AND THE CARIBBEAN, NOVEMBER 2006

Country	City	Name	Number of members	Year of initiation	Traffic (Bits per second)	Website	Regulation
Argentina	Buenos Aires	NAP CABASE	44	1998	500 M	http://www.cabase.org.ar	No
Brazil	São Paulo	NAP do Brasil (ex -PTT-ANSP/FAPESP)	70	1998	1,2 G	http://www.terremark.com	No
		Telcomp	5	2003	75 M	http://www.telcomp.org.br	
		PTT Metro	57	2004	n.d.	http://ptt.br	
		PTT Metro - São Paulo	26	2004	700M (Max 1.3G)	http://sp.ptt.br	
		Brazil Telecom	n.d.	n.d.	n.d.	http://www.brasilelecom.com.br	
		TIVIT	n.d.	n.d.	n.d.	http://www2.tivit.com.br/internet/	
		Universidade de São Paulo	n.d.	n.d.	n.d.	http://www.redes.usp.br	
		CTBC Multimidia	n.d.	n.d.	n.d.	http://www.ctbctelecom.net.br	
	LocaWeb iDC	n.d.	n.d.	n.d.	http://www.locawebidc.com.br/		
	Rio de Janeiro	PTT Metro - Rio de Janeiro	2	n.d.	4 M	http://rj.ptt.br	
		Rede Nacional de Ensino e Pesquisa - LNCC	n.d.	n.d.	n.d.	http://www.rnp.br	
	Porto Alegre	PTT Metro - Porto Alegre	20	n.d.	200M (Max 300M)	http://rs.ptt.br	
		Rede Nacional de Ensino e Pesquisa / POP-RS Procempa	n.d. n.d.	n.d. n.d.	n.d. n.d.	http://www.pop-rs.rnp.br http://www.procempa.com.br	
	Florianopolis	PTT Metro - Florianopolis	4	n.d.	14 M	http://sc.ptt.br	
	Curitiba	PTT Metro - Curitiba	12	n.d.	130M (Max 240M)	http://pr.ptt.br	
Rede Nacional de Ensino e Pesquisa / POP-PR		n.d.	n.d.	n.d.	http://www.pop-pr.rnp.br		
Brasilia	PTT Metro - Brasilia	6	n.d.	90M (Max 170M)	http://df.ptt.br		
	Brasil Telecom	n.d.	n.d.	n.d.	http://www.brasilelecom.com.br		
	Rede Nacional de Ensino e Pesquisa	n.d.	n.d.	n.d.	http://www.rnp.br		
Belo Horizonte	PTT Metro - Belo Horizonte	2	n.d.	230 K	http://mg.ptt.br		
	Rede Nacional de Ensino e Pesquisa / POP-MG	n.d.	n.d.	n.d.	http://www.pop-mg.rnp.br/		
Chile	Santiago	NAP Chile	21	1997	n.d.	http://www.nap.cl	EXEMPT RESOLUTION N° 1483 (Oct.1999) : The ISP should be united in a National Network. TECHNICAL NORM OF RESOLUTION N° 698 (Jun.2000) : Fixed quality indicators of the links of connection for the national traffic of Internet.
		CTC Mundo (Telefonica)	n.d.	n.d.	n.d.	http://pit.telefoniamundo.cl/	
		Impsat	18	n.d.	n.d.	http://www.pitimpstat.cl/	
		Equant (France Telecom)	9	n.d.	n.d.	http://www.equantbit.cl/	
		Telmex	22	n.d.	n.d.	http://www.telmex.com.cl/pit/	
		PitEntel	13	n.d.	n.d.	http://www.pitentel.cl/index.php	
		Intercity	n.d.	n.d.	n.d.	http://www.intercity.net/	
		ChileSat (Telmex)	n.d.	n.d.	n.d.		
Colombia	Bogota	NAP Colombia	16	1999	760 M (max 1G)	http://www.nap.com.co	No
Cuba	La Habana	NAP Cuba - ETECSA	5	2000	50 M	n.d.	Decree 90/194: It establishes that only ETECSA can provide traffic services.
Ecuador	Guayaquil	NAP AEPROVI Guayaquil	6	2003	15 M	http://www.aeprovi.org.ec	
		NAP AEPROVI Quito	6	2003	25 M	http://www.aeprovi.org.ec	
Nicaragua	Managua	Nicaragua Internet Exchange - NiclX	10	2004	3K (Max 45K)	http://www.nicix.ni	
Panama	Ciudad de Panama	INTERED	9	1997	37M (Max 60M)	http://www.intered.org.pa	
Paraguay	Asuncion	CAPADI NAP-PY	15	2000	40 M	http://www.capadi.org.py	
Peru	Lima	NAP Peru	8	2001	nd	http://www.nap.pe	
	Lima	NAP Lima	4	2005	120 - 180M		
Puerto Rico	San Juan	Internet Exchange of Puerto Rico (IXPR) (Gauss Research Laboratory of the University of Puerto Rico)	2	2005	n.d.	http://www.ix.pr	
El Salvador	n.d.	NAP Salvador	n.d.	In project	n.d.	n.d.	
Caribe	Dominican Rep.	NAP del Caribe	n.d.	In project	n.d.	n.d.	

Source: OSILAC, with the collaboration of LACNIC (online at: www.lacnic.net), with data from Terremark (online at: www.terremark.com); Packet Clearing House (online at: www.pch.net); Internet Steering Committee (online at: <http://ptt.br>); Internet Exchange Points, Telegeography (online at: www.telegeography.com); NAP Chile (online at: <http://pit.nap.cl>); Internet Exchange of Puerto Rico (online at: www.ix.pr); REDGEALC (online at: www.redgealc.net); Interred (online at: www.interred.org.pa).

Notes:

- ¹ Southern Cone, Argentina, Uruguay, Brazil and Paraguay. Central America: Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama. Andean Region: Bolivia, Colombia, Ecuador, Peru and Venezuela. Caribbean: Belize, Cuba, Dominica, Granada, Guyana; the Antilles: Antigua and Barbuda, Aruba, Bahamas, Barbados, Haiti, Jamaica, Puerto Rico, Dominican Republic, Suriname, Trinidad and Tobago, Saint Vincent and the Grenadines, Saint Lucia, Saint Kitts and Nevis, British Virgin Islands, U.S. Virgin Islands, Anguila and Montserrat.
- ² Digiworld 2007, Fundación Telefónica.
- ³ OSIPTEL, "Análisis de la situación del NAP a nivel EE.UU. y Latinoamérica" [Analysis of the status of NAPs in the U.S. and Latin America], March 2007.

Goal 2: Community centers

Community access: an option for facilitating ICT access

- The second eLAC2007 goal is to reduce the number of potential Internet users per community-based Internet access center to a national median of 20,000 persons per facility (private and/or public). Most of the Latin American countries have made significant progress in using shared access as a means of narrowing the digital gap. Argentina, Peru, Ecuador, Mexico and Costa Rica are cases in point, with fewer than 2,300 users per PIAC (Public ICT Access Center), results below the region's average. Paraguay and Nicaragua still have major, as yet unrealized, opportunities for citizens to benefit from community access.
 - The universe of potential PIAC users is defined as the population between 5 and 64 years of age, not counting those who are currently Internet users. In this sense, there is a complementarity between public use and individual use.
 - The models for providing Internet access differ from country to country. Ecuador compensates for a low individual penetration rate of 7% by providing community access, and has 1,085 users per PIAC. Uruguay seems to focus more on the issue of universal access, with one of the highest Internet penetration rates (19%), while it has 18,743 potential users per PIAC.
 - No information is available on the location and geographic and population coverage of PIACs—information that would be necessary to evaluate the impact and efficiency of community access policies.
- Challenge:** Supplement policy on individual and collective connectivity so as to provide widespread access to ICTs in different segments of society. Design community access policy in such a way as to incorporate indicators that help identify geographic and socioeconomic gaps, in order to optimize location and resource allocation.

TABLE 2
AVERAGE NUMBER OF POTENTIAL USERS PER PUBLIC ICT ACCESS CENTER (PIAC), 2005

Country	Number of public and private PIACs identified	Potential PIAC users ⁽¹⁾	Potential users per PIAC
Paraguay	48	5,002,000	104,208
Nicaragua	84	4,449,000	52,964
Uruguay	109	2,043,000	18,743
Bolivia	884	7,384,000	8,353
El Salvador	618	5,119,525	8,284
Brazil ⁽²⁾	16,722	136,175,000	8,143
Colombia	6,078	34,899,757	5,742
Chile	2,733	9,439,000	3,454
Guatemala ⁽²⁾	3,869	9,373,000	2,423
Costa Rica	1,199	2,683,000	2,238
Mexico	58,188	75,656,525	1,300
Ecuador	9,577	10,391,421	1,085
Peru	19,936	20,278,000	1,017
Argentina	28,401	25,234,397	889
Total	148,446	348,127,625	2,345

Source: ECLAC in cooperation with the Chasquinet Foundation, "Centros de acceso público a las tecnologías de información y comunicación en América Latina: características y desafíos," (online at <http://www.cepal.org/Socinfo/Notas>). (1) The universe of potential PIAC users is defined as the population between 5 and 64 years of age, not counting current Internet users, according to the ITU database. (2) Data are for March 2007.

Goal 2: Community centers

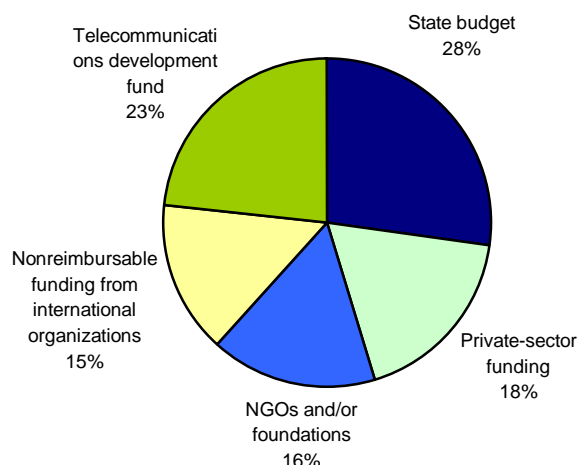
Community access based on public-private cooperation

- PIACs are classified as private or governmental, according to their funding. Private establishments include both commercial establishments and those with social objectives; the latter are funded in a variety of ways, since income from services is not sufficient to make them self-sustaining, unlike commercial PIACs. They are generally supported by a combination of funders, with regional or municipal budgets and telecommunications funds representing over half of the total, while international organizations and NGOs contribute a smaller proportion. (See Chart 10 and 11).
- Telecommunications funds are a fundamental source of financing for the centers. When combined with regional, local and private funding, this can provide possibilities for novel forms of

public-private cooperation as a means of promoting collective connectivity, particularly given that sustainability is the major problem associated with community access. As Chart 12 indicates, over 60% of governmental PIACs offer free or subsidized services. Even among private PIACs, only 23% charge true commercial rates.

Challenge: Develop community access models that take account of public-private cooperation possibilities as a means of addressing the dual challenge of increasing ICT coverage in isolated or low-population-density areas while maximizing the self-sustainability of PIACs.

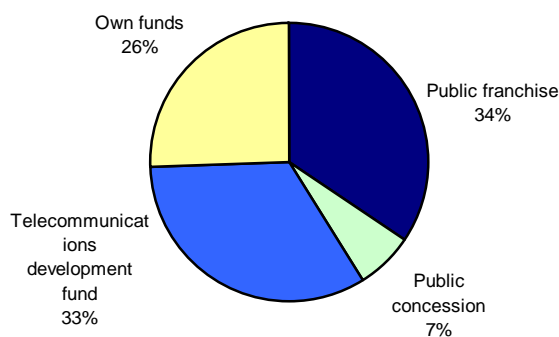
CHART 10
DISTRIBUTION OF PRIVATE PIACs WITH SOCIAL OBJECTIVES, ACCORDING TO TYPE OF FUNDING, 2005
(n = 704)



Source: ECLAC in cooperation with the Chasquet Foundation, "Centros de acceso público a las tecnologías de información y comunicación en América Latina: características y desafíos" (online at www.cepal.org/Socinfo).

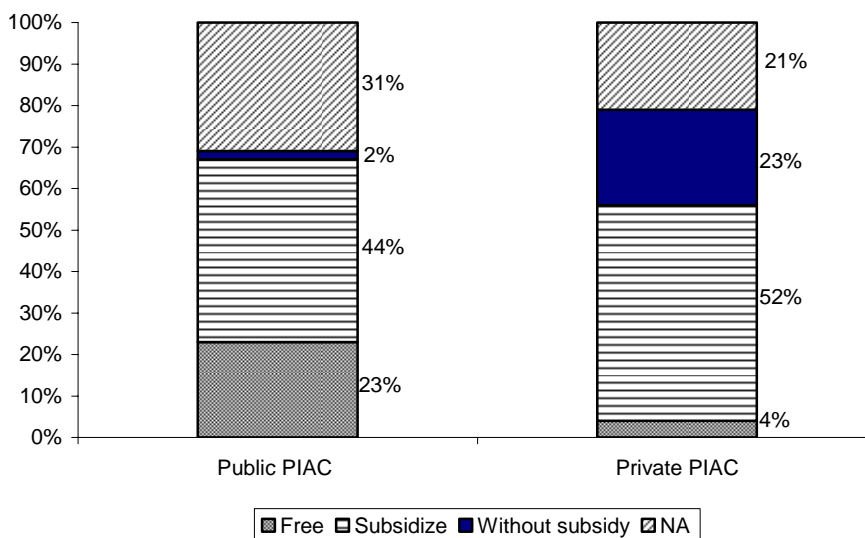
Goal 2: Community centers

CHART 11
DISTRIBUTION OF GOVERNMENTAL PIACs ACCORDING TO TYPE OF FUNDING, 2005
(n = 25.761)



Source: ECLAC in cooperation with the Chasquet Foundation, "Centros de acceso público a las tecnologías de información y comunicación en América Latina: características y desafíos" (online at www.cepal.org/Socinfo).

CHART 12
DISTRIBUTION OF PIACs ACCORDING TO TYPE OF INTERNET ACCESS CHARGES, 2005
(Governmental PIACs, n = 25.761; Private PIACs, n = 704)



Source: ECLAC in cooperation with the Chasquet Foundation, "Centros de acceso público a las tecnologías de información y comunicación en América Latina: características y desafíos" (online at www.cepal.org/Socinfo).

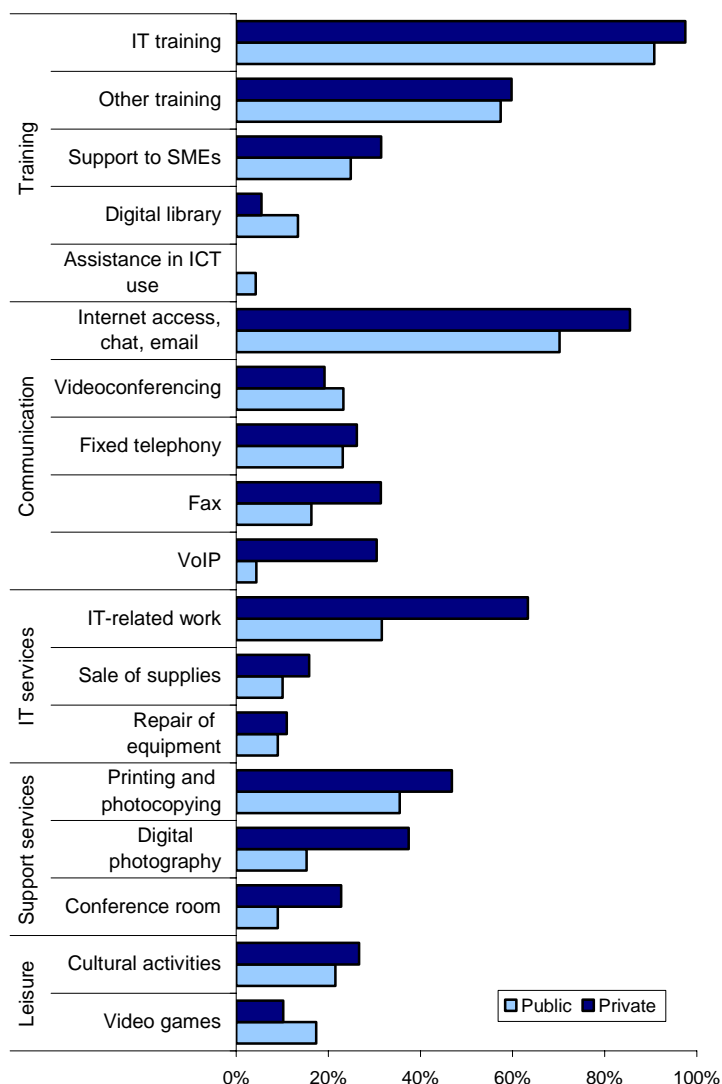
Goal 2: Community centers

PIACs as a tool for inclusion in the information society

- In addition to providing Internet access, the range of services provided by PIACs also makes them centers for training, communication and recreation.
- There is a great demand at PIACs for training in computing and in other areas, including support for SME (Small and Medium Enterprises). Such services are a basic part of their function.
- Over 70% of public PIACs and 86% of private PIACs offer Internet access. Over one third of the private establishments allow VoIP calls, as opposed to 4% among public establishments. This is due to the fact that the latter are supported by telecommunications funds from telephone companies, and in many countries there is a conflict of interest between these companies and those offering IP services.
- Private PIACs also provide services such as equipment repair, word and data processing, etc. This increases their financial sustainability, and plays an indispensable role in providing the complementary services necessary in the information society.

Challenge: Develop the PIACs by increasing their training capacity, their ability to provide for cultural exchange and recreation, and thus a type of use that promotes appropriation of ICTs by the population. Adapt PIAC funding models to promote the convergence of services, so as to provide users more efficient access to services and technologies.

CHART 13
PERCENTAGE OF STATE AND PRIVATE PIACs,
ACCORDING TO SERVICES PROVIDED, 2005



Source: ECLAC in cooperation with the Chasquinet Foundation, "Centros de acceso público a las tecnologías de información y comunicación en América Latina: características y desafíos" (online at <http://www.cepal.org/publicaciones/DesarrolloProductivo/8/LCW88/PrimeraParte.pdf>)

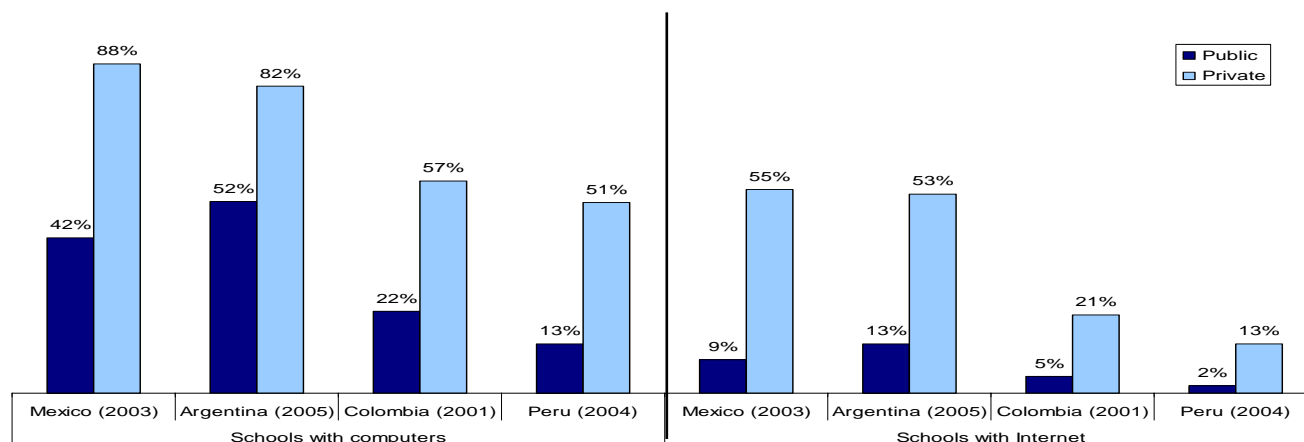
Goal 3: Online schools and libraries

Connectivity in schools: regional priority with heterogeneous advance

- Goal 3 of eLAC2007 is to connect one third of all public schools to the Internet, via broadband where possible, with a special focus on rural areas. The extent of connectivity in public schools varies widely among the region's countries. In 2005, 75% of Chile's schools were connected to the Internet, while the figure was 22% for Argentina. These rates are far from the European average, where no country had less than 90% connectivity for its public schools as of 2006.¹
- Within the countries, a similar situation exists between public and private schools. In Argentina in 2005, 53% of private schools had Internet access, while only 13% of public schools were connected. Mexico faced a similar condition in 2003, while Peru's connectivity rate in 2004 was 2% for public schools, six times less than the rate among private schools.
- In the eLAC Policy Delphi on ICT priorities for the year 2010, over 500 experts in the region identified school connectivity as the highest-priority area among information-society issues. There was a notable consensus on this across the region, including Central America, the Andean Region, the Southern Cone and the Caribbean.²
- While some countries show major advances in public school connectivity, in most countries the goal of connecting one third of the schools appears to have been achieved only among private schools. It can be assumed that this situation is most serious in rural areas.

Challenge: Taking advantage of that the connectivity of schools is the priority number one for the information society in the region, in order to ensure that declarations be translated into reality.

CHART 14
CONNECTIVITY IN PUBLIC AND PRIVATE SCHOOLS IN SELECTED COUNTRIES



Source: OSILAC with data from Colombia: National Administrative Department of Statistics (Departamento Administrativo Nacional de Estadística, or DANE), "Modelo de medición de las Tecnologías de la Información y las Comunicaciones TIC," 2003; Mexico: Secretariat of Public Education, "Sistema educativo de los Estados Unidos Mexicanos, principales cifras, ciclo escolar 2003-2004" (online at www.sep.gob.mx/work/appsite/princif2003/Princif2003.pdf); Peru: Website of the Peruvian State (online at www.peru.gob.pe); and Argentina: National Directorate of Educational Quality Information and Evaluation and Federal Network of Educational Information (Dirección Nacional de Información y Evaluación de la Calidad Educativa y Red Federal de Información Educativa), "Relevamiento Anual 2005," DiNIECE. MECyT.

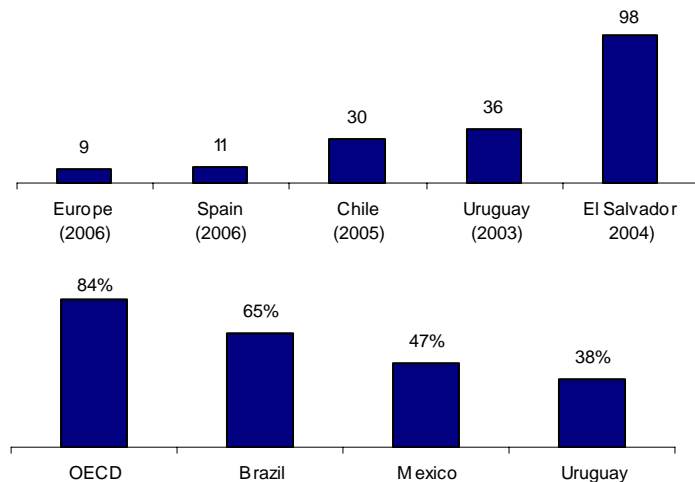
Goal 3: Online schools and libraries

Context for the objective of providing one computer per child

- While there were 11 students per computer in Spain in 2006, and an average of 9 for the European Union as a whole, the figure for Chile was 30 in 2005, while it was 98 in 2004 for El Salvador, where the number of students per computer ranged from 3 to 479.
- Only some of the computers in schools are connected to the Internet. In 2003, Brazil had a connection rate of 65%, while in Mexico and Uruguay less than half of the computers were connected. Connection speed is also a factor in of delay. In Chile in 2005, 40% of schools had high-speed technology, a mere half the rate for Spain.
- The situation is more serious yet if one considers the ultimate use of available computers. The case of Chile shows that access to and use of ICTs in education is concentrated in computer labs rather than in classrooms—a fact that may be explained by the need to share computers. However, a considerable number of computers are assigned to administrative use, remaining beyond the reach of students.

Challenge: Increase student access to computers and to the Internet. Monitor connectivity and use of ICTs in educational systems, with support from specialized organizations, such as UNESCO, in the framework of the Partnership on Measuring ICT for Development.³

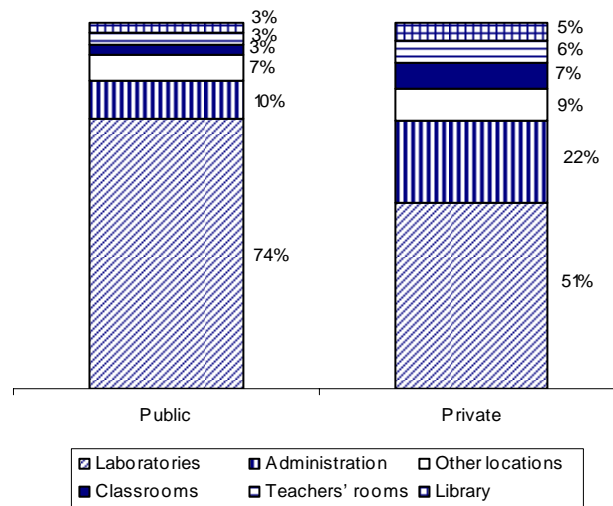
CHART 15
NUMBER OF STUDENTS PER COMPUTER, AND
PERCENTAGE OF COMPUTERS CONNECTED TO THE
INTERNET, 2003



Source: OSILAC with data from Chile: Red Enlaces, (online at www.enlaces.cl/libro/estadisticas.pdf); Uruguay: INE (National Statistics Institute), PISA Study 2003; "Benchmarking Access and Use of ICT in European Schools 2006," i2010 and Lisbon Strategy, European Commission, and "Program for International Student Assessment," OECD PISA.

Note: The Chilean data cover only State-subsidized schools.

CHART 16
DISTRIBUTION OF PCS IN PUBLIC AND PRIVATE
SCHOOLS IN CHILE, 2005



Source: OSILAC with data from Red Enlaces (online at www.enlaces.cl).

Note: The Chilean data cover only State-subsidized schools.

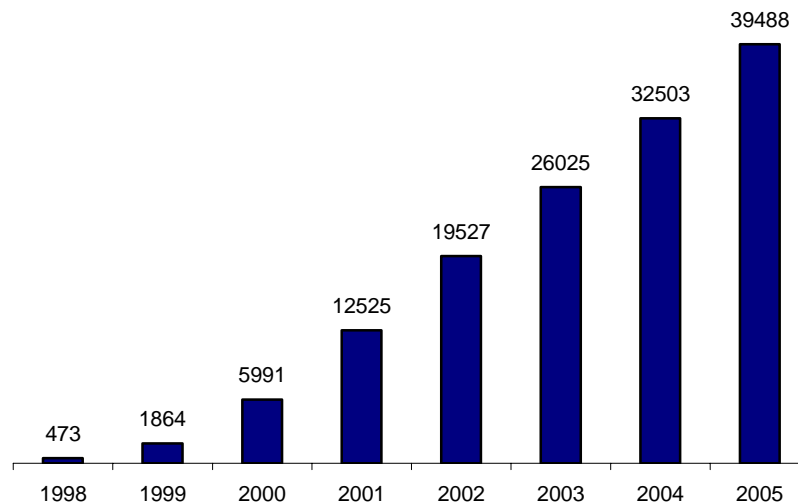
Goal 3: Online schools and libraries

Efforts to train teachers in ICT use

- Goal 3 of eLAC2007 also includes training at least one third of teachers in the use of ICTs.
- There is a variety of such training programs in the region for teachers, as well as for administrators and others in the education sector. In Brazil in 2002, the ProInfo project trained over 124,000 individuals, including teachers, administrators and technical personnel. In Costa Rica in 2005, the Ministry of Public Education's National Educational Information Technology Program (Programa Nacional de Informática Educativa, or MEP-FOD) and the Omar Dengo Foundation provided training for 957 teachers and 68 counselors. In Mexico, online courses in the Red Escolar program trained over 39,000 teachers. In Chile in 2005, 83% of teachers had been trained through the RedEnlaces program, far surpassing the eLAC2007 goal.
- Only certain teachers have ICT access at home (see Chart 18), thus highlighting the need to provide them complementary access at their places of work.
- In the region's educational system in 2003, administrative personnel made greater use of computers than did teachers (see Chart 19). In Brazil, nearly one third of computers are used to improve administrative efficiency, which, while not unimportant, affects only indirectly the integration of the educational process in the information society.

Challenge: Increase efforts to train teachers in the use of ICTs. Ensure that ICT use in curricula is not dependent on the purchasing power and personal interest of the teachers.

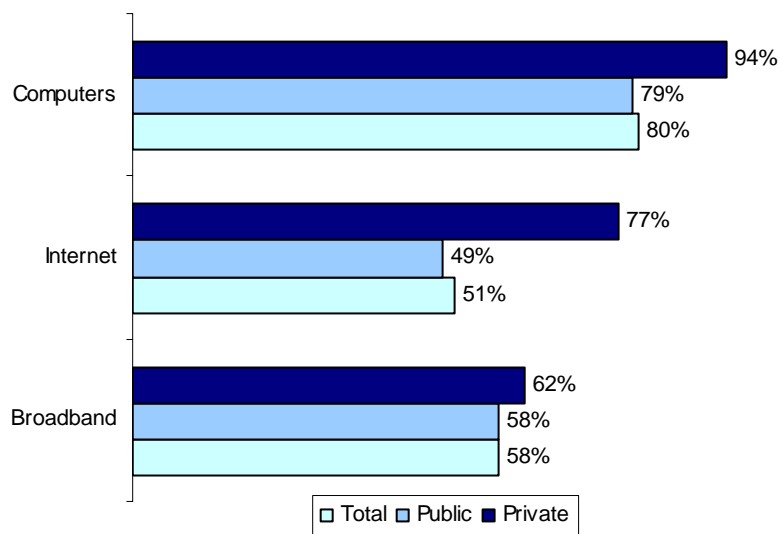
CHART 17
NUMBER OF TEACHERS TRAINED THROUGH ONLINE COURSES BY
THE RED ESCOLAR IN MEXICO, 1998-2005



Source: OSILAC with data from "Las Tecnologías de la Información y la Comunicación (TIC) en la Educación en América Latina. Una exploración de indicadores," Guillermo Sunkel, ECLAC, December 2006, (available on the official site at <http://www.cepal.org/socinfo/noticias/documentosdetrabajo/9/27849/Serie126final.pdf>).

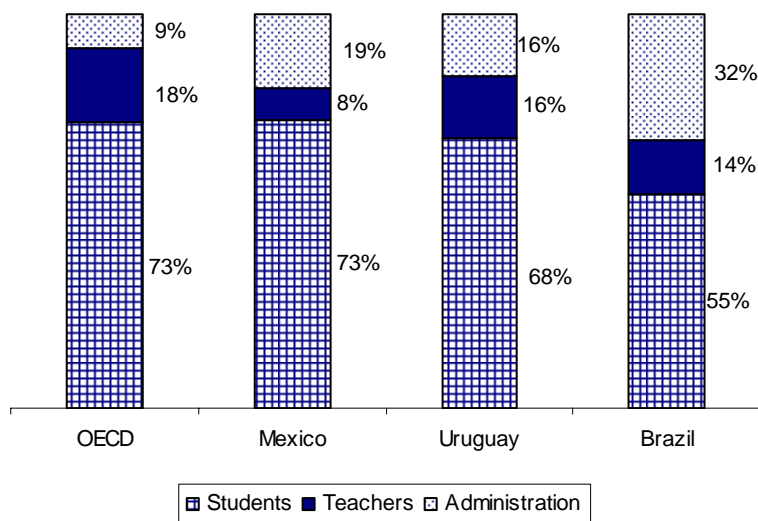
Goal 3: Online schools and libraries

CHART 18
PUBLIC AND PRIVATE SCHOOL TEACHERS' HOME ICT ACCESS IN CHILE, 2005



Source: OSILAC with data from Red Enlaces (online at www.enlaces.cl).
Note: The Chilean data cover only State-subsidized schools.

CHART 19
DISTRIBUTION OF COMPUTERS IN EDUCATION SECTOR ACCORDING TO TYPE OF USER, 2003



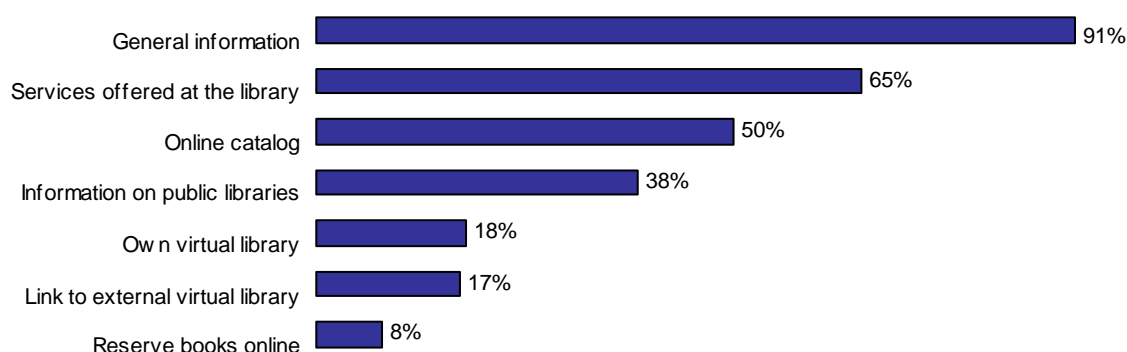
Source: OSILAC with data from "Program for International Student Assessment," OECD PISA, Database 2003 (online at <http://www.pisa.oecd.org>).

Goal 3: Online schools and libraries

Library connectivity, a tool for community access

- Though there are no data on Internet connectivity in the region's public libraries, the sophistication of libraries' online presence can be studied by examining the content of their websites.
 - There is an encouraging online presence among national libraries, with 81% having their own website, while access to the remaining 19% is possible through other governmental institutions, such as ministries of culture.
 - 91% of the libraries' websites offer general information, such as location, contact information, and institutional history and objectives. 65% offer information on the services they provide to the public, and 38% offer information on services provided by other libraries in the country.
 - In terms of online applications, 50% of the libraries have searchable online catalogs, and 18% have their own virtual library, while only 8% make it possible to reserve books online.
- Challenge:** Expand the websites of public libraries in order to take advantage of their Internet presence, and digitize the cultural patrimony stored in these institutions to make it available electronically. Increase the usefulness of Internet-connected public libraries, making them public access points for ICT use.

CHART 20
CONTENT OF NATIONAL LIBRARY WEBSITES IN
LATIN AMERICA AND THE CARIBBEAN, 2006
(n=21 countries)



Source: OSILAC with information from the National Library of Argentina's official site (www.bibnal.edu.ar); National Library of Aruba's official site (www.bibliotecanacional.aw); National Library of Bolivia's official site (www.archivoybibliotecanacionales.org.bo); the official website of Brazil's National Library Foundation (www.bn.br); Chilean National Library's official site (www.dibam.cl/biblioteca_nacional); Colombian National Library's official site (www.bibliotecanacional.gov.co); Miguel Obregón Lizano National Library's official site (www.abinia.org/costarica); José Martí National Library's official site (www.bnjm.cu); Eugenio Espejo National Library's official site (www.cce.org.ec/index.php?id=49&id_sub=85&action=mi); Salvadoran National Library's official site (www.binaes.gob.sv); Luis Cardoza y Aragón Guatemalan National Library's official site (www.mcd.gob.gt/MICUDE/centros_referencia/biblioteca_nacional); National Library of Jamaica's official site (www.nlj.org.jm); Mexican National Library's official site (bibliobiblog.unam.mx); Rubén Darío National Library's official site (<http://www.abinia.org/nicaragua/>); Panamanian National Library's official site (www.binal.ac.pa); Peruvian National Library's official site (www.bnp.gob.pe); Puerto Rican National Library's official site (www.icp.gobierno.pr/bge/index.htm); the official website of the Dominican Republic's National Library (www.bnrd.gov.do); the official website of the National Library and Information System Authority of Trinidad & Tobago (library2.nalis.gov.tt); Uruguayan National Library's official site (www.bibna.gub.uy); Venezuelan National Library's official site (www.bnv.bib.ve).

Notes:

- ¹ European Commission, "Benchmarking Access and Use of ICT in European Schools 2006, i2010 and Lisbon Strategy.
- ² ECLAC, Information Society Program, Results of the 2nd round of the Policy Delphi on ITC for the year 2010, <http://www.cepal.org/socinfo/noticias/paginas/2/27002/Ranking%20según%20área%20de%20impacto.pdf>, <http://www.cepal.org/cgi-bin/getprod.asp?xml=/socinfo/noticias/paginas/2/27002/P27002.xml&xsl=/socinfo/tpl/p18f.xsl&base=/socinfo/tpl/top-bottom.xsl>.
- ³ See Goal 26.

Goal 4: Online health centers

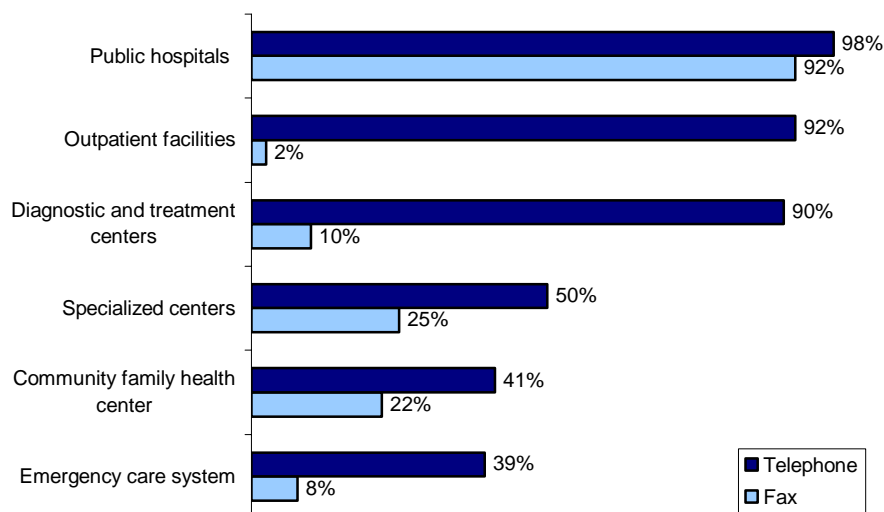
The health center connectivity gap

- The region's health sector has incorporated ICTs slowly compared with the pace at which the technologies have been adopted in sectors such as education and public administration.
- This is reflected in the lack of statistical information on ICT access and use in the sector. Connectivity in healthcare establishments has not been incorporated as an indicator in statistics for the sector, thus making it difficult to monitor. However, online directories of public health establishments provided by health ministries show that 98% of Chile's public hospitals and 92% of outpatient clinics have telephone numbers (see Chart 21).
- In Cuba, 94% of multi-specialty health care facilities and 89% of regular health care facilities can be contacted by phone, while only 18% and 8%, respectively, have email (see Chart 22). Surprisingly, contact via email and

websites has not been promoted in Chile. As to the online presence of hospitals and the existence or absence of email, Chart 23 shows that 45% of Chilean public hospitals have email and 43% have websites, while in Cuba the corresponding figures are 16% and 1%, respectively. In both countries, Internet presence takes the form of dedicated sites as well as usage of third-party sites, with the latter predominating in Chile.

Challenge: Begin the catching-up process for the sector, so as to bring it into the digital age. This includes raising the awareness of the sector's decision makers regarding the benefits of these technologies in the context of providing healthcare, administrative processes and processing of patient information, etc. It is also important to design and implement policy for the sector's development that takes account of ICT applications in the area of healthcare services.

CHART 21
AVAILABILITY OF TELEPHONE AND FAX IN CHILEAN HEALTHCARE FACILITIES, ACCORDING TO TYPE, SEPTEMBER 2006
(Percentage of total)

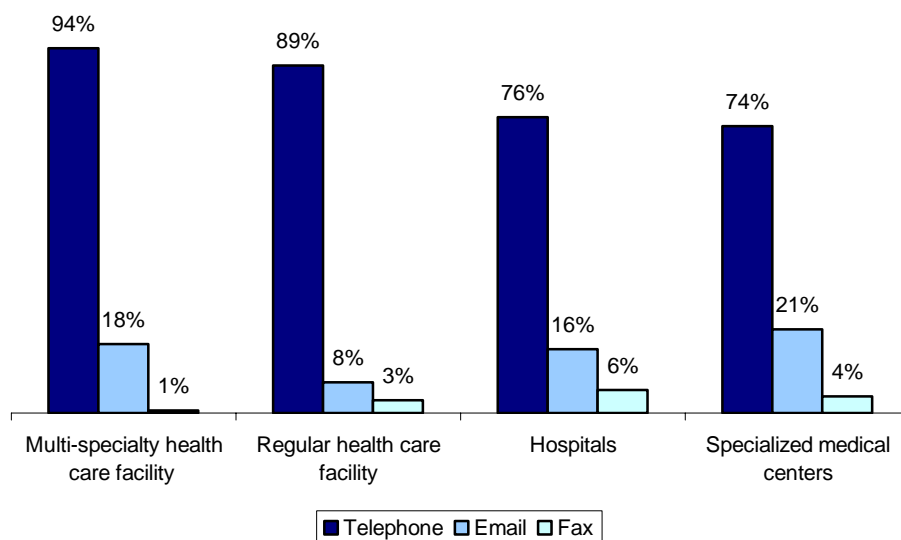


Source: OSILAC with data from the directory of healthcare establishments provided by the Chilean Health Ministry's National Health Services System (online at <http://respaldeis.minsal.gov.cl/mapas/>).

Note: Outpatient clinic n=485; Community family health center n=68; Emergency care system n=142; Diagnostic and treatment center n=10; Specialized center n=4; Hospital n=185.

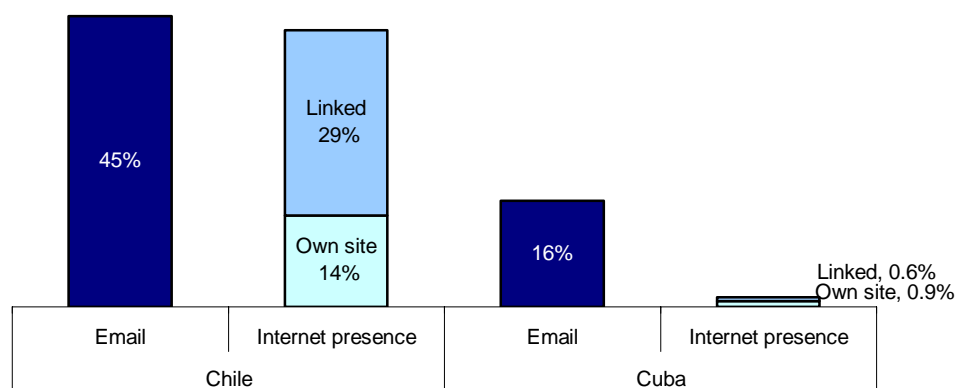
Goal 4: Online health centers

CHART 22
AVAILABILITY OF TELEPHONE, FAX AND EMAIL IN CUBA'S HEALTHCARE FACILITIES, JANUARY 2007
(Percentage of total)



Source: OSILAC with data from directories provided by Infomed (Red Telemática de Salud en Cuba) (online at www.sld.cu/servicios/directorios) and from the Biblioteca Virtual de Salud de Cuba (online at <http://bvs.sld.cu/>).
 Note: Multi-specialty health care facility n=487; Regular health care facility n=241; Hospital n=335; Specialized medical center n=140.

CHART 23
HOSPITALS WITH EMAIL AND INTERNET PRESENCE, ACCORDING TO TYPE OF SITE, IN CHILE AND CUBA
(Percentage of total)



Source: OSILAC with data from Chile: directory of healthcare establishments provided by the Health Ministry's National Health Services System (online at <http://respaldeis.minsal.gov.cl/mapas/>); Cuba: directories provided by Infomed (Red Telemática de Salud en Cuba) (online at www.sld.cu/servicios/directorios) and from the Biblioteca Virtual de Salud de Cuba (online at <http://bvs.sld.cu/>); site search at www.google.com.
 Note: (1) An institution is considered linked when there is a link to a website managed by a third party. (2) A website is considered to be the institution's own site when it belongs to the institution itself. (3) Total hospitals: Chile: n= 185, as of September 2006. Cuba: n=335, as of January 2007.

Goal 5: Jobs

ICTs as work opportunities generators

- The active population in Latin America and the Caribbean has a high rate of participation in the service sector, where 64% of workers were concentrated by the late 1990s (see Chart 24). In many of the region's countries, some 60% of the workforce in urban areas is employed in commerce and services, with this rate rising to 65% if financial services are included (see Chart 25).
 - ICTs are an effective, tangible tool for optimizing the process of providing services; thus, accessing them is fundamental for workers. The mobility of cellular telephones has meant new work opportunities for street vendors and own-account workers, who are able to maintain constant contact with clients. The benefits of broadband connectivity in the region may be even greater, but they are limited by the low penetration of more advanced ICTs.
 - Access must be supplemented by training in the use of ICTs, and by building skills for new work modalities, such as remote work. Skills must be updated as employers' needs change, in order to provide the capabilities required to fill job vacancies.
- Challenge:** Conduct studies on the opportunities that ICTs offer for job creation in the region, especially in the service sector, and include a review of the work skills needed.

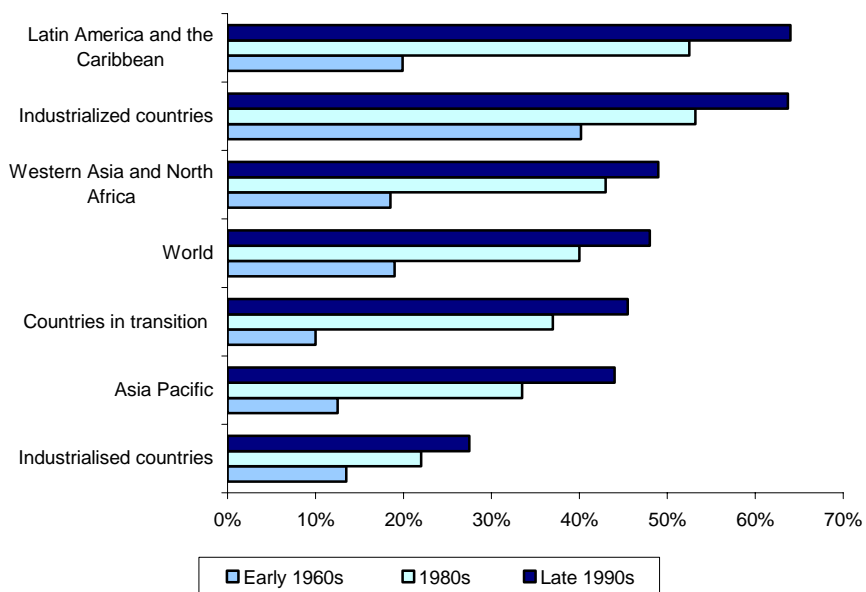
TABLE 3
HORIZONTAL SKILLS NEEDED FOR TELEWORK

1. Organization of long-distance e-work
2. Long-distance human-resource management
3. Long-distance management
4. Effective long-distance communication
5. Effective use of ICTs for e-work

Source: ECLAC, Sonia Boiarov, "Report on Legislation and Regulations Relating to Telework in Latin America and the Caribbean," for the working group on Goal 5 of eLAC2007, December 2006.

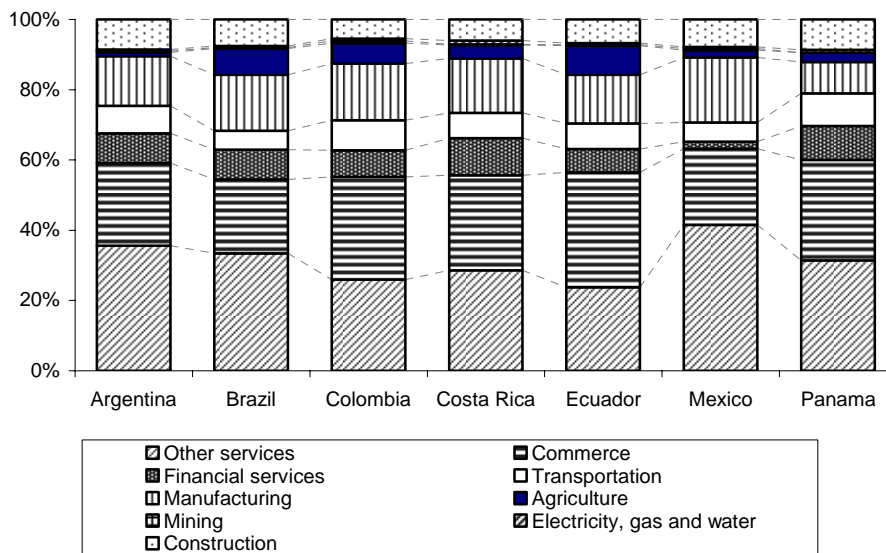
Goal 5: Work

CHART 24
PROPORTION OF EMPLOYEES WORKING IN SERVICE SECTOR
ACCORDING TO REGION OF THE WORLD, 1960 - 1990



Source: International Labour Organization, Statistical Yearbook, various years.

CHART 25
DISTRIBUTION OF THE EMPLOYED URBAN POPULATION BY SECTOR OF ECONOMIC ACTIVITY, 2005



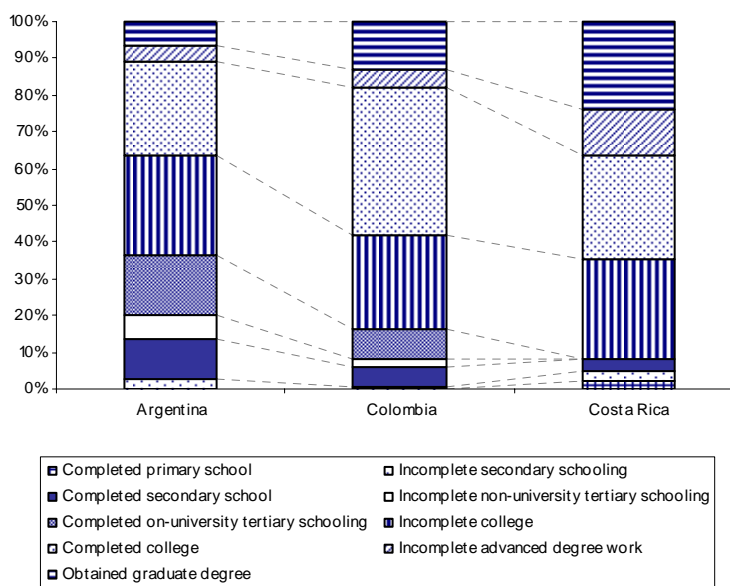
Source: ECLAC: Statistics and Economic Projections Division. Social Statistics Unit, based on special tabulations of data from national household surveys.

Goal 5: Work

Telework: an opportunity for job creation

- The work group for this goal coordinated and supported the creation of a “Report on Legislation and Regulations Relating to Telework in Latin America and the Caribbean,” which examines telework, its development and characteristics, and its impact on the region’s regulations and standards.
- Because telework is an incipient phenomenon in the region’s countries, official data on the number of teleworkers are not available. However, data regarding home offices show an increase of 150% in Argentina between 2004 and 2006, and the region was estimated to have had over 17 million teleworkers as of 2005.¹
- In 2006, in Argentina, Colombia and Costa Rica, 90% of teleworkers had education beyond the secondary level, and 70% were university graduates or holders of advanced degrees. This may indicate that there is a certain barrier to telework for those with only a primary education, but it also suggests a great potential for expansion in this type of work for population segments seeking work. This potential is confirmed by the fact that telework takes place in the service sector, and that Latin America’s employed population is concentrated in this sector.

CHART 26
DISTRIBUTION OF TELEWORKERS IN ARGENTINA, COLOMBIA AND COSTA RICA, ACCORDING TO HIGHEST LEVEL OF SCHOOLING ATTAINED, NOVEMBER 2006



Source: ECLAC, Sonia Boiarov, “Report on Legislation and Regulations Relating to Telework in Latin America and the Caribbean,” for the working group on eLAC2007 goal 5, December 2006, based on the Etis-lac Research, Export of teleservices for the social and labour inclusion of Latin America and the Caribbean, www.etis-lac.org.ar.

Note: Data are provisional, and refer to teleworkers currently working. Argentina n=816, Colombia n=577 and Costa Rica n=66.

Goal 5: Work

The need for regulatory reform to cover telework

- In Latin America, the countries that show the greatest progress in regulations regarding telework conducted under a dependent employment relationship are Argentina, Chile, Colombia and Ecuador. Table 4 summarizes the regulations in these countries.
 - Though Chile pioneered the concept of telework in the reform of the Labour Code (Law 19.759) in 2001, it does not have specific provisions for this type of work. The other countries go beyond modifying existing regimes to establish specific legal regimes, though these are still in the draft stage.
 - The common basis on which these countries are changing regulations to include telework involves conceiving of telework as an engine for job creation, since it creates more flexibility in labour arrangements and provides new opportunities to different population segments, including women and disabled people.
 - The conditions governing employment include the same rights as those accorded to traditional employees, and hours worked must be comparable to those of workers doing similar work in-house. The workload limitation is absent from Chile's regulations. The ICT equipment is provided by the firm, while structuring of the work schedule is the responsibility of the teleworker. Unlike Europe, our countries do not make explicit reference to professional training and career development possibilities.
 - The firms that use this type of work most are associated with the financial sector, commercial activity and telecommunications. The objective of most of the firms is to provide customer service on a 24-hour basis, but other reasons include optimization of business processes, results-based management and more flexible work arrangements with lower labour costs.
- Challenge:** Promote the incorporation of telework in the labour market, conducting studies and creating indicators that provide a picture of this type of work in the region, taking account of the characteristics of jobs that are capable of being performed in this way and the skills needed to perform them. Change the sector's regulations to cover telework, and establish rights and obligations governing the practice.

Goal 5: Work

TABLE 4
REGULATIONS REGARDING LABOUR RELATIONS OF TELEWORKERS IN A DEPENDENT EMPLOYMENT RELATIONSHIP, DECEMBER 2006

Regulation	Europe	Argentina	Ecuador
	European Framework Agreement	Legal Regime for Telework on an Employee Basis	Labour Code, Chapter V, Paragraph 4
Year	2002	2004	2006
Definition	<p>Telework: form of structuring work and/or working that uses ICTs within the framework of a contract or work relationship in which a job that could be done in-house is done outside on a regular basis.</p> <p>Teleworker: person performing telework according to the above definition.</p>	<p>Telework: action, performance of tasks or provision of services, where the object of the contract is totally or partially carried out in the worker's home or places other than the employer's establishment, by use of various types of ICTs.</p> <p>Teleworker: any person performing telework under the above definition.</p>	<p>Telework: form of structuring work and/or working at a distance on a regular basis, outside the firm's premises, by using computer, telecommunications or similar means.</p> <p>Teleworker: any person performing telework.</p>
Conditions of employment	The same rights as comparable workers working on premises of firm. Specific supplementary individual or collective agreements may be necessary.	The same rights as employees. However, the working conditions for such workers must be established through collective bargaining agreements.	The same rights as comparable workers working on premises of firm. Specific supplementary individual or collective agreements may be necessary.
Structuring of work schedule	<p>1- The teleworker shall manage the work schedule. The workload is to be comparable to that of on-premises workers.</p> <p>2- Measures shall be taken to prevent isolation.</p>	Particular situations are to be negotiated through collective agreements.	<p>1- The teleworker shall manage the work schedule. The workload is to be comparable to that of on-premises workers.</p> <p>2- The employer shall take measures to prevent isolation.</p>
ICT equipment	Before telework commences, the issues of equipment, responsibility and cost must be clarified. The employer is responsible for costs, as well as for providing and maintaining the equipment.	Employers must provide the worker the equipment needed and pay for its maintenance. If the teleworker provides equipment, the employer must compensate the worker for all costs. If the equipment belongs to the employer, the teleworker is responsible for its use and maintenance.	The employer is responsible for providing, installing, maintaining and covering the cost of equipment needed for the regularly performed telework, unless the teleworker uses his/her own equipment.
Training	Right to the same access to training and opportunities for professional development as comparable on-premises workers of the firm enjoy, and governed by the same evaluation policies.		
Collective rights	The same collective rights as the rest of the firm's workers. Telework is not an obstacle to communicating with workers' representatives.		Teleworkers have the same collective rights as the rest of the firm's workers.

Source: ECLAC, Sonia Boiarov, "Report on Legislation and Regulations Relating to Telework in Latin America and the Caribbean," for the Working Group on eLAC2007 Goal 5, December 2006.

Note:

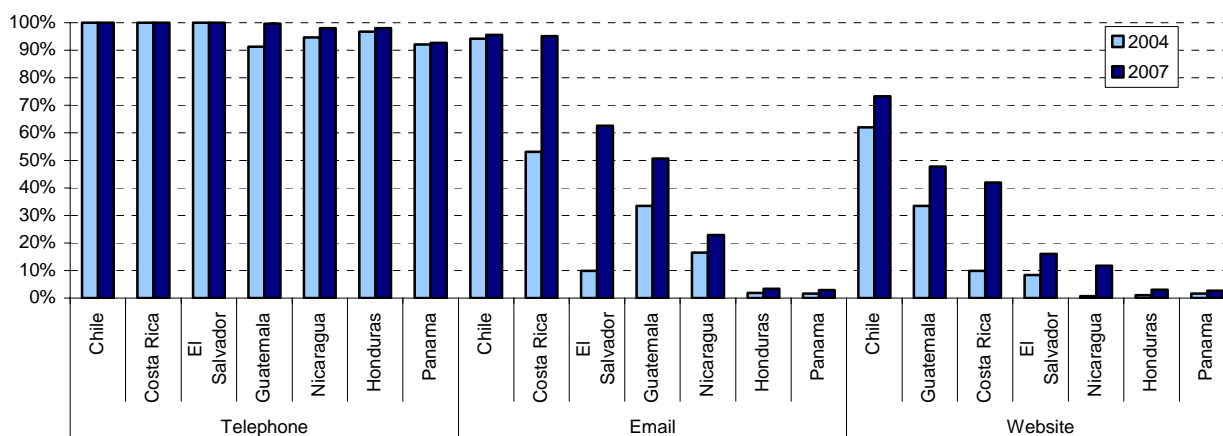
- ¹ ECLAC, Sonia Boiarov, "Report on Legislation and Regulations Relating to Telework in Latin America and the Caribbean," for the working group on Goal 5 of eLAC2007, December 2006, based on the Etis-lac Research, Export of teleservices for the social and labor inclusion of Latin America and the Caribbean, www.etis-lac.org.ar

Goal 6: Local government

Internet access in municipal government: a challenge to overcome

- The connectivity of local governments facilitates links with central governments and enhances citizen services.
 - eLAC2007 Goal 6 is designed to connect at least half of local urban governments and one third of rural municipalities to the Internet.
 - Telephone connections are nearly—or are rapidly becoming—universal among the region’s municipal governments. The situation is quite different for the Internet, though a large number of countries have succeeded in meeting the eLAC2007 goal during its three years of implementation. These countries include El Salvador and Guatemala, which have significantly expanded email coverage for their municipal governments between 2004 and 2007, exceeding the 50% benchmark (see Chart 28).
 - Fewer local governments have websites—the natural next step toward electronic local government. Presently, less than 15% of municipalities in El Salvador, Nicaragua, Honduras and Panama have an online presence, despite notable growth between 2004 and 2007.
 - The type of Internet connection that municipalities have is also an important issue, since this determines what services and online applications can be offered. In Chile, 47% of municipalities have dedicated Internet access lines, and 25% have ADSL broadband,¹ which helps in maintaining a constant online presence. Information is not available as to connection types in other countries, but it is estimated that in most cases broadband is not in place.
- Challenge:** Continue to promote greater connectivity and ICT use in municipal government, as well as broadband access.

CHART 27
AVAILABILITY OF TELEPHONE, EMAIL, AND WEBSITES AMONG MUNICIPAL GOVERNMENTS IN SELECTED COUNTRIES, APRIL 2007



Source: OSILAC, based on information published on websites of the countries’ institutions.²
 Note: Number of municipalities: Costa Rica: 81; El Salvador: 262; Guatemala: 331; Honduras: 297; Nicaragua: 153; Panama: 75.

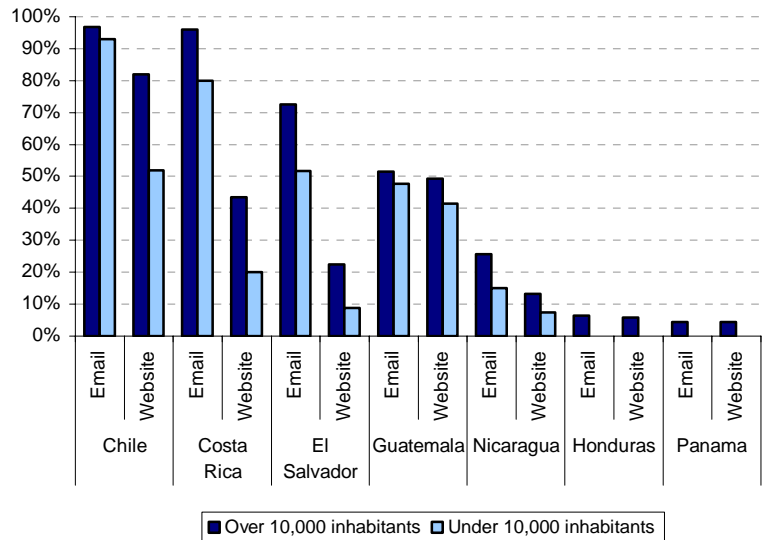
Goal 6: Local government

Internet access: the gap among small municipalities

- Though the gap in telephone access for local governments between higher- and lower-density population areas has been overcome, there remain differences in Internet connectivity. Even in Chile and Costa Rica, which (of those selected) are the countries where local government connectivity is greatest, governments representing lower-population municipalities have significantly fewer websites and email access for their personnel.
- There is no single strategy for Internet presence among local governments. Some countries opt for a centralized model (Chile and Colombia), where all municipal government sites follow the same model. In other countries, there are initiatives by the private sector, civil society and NGOs to develop online presences for municipal governments by linking them to websites of other organizations. In such cases, local government websites are hosted on third-party sites (see Chart 29)

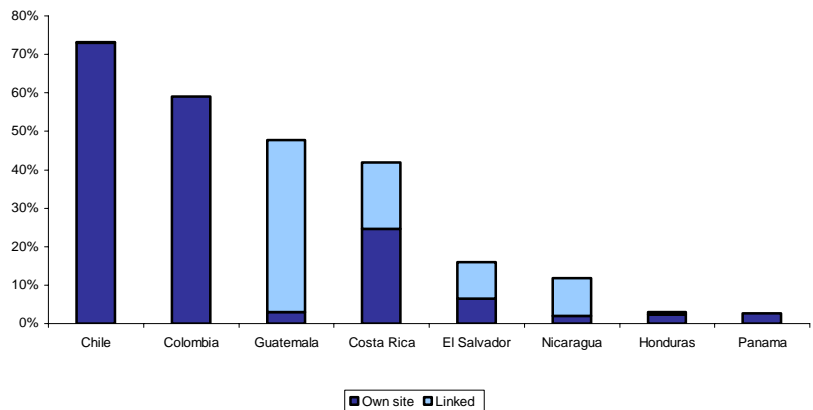
Challenge: Ensure that, with the rapid expansion of connectivity in local government, consideration is given to factors that provide for more even progress among different municipalities.

CHART 28
AVAILABILITY OF EMAIL AND WEBSITES AMONG LOCAL GOVERNMENTS IN SELECTED COUNTRIES, ACCORDING TO THE POPULATION OF THE JURISDICTION, APRIL 2007



Source: OSILAC, with information published on websites of countries' institutions.
 Note: Number of municipalities: Costa Rica: 81; El Salvador: 262; Guatemala: 331; Honduras: 297; Nicaragua: 153; Panama: 75.

CHART 29
PERCENTAGE OF MUNICIPALITIES ACCORDING TO TYPE OF WEBSITE, APRIL 2007



Source: OSILAC, with information published on websites of countries' institutions.
 Note: (1) "Linked" refers to a situation where the institution functions through a link to a website managed by a third party. (2) "Own site" refers to situations where institutions have their own websites. (3) Number of municipalities: Costa Rica: 81; El Salvador: 262; Guatemala: 331; Honduras: 297; Nicaragua: 153; Panama: 75.

Goal 6: Local government

Local government websites: an emerging presence

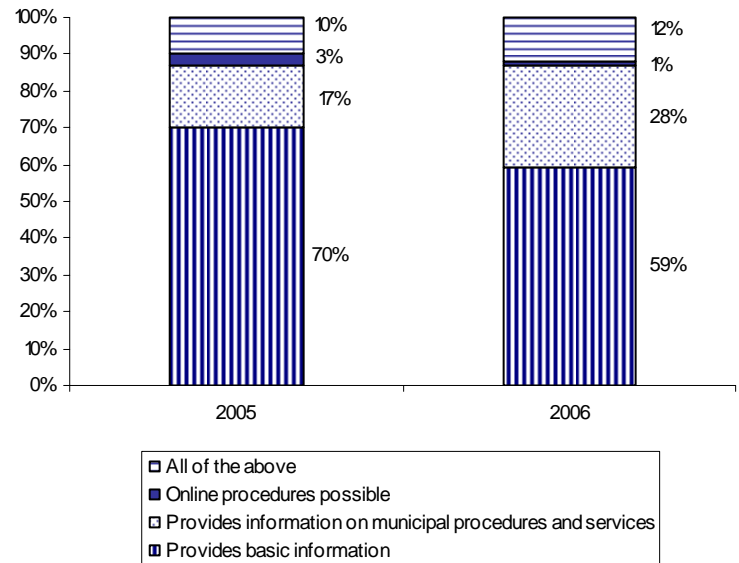
- The case of Chile, with a very low presence of online services, illustrates the incipient functionality of local government websites. 13% of sites make it possible to carry out procedures online; over 50% do no more than provide information on the municipality.
- Trends indicate that once a government has an online presence with basic information, expanded information on procedures and services tends to be added, ultimately resulting in online services.

Challenge: Move from the phase of expanding connectivity to the existence of interactive content and local e-government services. Take advantage of national government applications that have been implemented, in order to exploit economies of scale, as a first step in generating local content. For municipalities with more advanced websites, address the needs of the population as a whole, considering the particularities of the place and the languages spoken by members of indigenous populations.

Notes:

- ¹ Information from the National System of Municipal Indicators (Información del Sistema Nacional de Indicadores Municipales, or SINIM), official site at www.sinim.cl
- ² Federation of Municipalities of the Central American Isthmus (Federación de Municipios del Istmo Centroamericano, or FEMICA), official site at www.femica.org; El Salvador: El Salvador Municipalities Corporation (Corporación de Municipalidades de la República de El Salvador, or COMURES), official site at www.comures.org.sv, General Directorate of Statistics and Census (Dirección General de Estadística y Censos, or DIGESTYC), official site at www.digestyc.gob.sv; Nicaragua: Association of Municipalities of Nicaragua (Asociación de Municipios de Nicaragua, or AMUNIC), official site at www.amunic.org, Nicaraguan Institute of Municipal Development (Instituto Nicaragüense de Fomento Municipal, or INIFOM), official site at www.inifom.gob.ni, National Institute of Development Information (Instituto Nacional de Información de Desarrollo, or INIDE), official site at www.inec.gob.ni; Costa Rica: Institute of Municipal Development and Assistance (Instituto de Fomento y Asesoría Municipal), official site at www.ifam.go.cr, National Institute of Statistics and Census (Instituto Nacional de Estadística y Censos, or INEC), official site at www.inec.go.cr; Chile: National System of Municipal Indicators (Sistema Nacional de Indicadores Municipales, or SINIM), official site at www.sinim.cl; Panama: Directorate of Statistics and Census (Dirección de Estadística y Censo, or DEC), official site at www.contraloria.gob.pa/dec/; Guatemala: National Institute of Statistics (Instituto Nacional de Estadística, or INE), official site at www.ine.gob.gt; and Google searches of websites of municipalities.

CHART 30
DISTRIBUTION OF LOCAL GOVERNMENT WEBSITES IN CHILE ACCORDING TO THEIR FUNCTIONALITY
 (2005 n=212, 2006 n=252)



Source: OSILAC, with information from the National System of Municipal Indicators (Sistema Nacional de Indicadores Municipales, or SINIM), official website at www.sinim.cl.

Goal 7: Alternative technologies

Mobile telephony: a communications solution for rural areas

- Alternative technologies for access to the information society, such as mobile telephony, digital TV, WiMAX and VoIP, have advantages as well as lower costs, providing greater geographic coverage, higher transmission speed and the greater functionality associated with convergence of services. This represents an opportunity for providing widespread access (see Chart 31).
 - The region is beginning to overcome the urban-rural gap in voice communication thanks to mobile telephony, which has reached penetration levels in rural households far beyond those attained by fixed lines.
 - As Chart 32 indicates, the penetration of mobile telephony in Bolivia and Paraguay in 2005—35% for rural households—was ten times greater than fixed telephony penetration for that population. The rapid expansion of mobile telephony is due to the fact that it involves lower infrastructure costs than is the case for landlines, thus providing a solution for connectivity in rural and isolated areas.
- Challenge:** Consider models that provide incentives for extending wireless networks in outlying and rural areas, in order to provide widespread access to voice- and data-transmission services.

CHART 31
ACCESS TO ICTS IN URBAN AND RURAL HOUSEHOLDS

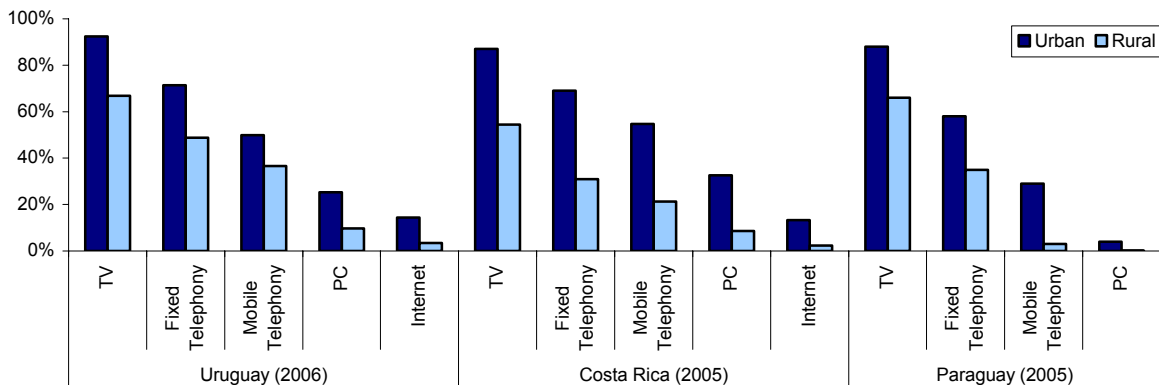
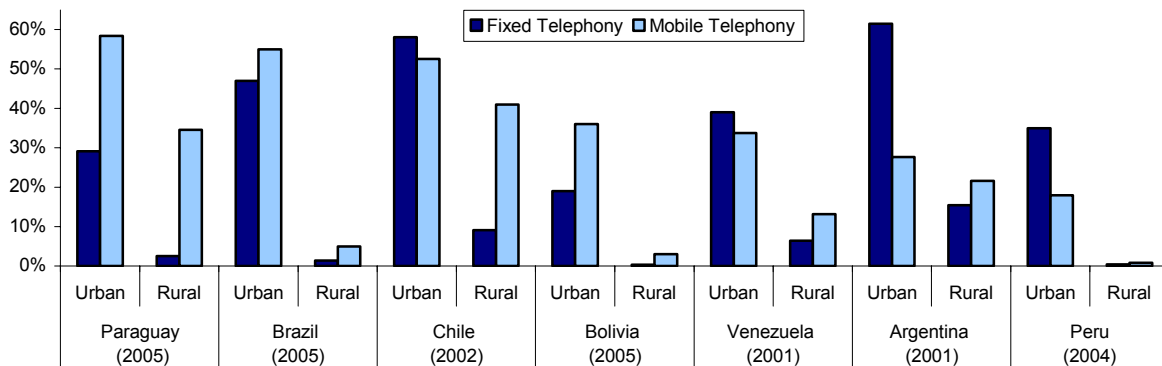


CHART 32
FIXED AND MOBILE TELEPHONY PENETRATION IN URBAN AND RURAL AREAS



Source: OSILAC, based on national statistics agencies' household surveys.

Goal 7: Alternative technologies

WIMAX as an alternative for broadband access

- The increasing importance of the Internet and its applications creates needs for broadband connectivity. Current access is primarily via ADSL over telephone lines, and through cable modems linked to cable television connections. However, as has been seen with previous goals, these technologies have low penetration in the region.
- WIMAX is a wireless data-transmission standard that covers up to a 48-kilometre radius, and allows access at speeds up to 70 Mbps. In theory, 70 antennas would be sufficient to cover the complete territory of a country the size of El Salvador. Its application in mobile networks is expected to provide up to 15 Mbps of capacity within a 3-kilometre cell radius. WIMAX could be a solution for broadband access in isolated areas or areas with lower population density, at costs lower than conventional technologies. As shown in Table 5, the region's countries have been adopting this technology since 2005.
- There are other technologies of varying functionalities. Some provide mobility, some greater coverage, some lower costs, others more speed. Thus, they are complementary solutions for addressing different problems in access and connectivity (see Chart 33).

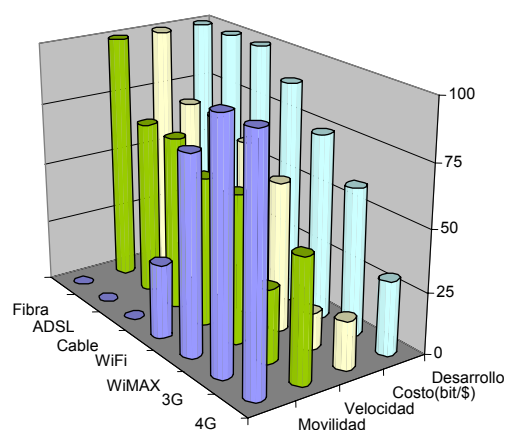
Challenge: Assess different technologies that provide solutions to each type of access need, and make corresponding changes in regulations.

TABLE 5
FIRMS THAT PROVIDE WIMAX SERVICE IN LATIN AMERICAN COUNTRIES, MARCH 2007

Country	Firm	Year Launched
Argentina	Ertach (owned by Telmex)	2005
	Velocom (owned by Nextel)	2005
Chile	Telmex	2007
	Entel	2006
Colombia	Orbitel	2006
	Telebucaramanga	2005
Costa Rica	RACSA	2006
El Salvador	Telecom	2007
Paraguay	Telecel (TIGO brand)	2005
Peru	Emax	2005
	Telmex Perú	2006
Venezuela	Omnivisión	2005

Source: OSILAC, with information published by Latinwimax (official website at www.latinwimax.com); TELECO, Información de Telecomunicaciones (official website at www.teleco.com.br); and firms (official websites at www.ertach.com, <http://wimax.velocom.com.ar>, www.telmex.com/cl, www.entelinternet.cl, www.orbitel.com.co, www.telebucaramanga.com.co, www.racsa.co.cr, www.telecom.com.sv, www.tigo.com.py, www.emax.com.pe, www.x-flora.com.pe, and www.movilmax.net).

CHART 33
COMPARISON OF CHARACTERISTICS OF NEW GENERATION NETWORKS



Source: "WiMAX en América Latina y El Caribe: Una Alternativa para la Brecha de Acceso Aspectos Tecnológicos, de Mercado y Regulatorios," Chistián Nicolai, ECLAC, 2006.

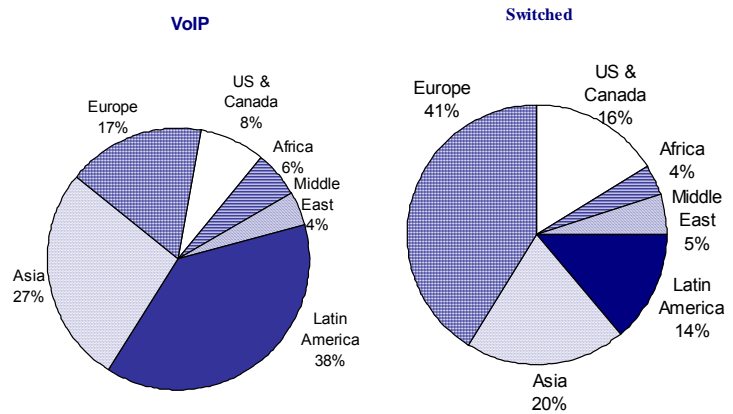
Goal 7: Alternative technologies

Greater communication based on VoIP

- Voice over Internet Protocol (VoIP) makes it possible for a voice signal to be transmitted over the Internet using IP protocol, converting the voice signal to digital data packet signals. This service reduces the cost of a telephone call to the cost of Internet access, which is generally less than conventional switched telephone service. A number of providers offer VoIP calling to conventional telephone networks at lower cost, charging the IP user for the service.
- The distribution of incoming traffic by world region, according to the technology used, surprisingly shows an estimated 38% of IP traffic ending in Latin America and the Caribbean, contrasting with the region's use of traditional switched telephony, in which the region represents merely 14% (see Chart 34).
- Though this technology is attractive for users, many of the region's countries, unlike the OECD countries (see Chart 35), do not yet authorize or regulate this type of calling. This is due to the conflict between the operators who invested in creating the networks and have the rights to process this type of traffic, and the new VoIP service providers.

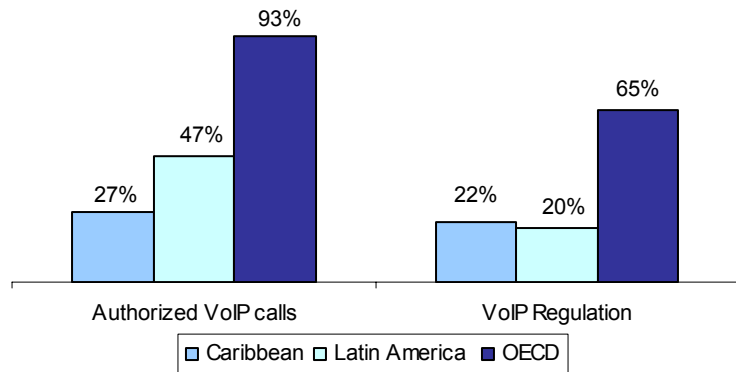
Challenge: Seek ways of adapting the region's regulatory frameworks to the new environment of convergence in technologies and services, in order to benefit users and without harming operators.

CHART 34
INTERNATIONAL SWITCHED AND VOIP TRAFFIC BY REGION OF DESTINATION, 2004



Source: Telegeography Research 2006 (official website at www.telegeography.com). Note: The charts show the total percentage of switched and VoIP incoming traffic by region. The voice over IP (VoIP) traffic includes all international calls to switched telephone networks that are transmitted via IP networks, excluding PC-to-PC calls.

CHART 35
PERCENTAGE OF COUNTRIES, BY REGION, THAT AUTHORIZE VOIP, AND PERCENTAGE OF COUNTRIES, BY REGION, THAT REGULATE VOIP, 2004



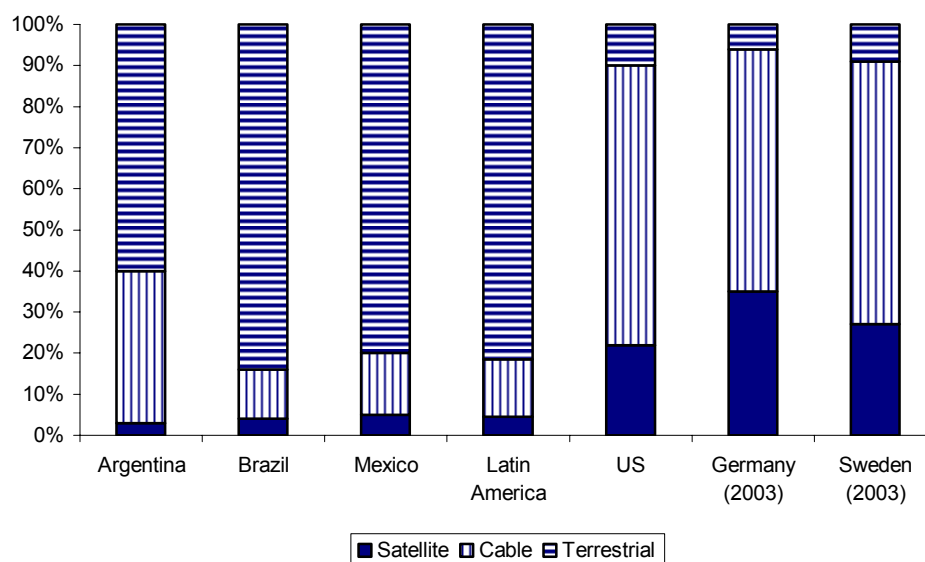
Source: OSILAC, based on ITU data from the Regulatory Knowledge Center (official website at <http://www.itu.int/ITU-D/icteye/Default.aspx>). Note: In the case of authorized VoIP calls, the data cover 15 Caribbean countries, 17 Latin American countries and 289 OECD countries. For VoIP regulation, the data refer to 9 Caribbean countries, 10 Latin American countries and 20 OECD countries.

Goal 7: Alternative technologies

Digital TV as a tool for digital inclusion

- Digital terrestrial television (DTT) reception provides optimal audio and video quality, as well as allowing for interactivity between the consumer and the content provider via interactive applications. In the US, Canada and Europe, unlike the region, more TV signals are received by cable or satellite. Thus, DTT has great potential to promote digital inclusion.
 - The region's countries show a gap, and confusion, in terms of the definition of the technological DTT standard. While the vast majority of the world's countries have adopted the DVB-T standard (over 55 countries as of 2007),¹ the three region's countries that, to date, have adopted standards chose ATSC and a variant of ISDB-T (see Table 6). This diversity in the adoption of standards hinders decision making for the remaining countries.
 - Over 30 countries worldwide have begun transmitting using this technology over the last several years: the US and the UK in 1998, Spain in 2000, Austria, Finland, Germany, Italy and Holland between 2001 and 2003 and France in 2005.
- Challenge:** Promote technical and regulatory reforms necessary for implementation of DTT so as to facilitate social inclusion and exchange of content, taking account of the need for coordination of regional standards.

CHART 36
DISTRIBUTION OF HOUSEHOLDS ACCORDING TO TYPE OF TELEVISION RECEPTION, 2005



Source: OSILAC, with data from "Digiworld 2007, Fundación Telefónica and IDATE, and ECLAC, "TV Digital Terrestre y Convergencia en América Latina," CPQD for working group on eLAC2007 Goal 7, 2006.

Goal 7: Alternative technologies

TABLE 6
ADOPTION OF DIGITAL TV IN LATIN AMERICA, JUNE 2007

Country	Entity Responsible	Year of Initiation	Status	Standard Adopted	Legal Instrument	Date of Decision	Start of Transmission
Mexico	Consultative committee of the Secretariat of Communications and Transportation, and the National Chamber of the Radio and Television Industry	n.a.	Standard adopted	ATSC	Secretarial Agreement	2 July 2004	2006
Brazil	<i>Casa Civil</i> (Ministry of the Interior)	1999	Standard adopted	ISDB-T	Presidential Decree no. 5.820	29 June 2006	December 2007
Honduras	National Telecommunications Commission	2006	Standard adopted	ATSC	Normative Resolution no. 001/07	16 January 2007	n.a.
Argentina	Commission for Research and Analysis on Digital Television Systems	1997	In process	n.a.	n.a.	n.a.	n.a.
Chile	Ministry of Transportation and Telecommunications, National Television Council	1999	In process	n.a.	n.a.	n.a.	Experimental transmission
Colombia	National Television Council	n.a.	In process	n.a.	n.a.	n.a.	Experimental transmission
Peru	Ministry of Transportation and Communications	2006	In process	n.a.	n.a.	n.a.	Experimental transmission (ATSC)
Venezuela	National Telecommunications Commission with working group	n.a.	In process	n.a.	n.a.	n.a.	n.a.
Guatemala	n.a.	2005	In process	n.a.	n.a.	n.a.	Experimental transmission (ATSC)

Source: OSILAC, with data from ECLAC, "TV Digital Terrestre y Convergencia en América Latina," CPqD for working group on eLAC2007 Goal 7, 2006.

Note:

¹ DVB (Digital Video Broadcasting), DVB worldwide: http://www.dvb.org/about_dvb/dvb_worldwide/index.xml

IV. Capacity-building and knowledge creation

The capacity-building and knowledge creation goals are:

Goal 8: Software

Goal 9: Training

Goal 10: Research and education networks

Goal 11: Science and technology

Goal 12: Businesses

Goal 13: The creative and content industries

Goal 14: Internet governance

Goal 8: Software

The potential of the software and related services industry

- The Latin American software and related services market is growing faster than the world average, and the local industry's share of world sales is increasing. Between 2001 and 2005, the cumulative share of Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Uruguay increased from 1.7% to 2.4%.¹
- Uruguay, Chile and Brazil, in that order, are the region's most software-production-intensive countries, with sales representing 1.7%, 1.46% and 1.36% of GDP, respectively.
- The great majority of the software produced is for use within the producing country, though a small portion is exported (see Table 7). On average, 6% of these countries' production is export-oriented. In Uruguay, 39% of sales are exports.
- Analyzing the software and related services industry according to the orientation of the business, we find that equipment, systems and services firms represent more job creation than packaged software (see Table 8).

Challenge: Take advantage of the vast potential for expansion of the small but growing software and related services industry.

TABLE 7
SALES AND EXPORTS OF SOFTWARE AND RELATED SERVICES, 2004

Country	Sales (Millions of USD)	Exports (Millions of USD)	Sales / GDP	Exports / Sales
Argentina	1,173	192	0.77%	16%
Brazil	8,213	314	1.36%	4%
Chile	1,385	69	1.46%	5%
Colombia	340 ⁽¹⁾	10 ⁽²⁾	0.35%	3%
Ecuador	90	11	0.28%	12%
Mexico	2,871	125	0.42%	4%
Uruguay	226	89	1.70%	39%
Total	14,298	809	0.85%	6%

Source: ECLAC, "La industria de software y servicios en América Latina: una visión de conjunto," Tigre and Marques, March 2007.

Notes: (1) Does not include local services firms. Estimated on the basis of billings of 561 firms: 542 local software developers (US\$ 150 million) and 19 multinationals (US\$ 190 million). (2) Exports of 542 local software developers.

TABLE 8
JOBS CREATED BY 9 TRANSNATIONAL SOFTWARE AND RELATED SERVICES FIRMS, 2005

Country	Related services firms ⁽¹⁾	Equipment, systems and services firms ⁽²⁾	Packaged software firms ⁽³⁾	Estimated total software and services in the country ⁽⁴⁾
Argentina	3,500	2,730	775	32,000
Brazil	12,300	15,400	1,550	219,321
Chile	1,257	1,000	75	24,912 ⁽⁵⁾
Colombia	70	750	250	31,665 ⁽⁵⁾
Ecuador	-	200	217	4,468 ⁽⁵⁾
Mexico	3,550	2,804	1,383	53,915
Uruguay	650	-	-	4,902 ⁽⁵⁾
Total	21,327	22,884	4,250	365,483

Source: ECLAC, "La industria de software y servicios en América Latina: una visión de conjunto," Tigre and Marques, March 2007.

Notes: (1) Outsourcing, systems integration, data centers, consulting: Accenture, EDS and TCS. (2) Planning, systems integration, data centers, call centers, applications, outsourcing: HP, IBM and Unisys. (3) Operating systems, databases, applications: Microsoft, Oracle and SAP. (5) 2004 data. (6) The firms reflected here represent 30% of the world software and related services market. (1), (2) and (3) reflect information on the 9 transnational firms, and (4) represents the country total.

Goal 8: Software

Job creation by domestic software industry

- Latin America's countries have software and ICT services industries that have potential for job creation.
 - The three largest companies with a majority of domestic ownership in the software and ICT services industry in Argentina, Brazil, Chile, Mexico and Uruguay collectively billed over US\$ 1.4 billion, employing over 24,000 workers. Comparing this with multinational firms in Latin American countries, we see that the domestic firms are more labor-intensive. This is due to the fact that domestic firms develop most of their products and services within the region.
 - Though the domestic firms focus on domestic markets, they are seeking to increase their exports. However, their small size in the context of the worldwide market, as well as their low visibility, constitutes an impediment.
- Challenge:** Promote public and corporate policy to encourage the development of domestic software firms to satisfy the growing domestic and international demand and contribute to local job creation.

TABLE 9
PRINCIPAL DOMESTIC SOFTWARE AND RELATED SERVICES FIRMS, 2005

Country	Firm	Total revenue (Millions of USD) (a)	Number of employees(b)	Jobs per million USD billed (b)/(a)	Business segment
Argentina	Anectis	28	-	-	Marketing of third-party software
	Grupo ASSA	24 ^a	600	25	Professional services
	DATCO	19 ^a	280 ^a	15	Professional services
Brazil	CPM	255	2,600	10	Systems integration, Outsourcing
	Politec	196	6,500	33	Systems integration, Outsourcing
	Microsiga	162	1,779	11	Software (ERP)
Chile	Sonda	350	4,500	13	Integration, Development, Consulting
	Coasin	60	950	16	Consulting, Development, Software
	Adexus	50	400	8	Consulting, Development, Marketing
Mexico	Sofftek	140	4,000	29	Professional services, Outsourcing
	Hildebrando	94	> 1,300	> 14	Professional services
	Aspel	7	200	29	Software (administrative)
Uruguay	Grupo Quanam	20	446	22	Professional services
	ARTech	> 15	100	< 7	Software (tools)
	Infocorp	6	197	33	Microsoft platform solutions
Domestic firms		> 1,420	> 23,852	~ 17	
Multinationals		7,474	48,461	7	

Source: ECLAC, "La industria de software y servicios en América Latina: una visión de conjunto," Tigre and Marques, March 2007.

Goal 8: Software

Free software: an issue calling for more study

- eLAC2007 Goal 8 involves, among other things, gaining a better understanding of the free and open-source software phenomenon. Some studies, such as one conducted in Chile in 2006,² showed that although users of such software emphasized certain disadvantages in terms of functionality and user-friendliness of interfaces compared with commercial software, greater security and transparency are generally recognized as advantages. Cost savings are also an advantage. Another case study showed that between 1999 and 2005, the São Paulo Metro system saved US\$ 3,790,515 by using free software.
- Despite these advantages, no general trend toward using this type of software is apparent in the region. While Guatemala, Venezuela and Ecuador—and to a lesser degree Argentina, Uruguay, Chile, Costa Rica, Dominica and Granada—have seen an increase in Linux users as a proportion of all operating-system users since 2005, the proportion of Linux users is declining in the other countries (see Chart 37).
- A number of the region’s countries are attempting to promote the use of free software by developing plans to make it standard in public administration (see Table 11).

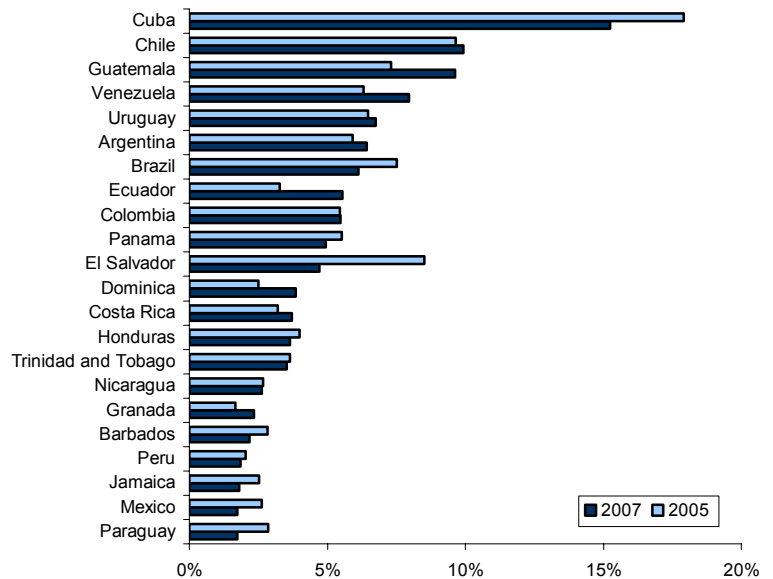
Challenge: Strengthen communication between governments and other users of free software, in order to encourage sharing of experiences regarding the potentials and limitations of this type of software.

TABLE 10
SAVINGS FROM USE OF FREE AND OPEN-SOURCE SOFTWARE IN THE SÃO PAULO METRO SYSTEM IN BRAZIL, 1999-2005

Year	Total average cost MS Office + 3-year software insurance (USD)	Total cost Open Office (USD)	Annual savings (USD)
1999	1,059,224	109,324	949,900
2000	97,194	89,222	7,973
2001	139,378	90,041	49,337
2002	1,153,939	91,062	1,062,877
2003	436,257	95,809	340,448
2004	297,192	92,345	204,846
2005	1,266,675	91,541	1,175,134

Source: Relogio da Economia [Savings Clock] (official website at <http://www.relogio.daeconomia.sp.gov.br>).

CHART 37
LINUX(*) USERS AS A PERCENTAGE OF ALL COMPUTER USERS, 2005-2007



Source: OSILAC, with information from The Linux Counter (official website at <http://l18n.counter.li.org/>) and UTI, “World Telecommunications Indicators Database, 2006.”

Note (*): Between 2% and 5% of Linux users are estimated to have registered with the Linux Counter. The estimated number of registered users as of January 2005 accounted for 0.8%, representing 1 out of every 125 Linux users. This estimate has been used as an approximation.

Goal 8: Software

TABLE 11
LEGISLATION/REGULATIONS DESIGNED TO PROMOTE THE USE OF FREE SOFTWARE IN
PUBLIC ADMINISTRATION, FEBRUARY 2006

Country	Level of government	Legislation/Regulations	Date
Argentina	National	Bill 5613-D-00	Sept. 2000
	National	Bill 904-D-02	March 2002
	National	Bill 1280	March 2004
	Province of Buenos Aires	Bill E-135/02-03	June 2002
	City of Buenos Aires	Bill 1416-D-02	Sept. 2002
	City of Buenos Aires	Bill 1499-03	Sept. 2003
	City of Buenos Aires	Bill 2801-04	Apr. 2004
	Province of Córdoba - City of Porteña	Ordinance 1275/2004	Apr. 2004
	Province of Jujuy	Bill 207-D-2002	May 2002
	Province of Misiones	Bill D-22034/03	Oct. 2003
	Province of Santa Fe	Law 12360	Nov. 2004
	Province of Santa Fe - City of Santa Fe	Draft Ordinance 25495-O-04	Oct. 2004
	City of La Plata	Draft Ordinance 37202	nov-2002
	City of Mar del Plata	Ordinance 17584	May 2006
City of Rosario	Ordinance 7787/2004	Mar. 2005	
Brazil	National	Draft Ordinance 2269/1999	Aug. 1999
	National	Draft Ordinance 3051/2000	May 2000
	National	Draft Ordinance 4275/2001	March 2001
	National	Draft Ordinance 7120/2002	Nov. 2002
	National	Draft Ordinance No. 2152/2003	Oct. 2003
	National	Draft Ordinance No. 3280/2004	Mar. 2004
	State of Paraná	Law 14195	Nov. 2003
	State of São Paulo	Resolution CC-52	Apr. 2004
	State of Rio Grande do Sul	Law 11871	Dec. 2002
	Campinas	Law 11113	March 2001
	Recife	Law 16639	Apr. 2001
	Amparo	Bill 57/2001	n.a.
	Porto Alegre	Bill 53/00	March 2000
	Solonópole	Law 614/2001	n.a.
Viçosa	Law 1472/2001	n.a.	
São Carlos	Law 12883/2001.	n.a.	
Colombia	National	Bill 83	Dec. 2002
Costa Rica	National	Draft Ordinance 15191	Apr. 2003
Peru	National	Law 28612	Oct. 2005
Uruguay	San José	Resolution	June 2003
Venezuela	National	Decree 3390	Dec. 2004

Source: OSILAC, based on "Marco normativo del software libre en América Latina y el Caribe," Fernando Maresca, Alfa-Redi Argentina, December 2004, and "Resultados de Investigación: Software Libre en América Latina y el Caribe," Bellanet International, Office for Latin America and the Caribbean, with support from IDRC PAN-Americas, Lena Zúñiga, Verónica Xhardez and research team, March 2006; and data from Brazil: Chamber of Deputies (official website at http://www.camara.gov.br/Internet/sileg/Prop_Detalhe.asp?id=159126); Peru: Congress of the Republic (official website at <http://www.congreso.gob.pe/ntley/imagenes/Leyes/28612.pdf>); Venezuela: Online government (official website at <http://www.gobiernoenlinea.gob.ve/docMgr/sharedfiles/Decreto3390.pdf>).

Notes:

- ¹ "La industria de software y servicios en América Latina: una visión de conjunto," Tigre and Marques, ECLAC, March 2007.
- ² "Economic Efficiency of Free and Open Source Software in the Public Sector: the example of Chile," Matthias Sax, ECLAC. LC/W.106, October 2006.

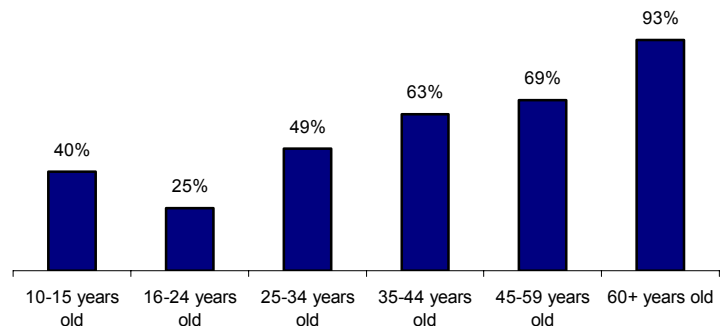
Goal 9: Training

ICT Training: a factor promoting inclusiveness and competitiveness

- Brazilian data show that a high percentage of the population under 35 years of age considers itself skilled in Internet and computer use (see Chart 38). This is surprising, considering that the penetration of these technologies is below 15%. However, it suggests that there are more ICT users than individuals with their own Internet access, and that basic use of these technologies does not necessarily require sophisticated training.
- This trend is confirmed by data from occupational training institutions, which believe that computer illiteracy on the part of students is less significant in preventing the incorporation of ICTs in occupational training than is teacher resistance (see Chart 39).
- However, it cause for concern that, as shown in Chart 38, the percentage of the population without computer skills is significantly greater among the working-age population (over 15 years old). This may affect the employment level, while at the same time leading to unmet demands for labor, as employers depend increasingly on these technologies.

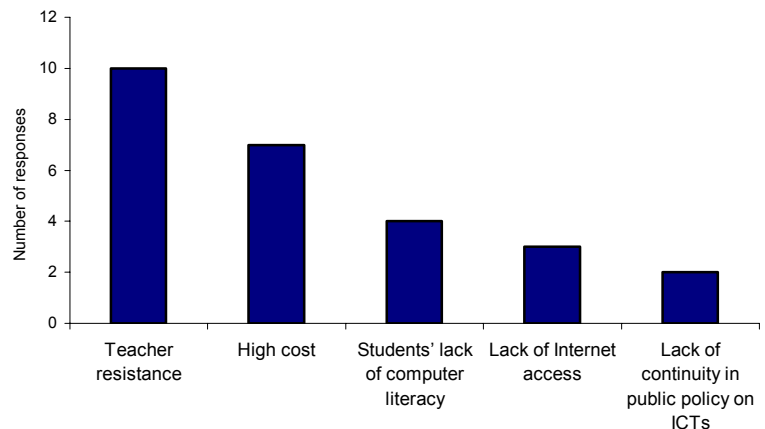
Challenge: Promote the development of ICT skills among adults, particularly among those of working age.

CHART 38
PERCENTAGE OF BRAZILIAN POPULATION WITHOUT INTERNET AND COMPUTER SKILLS, BY AGE, SEPTEMBER 2005



Source: Center for the Study of ICTs (official website at <http://www.cetic.br>).

CHART 39
FACTORS LIMITING OCCUPATIONAL TRAINING INSTITUTIONS FROM INCORPORATION ICTS IN TEACHING, 2005



Source: OSILAC, with data from "Las Instituciones de Formación Profesional (IFP) en América Latina y el Caribe, y las Tecnologías de Información y el Conocimiento (TIC)," ECLAC, Guillermo Labarca, May 2006.

Note: Based on multiple-choice responses from 14 institutions.

Goal 9: Training

Formal training for the digital age: a challenge for occupational training institutions

- eLAC2007 Goal 9 is to train at least 2.5% of the working-age population in ICT skills annually, with due regard for gender equity. Progress toward this goal is difficult to measure, since basic ICT learning takes place in a wide variety of public and private institutions. Nevertheless, the occupational training institutions are the traditional venue for addressing this challenge. For decades, they have been the leaders in formal training in the region.
- In many of these institutions, the percentage of students registered in ICT courses is significant (see Table 12). These students represent, of course, a small percentage of the economically active population, though Trinidad and Tobago and Costa Rica are exceptions, where occupational training institutions have, by themselves, succeeded in meeting the eLAC2007 goal. In Peru, Colombia and Honduras, the contribution of such institutions goes a significant way toward meeting the goal.
- Responding to demand, occupational training institutions have introduced new courses, of which 57% are in the ICT area, designed to prepare the labor force for the digital age (see Chart 40).

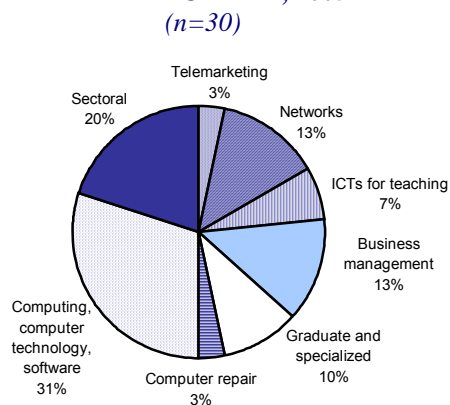
Challenge: Support and take advantage of the efforts of occupational training institutions to train the labor force of the information society.

TABLE 12
ICT TEACHING IN OCCUPATIONAL TRAINING INSTITUTIONS, AND ITS IMPACT ON THE ECONOMICALLY ACTIVE POPULATION, 2005

Institution	Percentage of students in ICT courses ⁽¹⁾	Students in courses at occupational training institutions as a percentage of the economically active population
INATEC Nicaragua	10.0%	no data avail.
INSAFORP El Salvador	8.3%	no data avail.
Nat.Training Ag. Trin.& Tob.	19.0%	9.1%
INA Costa Rica	22.0%	2.4%
SENATI Peru	23.5%	1.6%
SENA Colombia	4.9%	1.5%
INFOP Honduras	5.0%	1.1%
Secretariat of Labor, Mexico	47.0%	0.3%
HEART Jamaica	18.0%	0.1%
INAFORP Panama	9.0%	0.1%
INFOTEP Dominican Republic	0.5%	0.0%

Source: ECLAC, "Las Instituciones de Formación Profesional (IFP) en América Latina y el Caribe, y las Tecnologías de Información y el Conocimiento (TIC)," Guillermo Labarca, 2006. Notes: (1) Total number of students registered in specific ICT courses (not including students receiving ICT training as a part of curricula in other fields). (2) Reflects sectors that use ICTs, excluding personal services and agricultural workers.

CHART 40
DISTRIBUTION OF NEW COURSES IN OCCUPATIONAL TRAINING INSTITUTIONS, ACCORDING TO COURSE'S THEMATIC AREA, 2005



Source: OSILAC, with data from "Las Instituciones de Formación Profesional (IFP) en América Latina y el Caribe, y las Tecnologías de Información y el Conocimiento (TIC)," ECLAC, Guillermo Labarca, May 2006.

Goal 9: Training

ICTs: an opportunity for women’s training and development

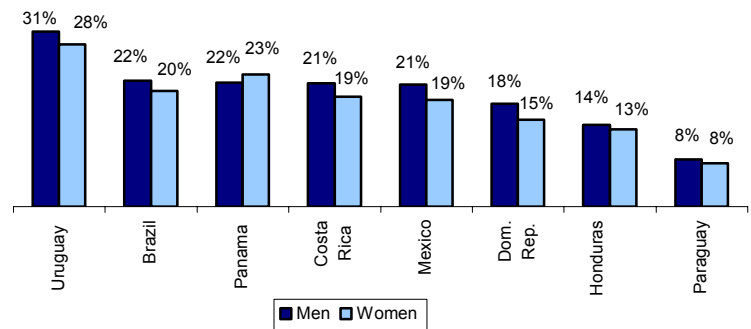
- There is a slight difference between the number of male and female Internet users, the difference is not significant. Compared with other indicators of gender inequality, the relatively equal use of ICTs appears to be an opportunity to promote the inclusion of women, rather than a force for exclusion.
- Women take advantage of these opportunities. According to Brazilian data, they make greater use of the Internet for purposes of training and education than do men. This phenomenon represents an opportunity to improve their quality of life since, in addition to facilitating greater access to education, ICTs open up new job possibilities and new opportunities for social participation. It is noteworthy that 20% already use the Internet to perform paid work and conduct business.¹ The same data show that activities such as online shopping, electronic banking transactions and interacting with government are less prevalent.

Challenge: Use the potential provided by women’s access to the Internet to promote their development and participation in all spheres of society.

Note:

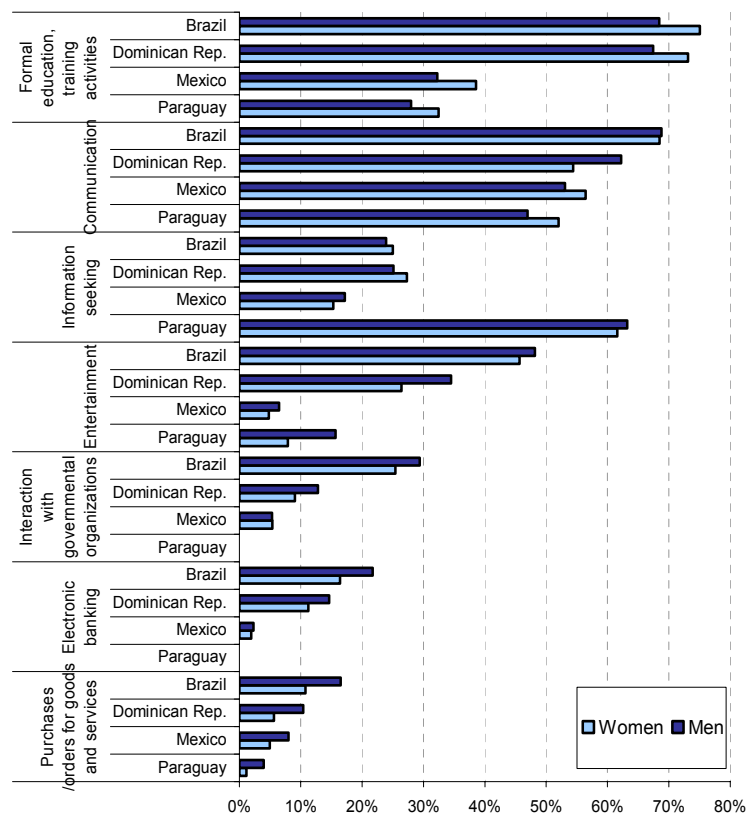
¹ Internet Steering Committee of Brazil, Survey on ICT use, 2005.

CHART 41
PERCENTAGE OF INDIVIDUALS USING INTERNET, BY SEX, 2006



Source: OSILAC, with data from household surveys.
Note: The data for Brazil, Costa Rica, Paraguay and the Dominican Republic are for 2005.

CHART 42
INTERNET ACTIVITIES, BY SEX, 2005



Source: OSILAC, with data from household surveys
Note: The Mexican data are for 2006.

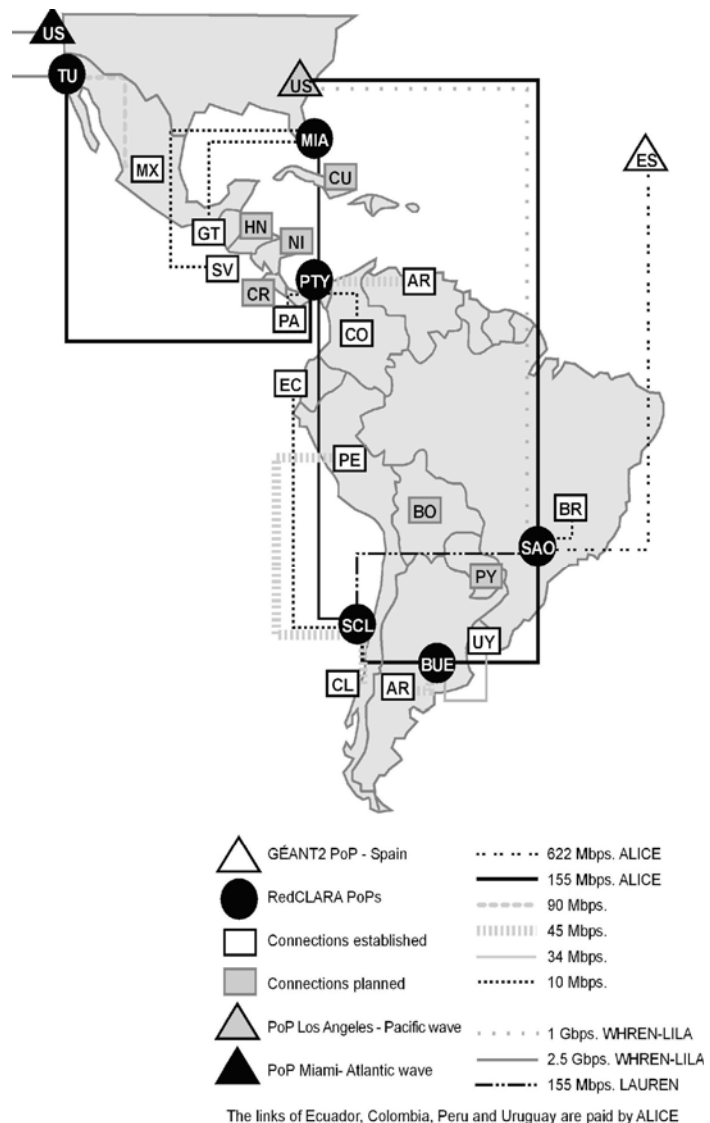
Meta 10: Research and education networks

Scientific and technological development through integration of networks

- In 2003, the academic networks of 16 Latin American countries formed the Latin American Cooperation of Advanced Networks (Cooperación Latino Americana de Redes Avanzadas, or CLARA) as a means of integrating research and academic institutions and linking up with scientific communities in the rest of the world, in order to stimulate regional cooperation in education, science and cultural activities.
- To date, RedCLARA has linked 12 of its members (in a “ring,” as reflected in Chart 43). Bolivia, Costa Rica, Cuba, Honduras, Nicaragua and Paraguay remain to be connected. A significant portion of RedCLARA is funded by the project, Latin America Interconnected with Europe (América Latina Interconectada con Europa, or ALICE), whose members are responsible for connections to the network.
- RedCLARA provides access to other networks around the world, such as GEANT2, Internet2, CANARIE, APAN and SINET, either directly or through transit agreements with GEANT2 and Internet2.
- In eLAC2007 Goal 10, the countries promoted the expansion of the RedCLARA model into the Caribbean. 2005 saw the birth of the Caribbean Knowledge and Learning Network (CKLN), which is supported by organizations in the region, such as CARICOM and the Organization of Eastern Caribbean States.

Challenge: Continue expanding the interconnection of advanced networks, with emphasis on making them self-sustaining.

CHART 43
THE TOPOLOGY OF REDCLARA, APRIL 2007



Source: RedClara (official website at www.redclara.net).

Goal 10: Research and education networks

TABLE 13
CHARACTERISTICS OF ADVANCED RESEARCH NETWORKS IN THE REGION, APRIL 2007

County	Name of network	Year created	Type of coordinating organization	Number of members		Characteristics of members	Whether connected to RedCLARA	
				2004	2007		2004	2007
Argentina	InnovaRed	2006	no data avail.	52	55	42 higher education institutions, 8 research organizations, 5 government agencies	Yes	Yes
Bolivia	BOLNET	1990	Public educational organization (self-financed)	20	no data avail.	In process of reorganization via ADSIB	No	No
Brazil	RNP	1989	Mixed nonprofit organization	369	156	100 higher education institutions, 35 research organizations, 8 development organizations, 2 hospitals, 6 governmental agencies, 6 NGOs	Yes	Yes
Colombia	RENATA	2007	Currently being organized as a private nonprofit organization	75	57	54 higher education and research institutions, and 3 government agencies	No	Yes
Costa Rica	CR2Net	2002	Governmental organization (Ministry of Science and Technology)	no data avail.	9	5 higher education institutions, 2 research organizations and 2 government agencies	No	No
Cuba	REDUNIV	2005	Governmental organization (Ministry of Higher Education)	21	22	17 higher education institutions, 5 research organizations	No	No
Chile	REUNA	1986	Self-financing private nonprofit organization	19	17	15 higher education institutions, 1 research center and CONICYT	Yes	Yes
Ecuador	CEDIA	2002	Governmental organization (Ministry of Education and Culture)	38	24	17 higher education institutions, 3 research organizations, 3 gov. agencies, 1 private sector organization	No	Yes
El Salvador	RAICES	2003	Self-financing private nonprofit organization	8	9	8 higher education institutions, 1 research organization	No	Yes
Guatemala	RAGIE	no data avail.	Nonprofit civic organization	no data avail.	9	7 higher education institutions, 2 private-sector organizations	No	Yes

Goal 10: Research and education networks

Honduras	RHUTA	2005	no data avail.	not applic.	no data avail.	Public and private universities, 1 private organization, 1 government agency	not applic.	No
Mexico	CUDI	1999	Nonprofit civic organization	no data avail.	80	37 higher education institutions, 37 research organizations, 4 private organizations, 2 international organizations	Yes	Yes
Nicaragua	RENIA	2005	Nonprofit civic organization	not applic.	8	7 higher education institutions, 1 private-sector organization, 1 NGO	not applic.	No
Panama	REDCYT	2002	Nonprofit educational organization	10	10	7 higher education institutions, 1 research organization, 2 government agencies	Yes	Yes
Paraguay	ARANDU ⁽¹⁾	not applicable	Nonprofit educational organization	22	not applicable	No physical network. The project is inactive.	No	No
Peru	RAAP	2003	Nonprofit civic organization	no data avail.	7	5 higher education institutions, 2 research organizations	no data available	Yes
Uruguay	RAU	1990	Nonprofit higher education institution	16	16	4 higher education institutions, 6 research organizations, 4 government agencies, 1 international organization, 1 private-sector organization	No	Yes
Venezuela	REACCIUN	1994	Nonprofit civic organization (Ministry of Science and Technology)	73	67	34 higher education institutions, 2 research organizations, 7 academic institutions, 5 foundations, 19 government agencies	Yes	Yes

Source: OSILAC, with information from national networks: Bolivia, Agencia para el Desarrollo de la Sociedad de la Información (official website at www.adsib.gob.bo); Brazil: Rede Nacional de Ensino e Pesquisa (official website at www.rnp.br); Chile: Red Universitaria Nacional (official website at www.reuna.cl); Colombia: Red Nacional Académica de Tecnología Avanzada (official website at www.renata.edu.co); Costa Rica: Red Nacional de Investigación Avanzada (official website at www.cmet.cr/cr2net); Cuba: Red Nacional de Educación e Investigación (official website at www.mes.edu.cu); Ecuador: Consorcio Ecuatoriano para el Desarrollo de Internet Avanzado (official website at www.cedia.org.ec); El Salvador: Red Avanzada de Investigación, Ciencia y Educación Salvadoreña (official website at www.raices.org.sv); Guatemala: Red Avanzada Guatemalteca para la Investigación y Educación (official website at www.ragie.org.gt); Honduras: Red Hondureña de Universidades con Telecomunicaciones Avanzadas (official website at www.unitec.edu); Mexico: Corporación Universitaria para el Desarrollo de Internet (official website at www.cudi.edu.mx); Nicaragua: Red Nicaragüense de Internet Avanzada (official website at www.renia.net.ni); Panama: Red Científica y Tecnológica (official website at www.redcyt.org.pa); Paraguay: Arandu (official website at www.arandu.net.py); Peru: Red Académica Peruana (official website at www.raap.org.pe); Venezuela: Centro Nacional de Tecnología e Información (official website at www.reacciun.ve); Uruguay: Universidad de la República de Uruguay (official website at www.rau.edu.uy); and RedClara (official website at www.redclara.net).

Note: (1) Data are as of July 2003.

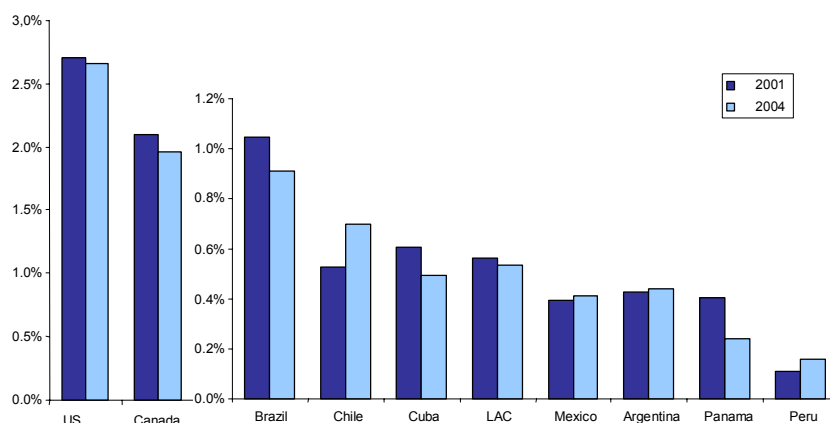
Goal 11: Science and technology

Research and development, and associated budgetary constraints

- Most of the countries in Latin America spend small amounts on R&D—around 0.5% of GDP,¹ significantly less than figures for developed countries, which are over 2%. The highest figure in the region is Brazil's 1% of GDP, though between 2001 and 2004, Brazil's spending on R&D decreased, as did Cuba's and Panama's. Chile, Peru and, to a lesser extent, Mexico slightly increased their R&D spending (see Chart 44).
- The gap between the region's countries and the developed countries is even greater if viewed in terms of R&D spending per capita. While per capita income in the United States is approximately six times what it is in Chile, the ratio of per capita R&D spending between the two countries is 33 to 1 (US\$ 1000 versus US\$ 30). This limited spending in Latin America translates into a figure for patents per 100,000 inhabitants that is nearly 10 times less than the corresponding figure for the United States.
- Research organizations oriented to ICT development are scarce in Latin America. In 2002, only 36 ICT research groups or centers were identified in Mexico,² of which 12 were private and 24 public. Most of them focus on projects that they consider to include both basic research and technological development/transfer.

Challenge: Increase resources for R&D in the region, including ICT R&D conducted by both public- and private-sector organizations.

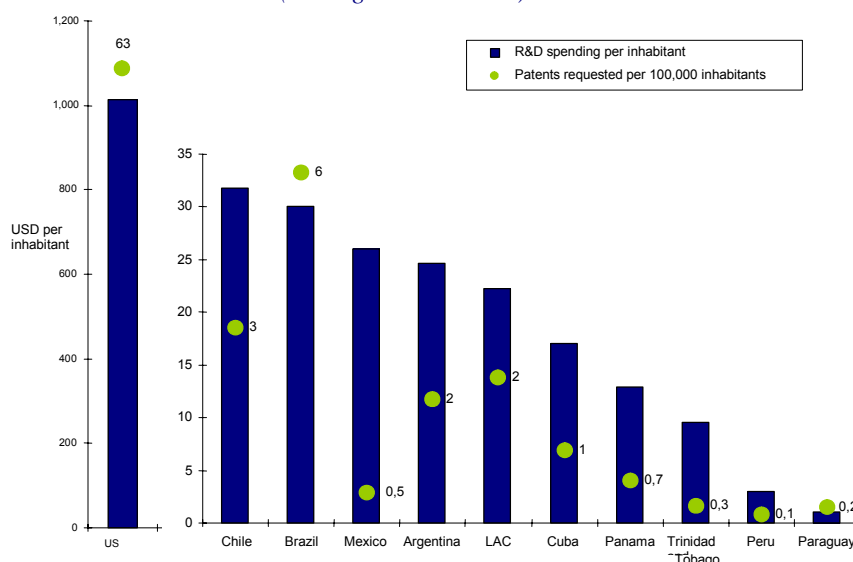
CHART 44
R&D SPENDING AS A PERCENTAGE OF GDP, 2001-2004



Source: Red de Indicadores de Ciencia y Tecnología (online at www.riicyt.edu.ar).

Notes: The region's data are estimates. For Cuba, the official exchange rate was used: 1 Cuban peso = 1 USD. Figures for Mexico include only federal science and technology spending.

CHART 45
R&D SPENDING PER INHABITANT AND NUMBER OF PATENT APPLICATIONS PER 100,000 INHABITANTS
(Average 2001 – 2004)



Source: Red de Indicadores de Ciencia y Tecnología (online at www.riicyt.edu.ar).

Notes: For Cuba, the official exchange rate was used: 1 Cuban peso = 1 USD. Figures for Mexico include only federal science and technology spending. Panama figures include spending of the Smithsonian Tropical Research Institute. The region's figures are estimates. Dollar estimates were obtained by applying IMF exchange rate data to information on local currencies provided by each country.

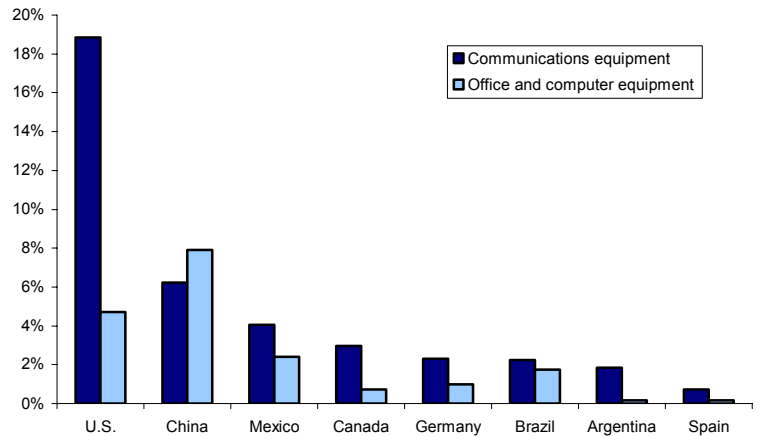
Goal 11: Science and technology

R&D: a necessity for the creation of value added

- The ICT industry in the region remains limited. The ICT sector lacks, by a large margin, the importance it has in the developed countries.
- As Chart 46 shows, the value added (VA) of communications equipment in the United States represents 19% of all manufacturing VA. In Brazil, Mexico and Argentina, it is less than 5%, comparable to levels in Canada and Germany. The VA of office and computer equipment is significantly less than that of communications equipment—zero, indeed, in Argentina. Notably, the contribution of office and computer equipment to total industrial VA in Mexico and Brazil is higher than it is in Canada and Germany.
- Imports of computer and communications equipment in the region’s countries are far higher than exports, unlike the situation in the United States and China, which is more balanced (see Chart 47). In Mexico, Brazil and Costa Rica, the percentage of equipment exported is greater than in other countries of the region. However, this is due to *maquila* activity and other regimes under which imported components are assembled.

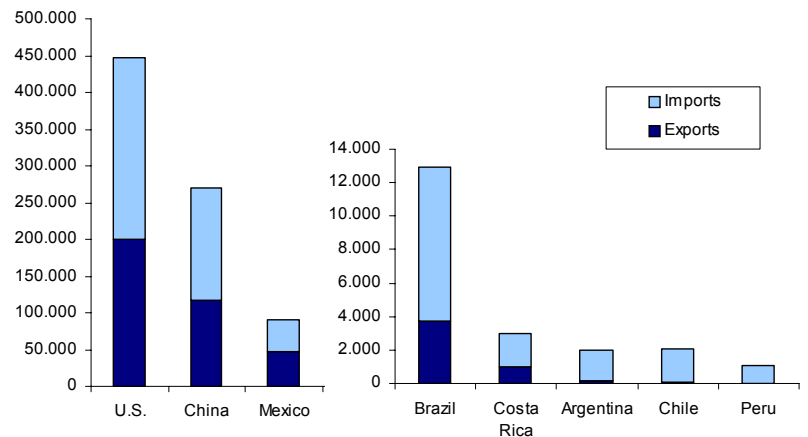
Challenge: Strengthen ICT research and development in both public- and private-sector organizations involved in developing basic domestic capacities for the production of equipment essential for the information society.

CHART 46
CONTRIBUTION OF THE PRODUCTION OF COMMUNICATIONS, OFFICE AND COMPUTER EQUIPMENT TO THE VALUE ADDED OF COUNTRIES’ MANUFACTURING INDUSTRIES, 2003



Note: Gross value added is calculated as the gross value of production minus intermediate inputs.

CHART 47
IMPORTS AND EXPORTS OF COMPUTER AND COMMUNICATIONS EQUIPMENT IN SELECTED COUNTRIES, 2003
(millions of 1997 USD)



Source: OSILAC, with data from “Science and Engineering Indicators 2006,” National Science Foundation (online at www.nsf.gov/statistics/seind06).

Goal 11: Science and technology

The productivity of ICT clusters

- The so-called “technology parks” referred to in eLAC2007 Goal 11 provide shared physical and technological resources, skilled human resources, support services, prestige and the ability to deal with high international certification costs, which are significant in the case of ICT activity.³
- Comparing ICT clusters with agricultural, furniture and metallurgical clusters, software clusters show high productivity (see Table 14). On average, they generate products with significantly higher value per-employee.
- In Colombia, ParqueSoft has 11 computer and ICT research laboratories based on alliances with universities in the region and elsewhere. Mexico’s Parque Tecnológico de Monterrey will include the Monterrey IT Cluster in a

facility housing 42 software firms whose operations will be centered there, employing over 1,000 software developers. Panama’s Tecnoparque Internacional de Panamá is a science and technology center that promotes direct relationships between research organizations and the business community. Blumenau’s collaboration with the software industry in Brazil arose as the result of a large computer services firm in the region, driven by textile firms and the municipality, along with the appearance of a new generation of entrepreneurs.

Challenge: Facilitate the creation of clusters that innovate for the production of high value-added goods and services.

TABLE 14
PRODUCTION, JOBS AND PRODUCTIVITY IN SELECTED CLUSTERS IN LATIN AMERICA, 2002

Type of industry	Cluster’s activity	Region/Country	Number of firms	Production (thousands of USD)	Direct employment	Thousands of USD produced per employee
Food	Salmon ⁽¹⁾	Southern region - Chile	65	1,005,000	29,000	34.7
	Dairy	Boaco, Chontales - Nicaragua	10,605	25,400	15,624	1.6
	Mangos and grapes	Petrolina, Juazeiro – Brazil	580	93,000	17,400	5.3
	Melons	Río Grande del Norte - Brazil	120	13,000	19,000	0.7
	Apples	Santa Catarina – Brazil	750	51,700	23,500	2.2
Manufacturing	Furniture	Chipilo, Puebla – Mexico	146	6,700	5,400	1.2
	Metallurgy ⁽²⁾	Espírito Santo – Brazil	66	33,300	12,000	2.8
Electronics	Software	Aguascalientes – Mexico	13	4,300	121	35.5
	Software	Mexico City. – Mexico	130	57,500	2,000	28.8
	Software	Monterrey – Mexico	76	120,000	2,000	60.0

Source: OSILAC, with data from "Upgrading in clusters and value chains in Latin America, The Role of Policies," Pirotbelli and Rabellotti, Inter-American Development Bank (IDB), January 2004.

Notes: (1) 65 firms in the main value chain. There are an additional 150 local providers. 40% of direct employment is seasonal. (2) Only firms associated with CDMEC.

Goal 11: Science and technology

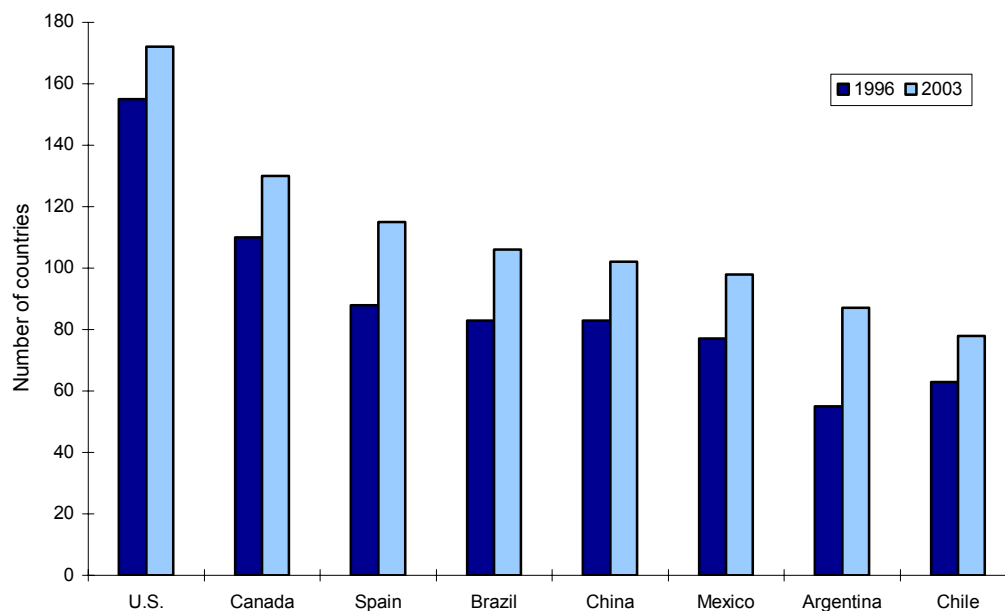
International scientific collaboration

- Global connectivity of digital networks presents new opportunities for international collaboration in science and engineering. There was a major intensification of this collaboration in years during which the Internet was becoming a mass medium. In 1996, the region's researchers collaborated with researchers in 69 countries, while in 2003 the number had grown to approximately 90 countries.
- There was also noticeable progress during these years in Latin American researchers' participation as co-authors of international articles in science and technology. Nearly 20%

of articles have one of the region's researchers as a co-author.

Challenge: Maximize the use of digital networks to integrate the region's science and engineering community and promote its role in the process of worldwide knowledge creation.

CHART 48
SCOPE OF INTERNATIONAL COLLABORATION IN SCIENCE AND ENGINEERING, 1996-2003
(Scope, measured in terms of number of countries)



Source: OSILAC, with data from "Science and Engineering Indicators 2006," National Science Foundation (online at www.nsf.gov/statistics/seind06).

Note: The figures refer to the number of countries whose authors have co-authored publications with the indicated country (based on institutional address).

Goal 11: Science and technology

TABLE 15
LATIN AMERICA'S PARTICIPATION IN CO-AUTHORING INTERNATIONAL SCIENCE AND
ENGINEERING ARTICLES, BY COUNTRY/REGION INVOLVED, 1996-2003

Region/Country	International articles			Latin America's contribution	
	1996	2003	Change	1996	2003
Cuba	157	302	92%	29.3%	36.2%
Uruguay	111	214	93%	28.4%	33.3%
Costa Rica	121	158	31%	9.5%	21.2%
Peru	97	232	139%	11.1%	20.6%
Venezuela	247	438	77%	19.6%	18.6%
Argentina	916	1,716	87%	15.5%	17.9%
Colombia	212	391	84%	17.8%	17.6%
Chile	612	1,231	101%	16.1%	14.7%
Spain	4,771	8,624	81%	8.0%	10.7%
Brazil	2,090	3,794	82%	8.0%	10.1%
Mexico	1,119	2,215	98%	10.2%	9.5%
United States	39,046	60,180	54%	4.9%	5.4%
Portugal	807	2,010	149%	3.7%	5.4%
France	13,105	19,900	52%	3.8%	4.4%
Italy	8,011	12,669	58%	2.5%	3.1%
Canada	9,065	12,978	43%	2.6%	2.8%
United Kingdom	16,292	24,999	53%	2.7%	2.7%
Belgium	3,514	5,547	58%	1.9%	2.6%
Germany	16,464	26,689	62%	1.8%	2.6%
India	1,719	3,187	85%	1.7%	2.2%
Sub-Saharan Africa	2,332	3,765	61%	1.5%	2.1%
Eastern Europe, former USSR	13,624	20,477	50%	1.9%	1.9%
Northeastern Africa	4,782	7,192	50%	1.1%	1.5%
China	3,341	9,132	173%	0.9%	0.9%

Source: OSILAC, with data from "Science and Engineering Indicators 2006," National Science Foundation (online at www.nsf.gov/statistics/seind06).

Note: Participation is calculated as the number of articles from each country that are co-authored with institutions in other countries, as a proportion of the former country's total number of articles.

Notes:

- ¹ ECLAC. In press. Progreso técnico y cambio estructural en América Latina.
- ² INEGI. Encuesta sobre investigación y desarrollo en tecnología de información, 2002.
- ³ Federico Anzil 2007. <http://www.econlink.com.ar/node/546>

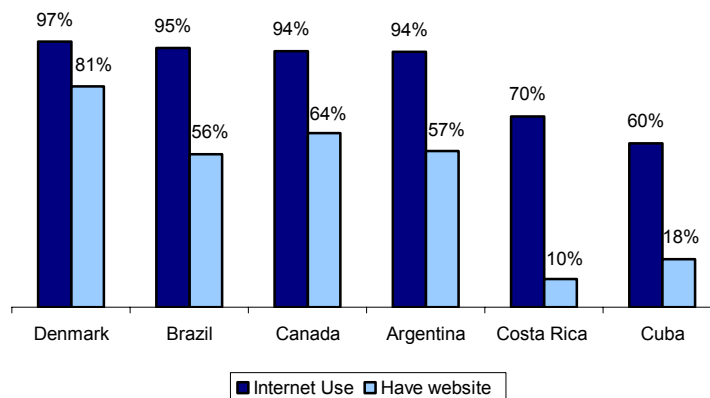
Goal 12: Businesses

Basic connectivity for businesses: a challenge nearly solved

- Business connectivity has progressed significantly in recent years. Though the nature of the sample here dictates caution in extrapolating the data to entire sectors and to firms of all sizes, the results show that most businesses with over 10 employees in Brazil, Argentina, Costa Rica and Cuba are connected to the Internet. Indeed, in Argentina's manufacturing sector and in Brazil, the Internet penetration rates are similar to them observed in Denmark and Canada.
- Though Internet presence in the region generally remains limited to providing information on businesses and their products, in some region's countries the Web is used in ways comparable to its use in developed countries.
- Use of the Internet as a business tool depends on connection speed (see Chart 50). Also in this area there has been improvement. The broadband access gap between Latin American businesses and businesses in the United States is significantly narrower (by a factor of 2 to 4) than the gap for households. In fact, the great majority of the region's medium-sized businesses have advanced connections—currently a prerequisite for global competitiveness.

Challenge: Increase the proportion of firms with an Internet presence and with connection speeds of at least 1 Mbps, so as to promote the transition to more complex applications.

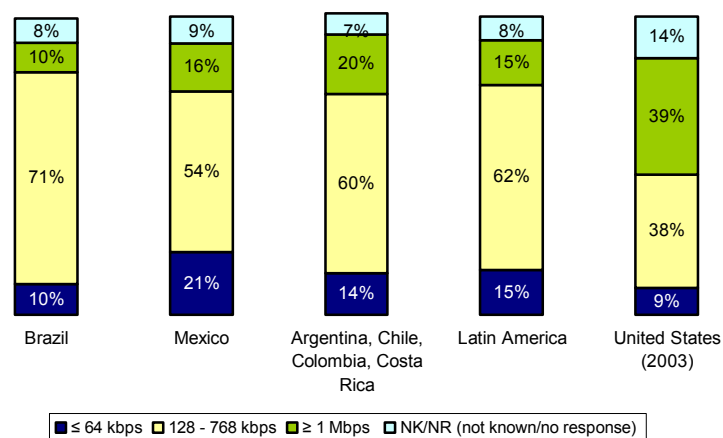
CHART 49
PENETRATION OF INTERNET AND WEBSITE OWNERSHIP
IN BUSINESSES OF SELECTED COUNTRIES, 2004
(Percentage of all businesses)



Source: OSILAC, with data from UNCTAD, "Information Economy Report. The Development Perspective," 2006.

Note: Includes businesses with over 10 employees. Argentina: Survey covers manufacturing sector only. Costa Rica: Businesses with 10-249 employees. Brazil: 2005 data.

CHART 50
BROADBAND ACCESS AMONG ORGANIZATIONS IN
LATIN AMERICA, 2005



Source: "Net Impact 2005, América Latina. De la Conectividad al Crecimiento," *AHCIET Journal*.

Note: The Latin American data reflect 1,212 businesses in the manufacturing, retail distribution, financial services and public (government and health) sectors with more than 25 employees in Argentina, Brazil, Chile, Colombia, Costa Rica and Mexico.

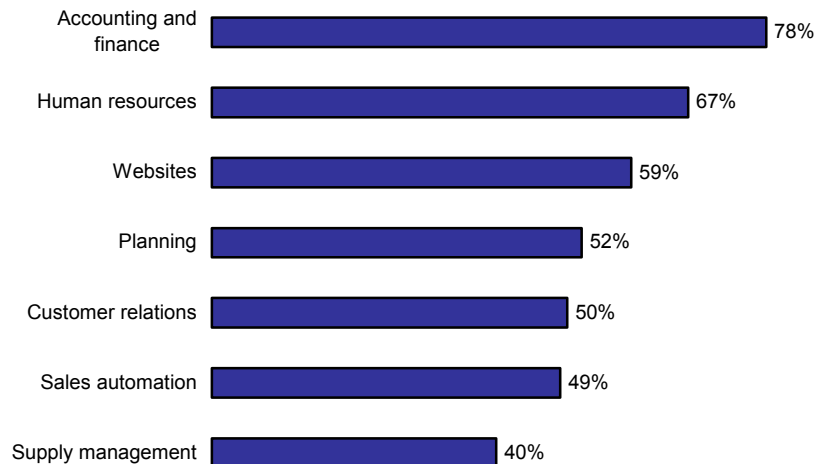
Goal 12: Businesses

Toward more sophisticated applications in the overall productive process

- Despite high levels of connectivity in the business world, there is a considerable gap in terms of the productive use of investments already made. The famous “productivity paradox” of the digital era—the fact that possessing a large quantity of ICT equipment does not guarantee increased productivity—underlines the importance of productive use of equipment and technology.
- To date, Latin American firms have concentrated on relatively simple operational applications, for purposes such as accounting and finance and human resources management. A smaller, but already significant, proportion of firms use ICTs in areas such as automated sales and input management (see Chart 51). These data reflect the current state of learning, involving both internal and external reorganization of the business process.
- As Chart 52 indicates, lack of training in new technologies is the principal constraint in regard to incorporating the technologies in the region’s medium-sized and large firms. This is consistent with the results of the ICT Policy Delphi priorities for the year 2010 in the region,¹ in which the region’s experts identified training of businesspersons in small and medium-sized firms, as well as computer training of the labour force, as two priorities for the coming years.

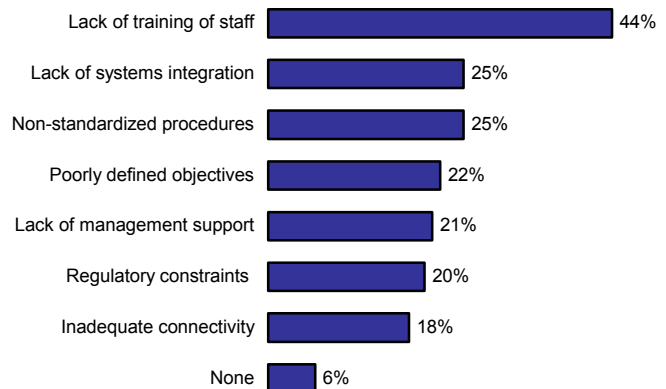
Challenge: Facilitate the transition from connectivity to productive use of ICTs, particularly through the training of economic agents.

CHART 51
PERCENTAGE OF INTERNET-CONNECTED ORGANISATIONS WITH ONLINE APPLICATIONS IN LATIN AMERICA, 2005



Source: "Net Impact 2005, América Latina. De la Conectividad al Crecimiento," *AHCIET Journal*.
Note: The Latin American data reflect 1,212 businesses in the manufacturing, retail distribution, financial services and public (government and health) sectors with more than 25 employees in Argentina, Brazil, Chile, Colombia, Costa Rica and Mexico.

CHART 52
OBSTACLES TO THE IMPLEMENTATION OF NEW TECHNOLOGY IN MEDIUM-SIZED AND LARGE ORGANISATIONS IN LATIN AMERICA, 2005



Source: "Net Impact 2005 América Latina. De la Conectividad al Crecimiento," *AHCIET Journal*.
Note: The Latin American data reflect 1,212 businesses in the manufacturing, retail distribution, financial services and public (government and health) sectors, with more than 25 employees, in Argentina, Brazil, Chile, Colombia, Costa Rica and Mexico.

Goal 12: Businesses

The rapid progress of small and medium-sized enterprises

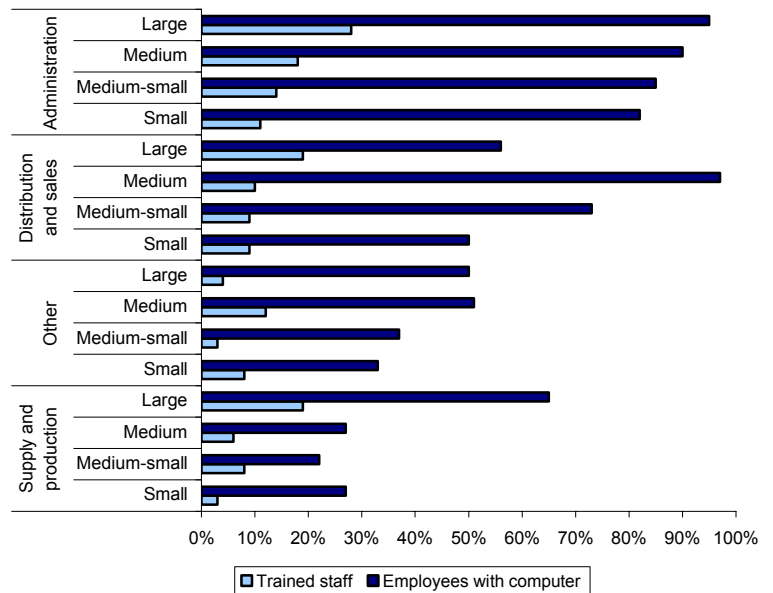
- Statistical data show that there are no longer sharp differences between large and small firms in regard to ICT access and capacity. Rather, ICTs appear to be a levelling factor between firms of different sizes.
- The case of Chile illustrates the situation of small firms, in regard to access to computers in different organisational areas. Though large firms have progressed more in areas where use of ICTs is still relatively uncommon, such as supply and production, it appears to be the case that once more than half of employees have access to PCs, the externalities of connectivity tend to lead to rapid connection for the remaining employees. In the realm of management, this critical mass has already been achieved, while in distribution and sales it is still an ongoing process. In these latter areas, surprisingly, greater penetration is seen among medium-sized firms.
- The example of Brazil shows that the dividing line between basic and more sophisticated use of ICTs lies approximately at the 100-employee point. Larger firms place equal importance on training ICT specialists and general users, whereas smaller firms place greater emphasis on the latter.

Challenge: Promote training and support policies for small and medium-sized firms.

Note:

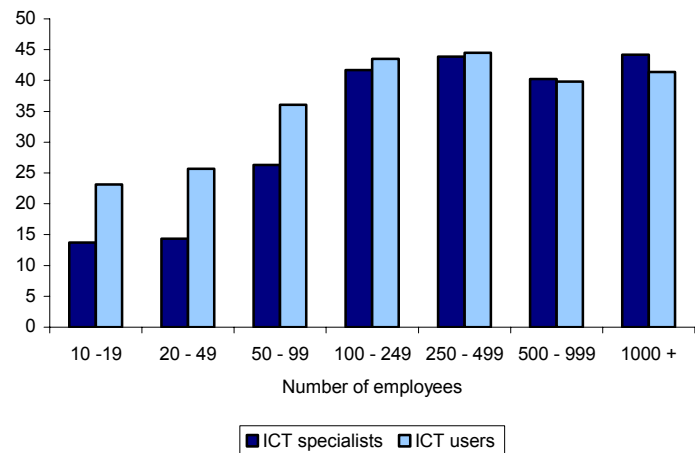
¹ Results of the 2nd round of the ICT Policy Delphi for the year 2010, <http://www.cepal.org/socinfo>

CHART 53
EMPLOYEES IN CHILEAN FIRMS WITH COMPUTERS AND ICT SKILLS, BY FUNCTIONAL AREA, ACCORDING TO SIZE OF FIRM, 2006



Source: Undersecretariat of Economy, "Encuesta Acceso y Uso TICs en Empresas," 2006.
 Note: (1) The percentage of employees trained is calculated as a proportion of the total number of employees with computers. (2) Firms' size is based on annual sales, small firms being those with sales of approximately US\$ 86,000 to US\$896,000; medium-small US\$ 896,001 to US\$ 1,800,000; medium-sized: US\$ 1,801,000 to US\$ 3,500,000; and large over US\$ 3,501,000.

CHART 54
TRAINED EMPLOYEES IN BRAZILIAN FIRMS ACCORDING TO TYPE OF TRAINING, BY SIZE OF FIRM



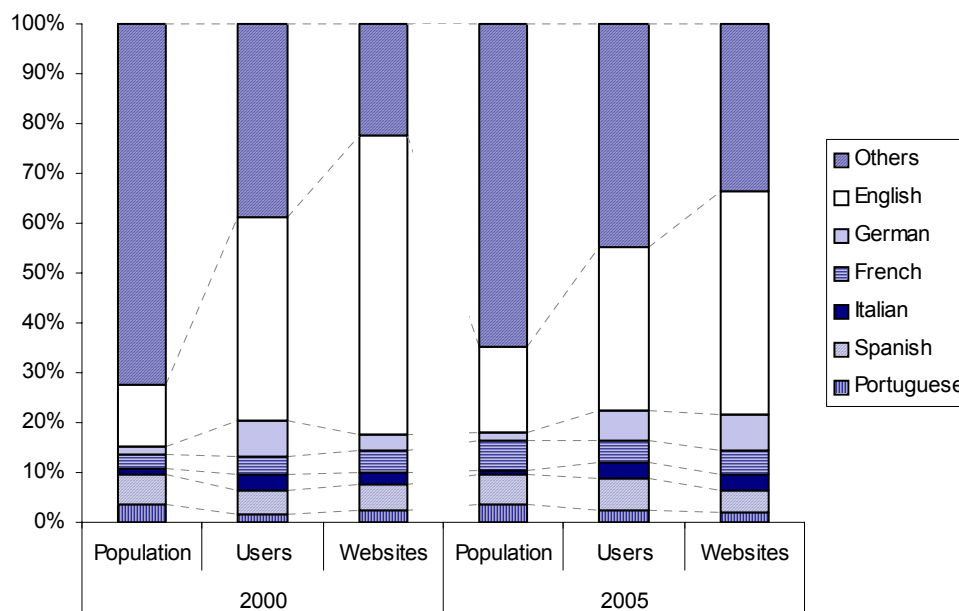
Source: OSILAC, with data from the Internet Steering Committee, Survey of Firms, 2006 (official website at <http://www.cetic.br/empresas/2006/>).

Goal 13: The creative and content industries

Content on digital networks reflects the interests of cybernauts

- Cyberspace is a mirror of the users, who construct it by creating content that reflects their linguistic and cultural interests. On interactive networks, users create their own content through websites, music or video.
 - While data confirm this hypothesis—inasmuch as there is a similarity between the distribution of the population associated with a given language, and the language of Internet users and content—Spanish and Portuguese have fallen slightly behind in the last few years. In 2000, there was proportionately more content in these languages than there were cybernauts, while as of 2006, other languages, such as German and various Asian languages, had gained proportionately, with a corresponding slight decline in the proportionate representation of Latin languages.
 - Current information on Internet content in Latin America's indigenous languages is not available for assessing equity or lack of equity of Internet use, or linguistic balance as related to ethnicity.
- Challenge:** Study the creation of electronic content in Latin America's indigenous languages, so as to gain a better grasp of the cultural diversity in cyberspace.

CHART 55
DISTRIBUTION OF WORLD POPULATION, INTERNET USERS AND WEBSITES,
BY LANGUAGE, 2000-2006



Source: OSILAC, based on data from Fundación Redes y Desarrollo (FUNREDES), "Observatorio de las lenguas y las culturas" (online at www.funredes.org/LC/); Internet World Stats (official website at www.internetworldstats.com).

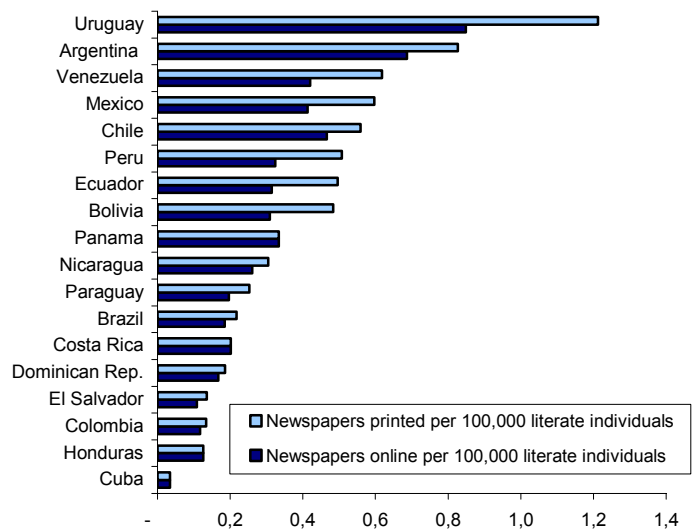
Goal 13: The creative and content industries

The communications media as generators of digital content

- ICTs constitute an advance for the traditional communications media (newspapers and magazines, and television content), since lower costs and the ease of dissemination provided by electronic media open the door for local content.
- The strength of online newspapers is notable. Despite the fact that the region’s information societies are still in their infancy, online newspapers have practically the same penetration as their printed forerunners (see Chart 56). In countries such as Cuba and Honduras, with fewer printed newspapers (as measured by the number of newspapers per 100,000 literate individuals), online media are on a par with traditional newspapers.
- Many of the region’s countries already provide television content over digital networks. Considering that this technology is still new, the number of available IPTV and Web TV stations must be considered a reflection of the extraordinary ease of providing content via digital networks. The fact that the online presence of television stations is significantly lower in the region than in the developed countries is associated with differing bandwidth capacities.

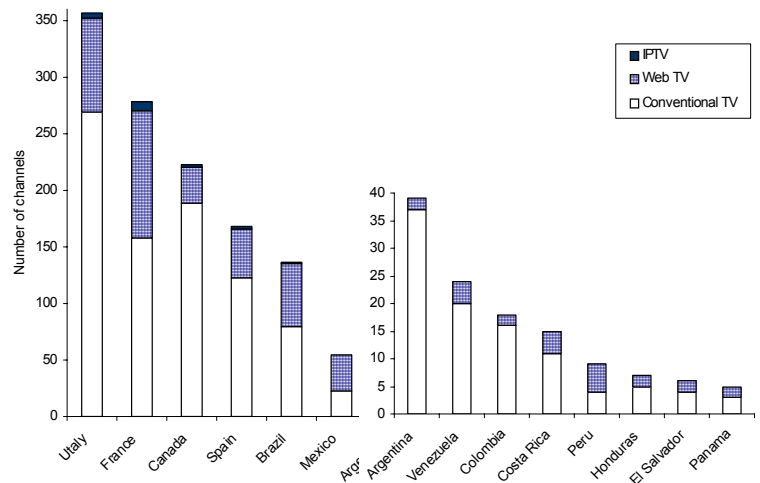
Challenge: Bring traditional newspaper and TV content into the digital age by breaking the vicious circle created by lack of content and insufficient bandwidth.

CHART 56
NUMBER OF PRINTED AND ONLINE NEWSPAPERS PER 100,000 LITERATE INDIVIDUALS, 2006



Source: OSILAC, with data from the website Prensa Escrita (online at www.prensaescrito.com), UNESCO Institute for Statistics (official website at www.uis.unesco.org), and CELADE (official website at www.eclac.cl/celade.)

CHART 57
NUMBER OF ONLINE TV STATIONS, BY TYPE OF STATION, JUNE 2007



Source: OSILAC, with data published at www.global-itv.com.

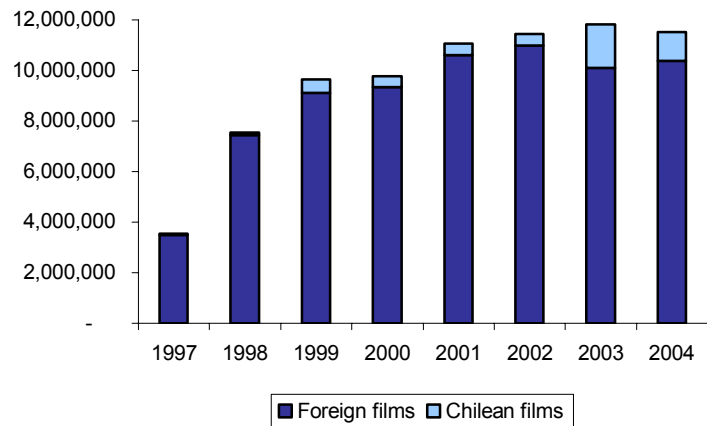
Goal 13: The creative and content industries

Latin American film as a factor in strengthening cultural identity

- Film production contributes to the development of the region’s national identities, its particularities and culture, its artistic expressions, the approaches to its history and to local problems, and the dissemination of the urban and natural images of countries.
- The availability of digital equipment of all sizes and prices for recording, manipulating and presenting sequences of images creates opportunities for a new generation of filmmakers and producers to find their place, allowing them to create alternative material for presentation in different venues. Phenomena such as YouTube signal a trend that is also having an impact on the production of more elaborate films. The advent and rapid spread of production, distribution and exhibition techniques is significantly reducing barriers to filmmaking.
- Interest in national films and film production is increasing in the region, though the sector is still dominated by large transnationals.¹

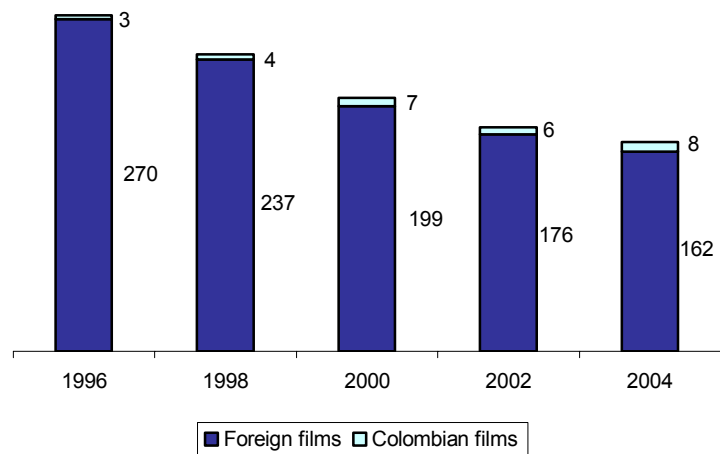
Challenge: Exploit the possibilities that digital tools offer for development of the region’s film industry, as a means of strengthening the cultural identity of the region’s information societies.

CHART 58
NUMBER OF VIEWERS OF CINEMATIC FILMS IN CHILE, BY ORIGIN, 1997-2004



Source: “Tecnologías de la Información y la Comunicación e Industrias Culturales. Una perspectiva latinoamericana,” Katz, ECLAC, June 2006.

CHART 59
NUMBER OF CINEMATIC FILMS OPENING IN COLOMBIA, BY ORIGIN, 1994 – 2004



Source: “Tecnologías de la Información y la Comunicación e Industrias Culturales. Una perspectiva latinoamericana,” Katz, ECLAC, June 2006.

Note:

¹ ECLAC, Katz Jorge, “Tecnologías de la Información y Comunicación en industrias culturales. Una perspectiva latinoamericana,” June 2006.

Goal 14: Internet governance

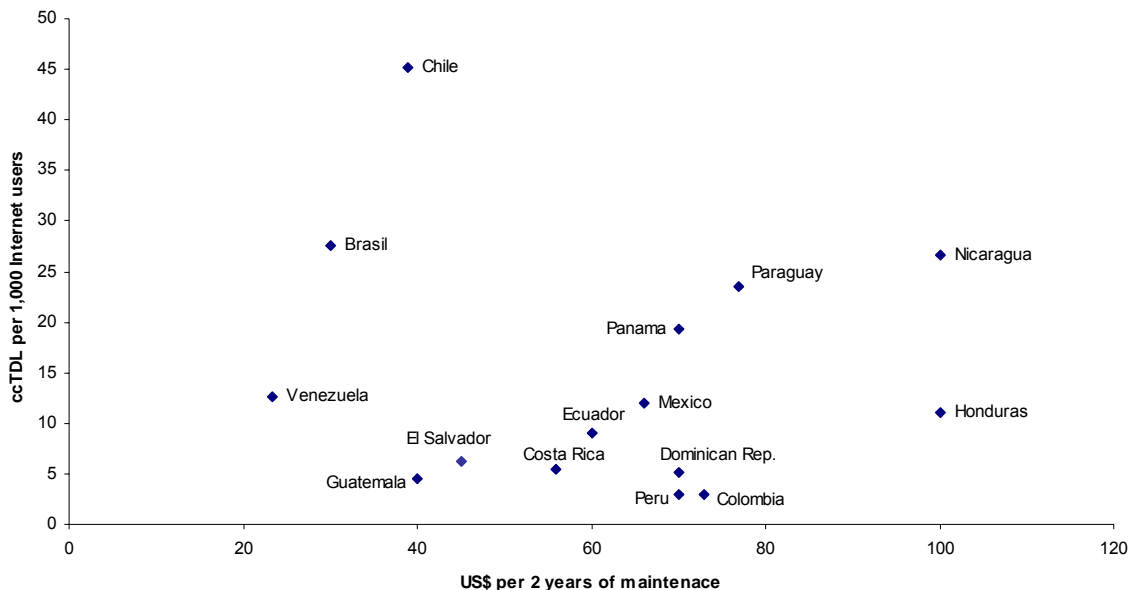
The management of ccTDL, a determinant of Web presence

- There are different approaches to managing Internet domain names in the region. The organisations responsible for this in the region include governmental and private-sector organisations, as well as academic and nongovernmental institutions. Governmental schemes with private-sector cooperation are also to be found. The most common arrangement (used in 10 of the region's countries) assigns the responsibility to academic institutions. Less common are mixed governmental/private-sector schemes (4 countries), private-sector arrangements (4 countries) and management by governmental organisations (2 countries).
- Rates for the maintenance of country code top-level domain (ccTDLs) vary from country to country, since the free modality in the case of

domains ".ar" of Argentina, to US\$ 380 in Bolivia for domains ".bo" (level 2) for two years of lease. There is not yet a clear relationship between the price of maintaining and using a national domain name and the cost of generic domains (.com, .org, .info, etc.). Argentina stands out as the extreme case. With free domain registry, it has 171 ccTDLs per 1,000 Internet users (hence its non-inclusion in Chart 60).

Challenge: Assess in greater detail the implications, advantages and disadvantages of the different Internet governance models in use in Latin America and the Caribbean, with emphasis on participation by all sectors of society, as well as by international organisations.

CHART 60
COST OF REGISTERING CCTDLS AND MAINTAINING THEM FOR 2 YEARS, AND NUMBER OF
ccTDLs PER 1,000 INTERNET USERS, AUGUST 2007



Source: OSILAC, with data published on the websites of national domain name registries; NIC.cl (official website at www.nic.cl), and LatinoameICANN (official website at www.latinoamericann.org).

Goal 14: Internet governance

TABLE 16
DOMAIN NAME ADMINISTRATION ORGANISATIONS IN LATIN AMERICA AND THE CARIBBEAN,
COST OF MAINTAINING DOMAINS, AND NUMBER OF CCTDLS REGISTERED, AUGUST 2007

ccTDL	Organisation responsible	Description of organisation responsible	Website	Cost of first two years of registration (US\$)	Number of ccTDLs registered
.ar Argentina	Ministry of Foreign Relations, International Trade and Culture	Governmental	www.nic.ar	0	1,395,786
.bb Barbados	Cable & Wireless Ltd.	Private firm	http://domains.org.bb/	114	1,010
.bo Bolivia	Agency for the Development of the Information Society in Bolivia	Governmental, with collaboration	www.nic.bo	(level 2) 380 (level 3) 70	3,518
.br Brazil	Internet Steering Committee of Brazil	Governmental, with collaboration	www.nic.br	30	1,175,654
.bs Bahamas	College of The Bahamas	Academic institution	www.nic.bs	data not avail.	data not avail.
.bz Belize	University Management Ltd., joint enterprise of Datapro International Ltd. and the University of Belize	Private firm + university	www.belizenic.bz	34	41,773
.cl Chile	University of Chile	Academic institution	www.nic.cl	39	187,819
.co Colombia	University of Los Andes	Academic institution	www.nic.co	73	19,719
.cr Costa Rica	National Academy of Sciences (public nongovernmental institution)	Academic institution	www.nic.cr	56	6,679
.cu Cuba	CITMATEL (organisation associated with the Ministry of Science, Technology and Environment)	Governmental	www.nic.cu	(level 2 and 3 national & state) 16 (level 2 and 3 national & state) 404	1,429
.do Dominican Rep.	Pontificia Universidad Católica Madre y Maestra	Academic institution	www.nic.do	70	10,205
.ec Ecuador	NIC.ec S.A.	Private firm	www.nic.ec	(.ec, com.ec, net.ec, org.ec, edu.ec for nationals) 60 (pro.ec, med.ec, fin.ec, info.ec for nationals) 36	13,884
.sv El Salvador	National Science and Technology Council	Governmental, with collaboration	www.svnet.org.sv	45	3,921
.gt Guatemala	Universidad del Valle de Guatemala	Academic institution	www.gt	(residents and organization) 40	5,904
.mx Mexico	Instituto Tecnológico de Estudios Superiores de Monterrey	Academic institution	www.nic.mx	66	215,818
.hn Honduras	Sustainable Development Network, supported by the National Telecommunications Enterprise (Hondutel)	Civil society + state enterprise	www.nic.hn	100	3,731
.pa Panama	Universidad Tecnológica de Panamá	Academic institution	www.nic.pa	(all less .net.pa) 70	4,255
.py Paraguay	Digital Electronics Laboratory of the Catholic University, and Nat. Computer Centre of the Nat. Univ.	Academic institution	www.nic.py	75	5,629
.pe Peru	Peruvian Scientific Network	Private firm	www.nic.pe	70	17,697
.tt Trinidad&Tobago	TTNic	Private firm	www.nic.tt	data not avail.	data not avail.
.uy Uruguay	University of the Republic	Academic institution	www.rau.edu.uy/r au/dom/	(.com.uy) 83 (.edu.uy, .gub.uy, .org.uy, .net.uy, .mil.uy) 25	13,101
.ve Venezuela	National Information Technologies Centre	Nongovernmental organisation	www.nic.ve	23	51,986

Source: OSILAC, with data published on the websites of national domain name registries, with the collaboration of LACNIC (official website at www.lacnic.net), LACTLD (official website at www.lactld.org) and LatinoameICANN (official website at www.latinamericann.org).

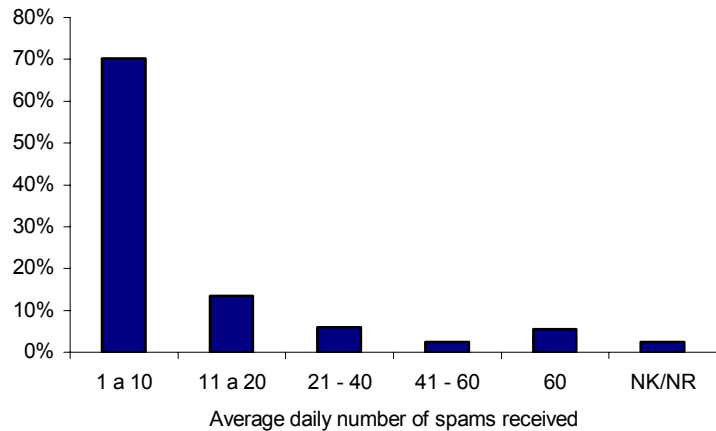
Goal 14: Internet governance

Spam as an Internet governance challenge

- In Brazil, 52% of people with email state that they receive spam,¹ a situation that causes serious problems for users: non-receipt of email because of filled mailboxes, time spent in deleting spam messages, loss of productivity, and receipt of undesired, offensive and possibly fraudulent content.
- 70% of those receiving spam state that they receive between 1 and 10 such messages daily, while 6% receive as many as 60 per day (see Chart 61).
- In Brazil, the amount of spam reported in 2005 and 2006 was less than in 2004. This could be associated with technological progress in spam filters, more educated users, and more concerted efforts by the country’s Internet governance authorities, among other reasons. Regulation and monitoring of Internet activity is the responsibility of the Internet Steering Committee (CGI.br), which is comprised of members of the government, the business community and the services sector, as well as the academic community. Security incidents are addressed by the Centre for Study, Response and Handling of Security Incidents (Centro de Estudos, Resposta e Tratamento de Incidentes de Segurança, or CERT.br), which has developed early-warning mechanisms.

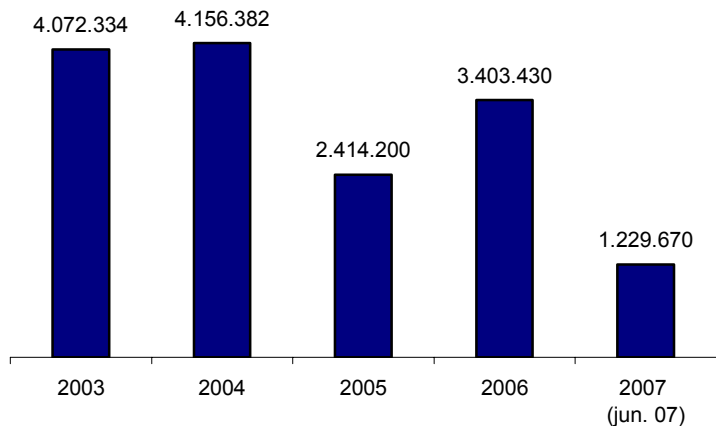
Challenge: Develop Internet governance mechanisms and approaches to reduce security problems and undesired email.

CHART 61
AVERAGE VOLUME OF SPAM RECEIVED DAILY IN MAIN EMAIL ACCOUNT IN BRAZIL, JULY-AUGUST 2006
(Percentage of all people receiving spam)



Source: Centros de Estudos sobre TIC (CETIC) (official website at www.cetic.br).
 Note: NK/NR: not known/no response

CHART 62
ANNUAL VOLUME OF SPAM REPORTED IN BRAZIL, 2003 – 2007



Source: Centre for Study, Response and Handling of Security Incidents in Brazil (official website at www.cert.br).
 Note: The spam statistics are generated by information obtained from complaints sent to SpamCop and forwarded to CERT.br.

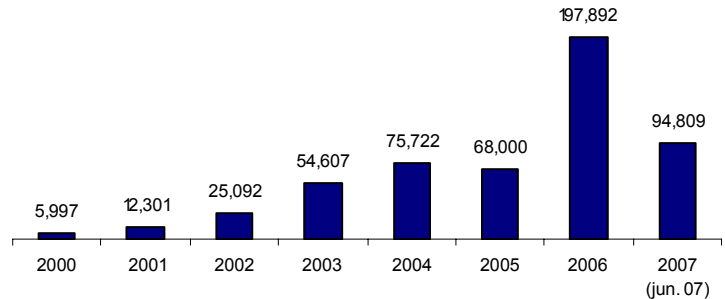
Goal 14: Internet governance

Better Internet governance through regional cooperation

- Internet security goes beyond the issue of spam. A security incident may be defined as any confirmed or suspected adverse event related to the security of computer systems or networks. Included are unauthorised attempts to access systems or data, service-denial attacks, unauthorised use of or access to a system, modification of a system without the prior knowledge, instructions or consent of the system’s owner, and disregard for the security policies of a firm or service provider.
- Brazilian data provide information on online security in that country. Chart 67 shows the increasing number of security incidents reported annually.
- In regard to types of incidents, although 44% of Internet users state that they have no problems, 28% of users (and 52% of businesses connected to the Internet) state that they have been affected by a virus, making this the most common type of attack.
- There are few cases of fraud, but since the consequences are potentially so serious, this is understandably one of users’ greatest fears in carrying out electronic transactions.

Challenge: Take advantage of the experience of the region’s countries to improve security and confidence in networks by sharing knowledge and technical cooperation.

CHART 63
INTERNET INCIDENTS PER YEAR IN BRAZIL, 1999- 2007



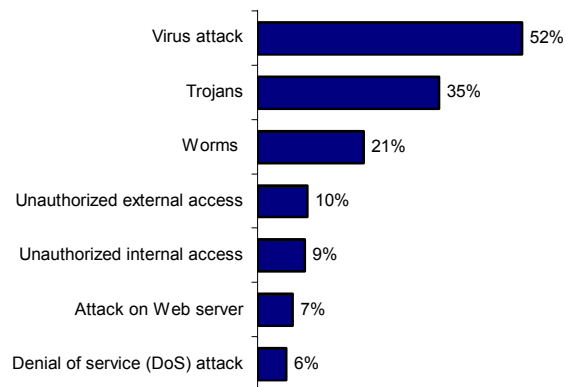
Source: CERT (official website at www.cert.br).
Note: Reflects incidents voluntarily reported to CERT.

CHART 64
SECURITY PROBLEMS IN INTERNET USE IN BRAZIL, JULY-AUGUST 2006

Users: Percentage of total Internet users



Businesses: Percentage of total number of businesses with Internet access



Source: CERT (official website at www.cert.br).
Note: Total is over 100% due to the fact that questions have multiple answers.

Goal 14: Internet governance

Decreasing regional participation in world governance

- The United Nations Working Group on Internet Governance was created after the 2003 World Summit on the Information Society, in order to research and propose actions in this area.
 - In July 2005, it presented a report focusing on four topics: IP addresses and domain names, security and privacy issues, property rights, and issues relating to national development.
 - The proposed policy for Internet management included the creation of an Internet governance forum with participation from civil society, the private sector and governments, in order to discuss a wide range of questions related to this issue and make recommendations to the international community.
 - Brazil is slated to host the second meeting of the Internet Governance Forum, to be held in November 2007. The meeting will facilitate greater participation, concerning the various aspects of this issue, by entities throughout the region, in an attempt to boost what has been flagging participation in such events in recent times.
- Challenge:** Agree on a position that protects and takes account of regional needs and particularities, while increasing attendance at international Internet governance meetings, so as to provide for greater contributions by the region in the global debate on relevant issues.

TABLE 17
WORLD AND REGIONAL PARTICIPATION IN MEETINGS OF THE UNITED NATIONS WORKING GROUP ON INTERNET GOVERNANCE, 2004 – 2006

Date	Name	Total participants	Region participants	The region as a percentage of total
Sept. 20-21, 2004	Consultations on the creation of the Working Group on Internet Governance	185	30	16%
Nov. 23-25, 2004	First meeting	104	9	9%
Feb. 14-18, 2005	Second meeting	124	14	11%
Apr. 18-20, 2005	Third meeting	data not avail.	data not avail.	data not avail.
Jun. 15-17, 2005	Fourth meeting	184	7	4%
Oct. 30– Nov. 2, 2006	First Internet Governance Forum	1193	38	3%

Source: OSILAC, with information from the Working Group on Internet Governance (WGIG) (official website at www.wgig.org) and the Internet Governance Forum (official website at www.intgovforum.org).

Note:

¹ Centre for the Study of Information and Communication Technologies, ICT survey of households, 2006

V. Public transparency and efficiency

The public transparency and efficiency goals are:

Goal 15: Electronic government

Goal 16: e-Education

Goal 17: e- Health

Goal 18: Disasters

Goal 19: e-Justice

Goal 20: Environmental and natural resource protection

Goal 21: Public information and cultural patrimony

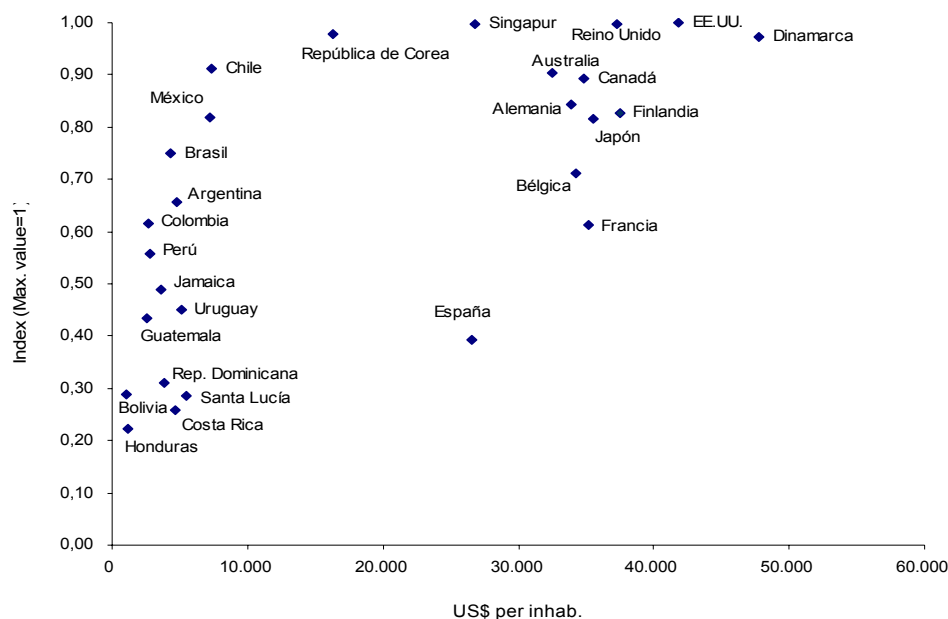
Goal 15: Electronic government

Government online: standard-bearer of the information society

- The online presence of government is important for the development of the information society, since it promotes the use of ICT applications by the population, improves the provision of services to citizens and increases transparency and democracy through greater dissemination of information.
- In view of the fact that governments in more developed countries have greater online presences, it is notable that a number of e-government efforts in Latin American and Caribbean countries with considerably lower per capita incomes have created a substantial online presence. Chile, Mexico and Brazil are among the 20 countries whose public sectors have the greatest online presence (occupying positions 6, 12 and 17, respectively, in the world ranking).
- The situation is not as encouraging for the rest of the region. Some countries' e-government efforts are far behind, creating a gap between countries. It is clear that the wealth factor alone does not explain this gap. However, it is encouraging that even with scant resources it is possible to create e-government policies and initiatives that have a positive impact on efforts to modernise the State.

Challenge: Promote e-government programmes as a catalyst for other sectors of the society and economy. Share practices of countries in the region that are more advanced in this area with countries that are less so, and incorporate the practices in the societies by designing and implementing policies and developing appropriate solutions.

CHART 65
PER CAPITA GDP AND INDEX OF ONLINE GOVERNMENTAL PRESENCE, 2005



Source: OSILAC, with data from "Global e-government readiness report 2005, from e-government to e-inclusion," Department of Economic and Social Affairs of the United Nations (online at <http://www.unpan.org/egovment5.asp>); and ITU "World Telecommunications Indicators Database," 2006.

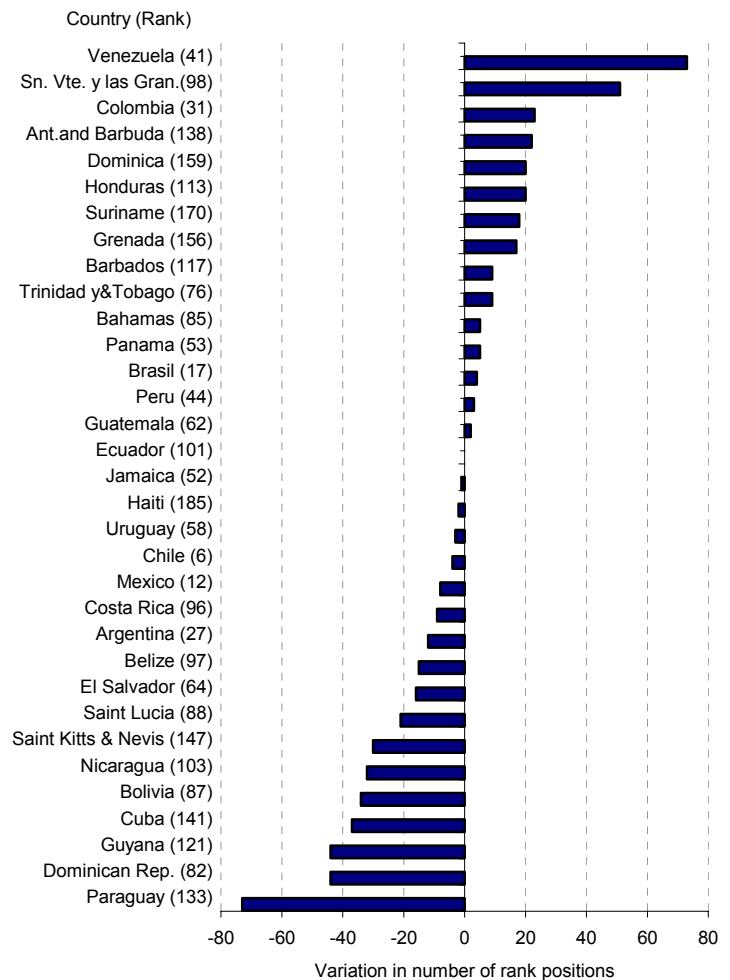
Goal 15: Electronic government

Online presence: a target moving too fast for the region

- Though many Latin American and Caribbean countries are in a promising position in terms of the online presence of their public sectors, the fact that the process has been somewhat stalled is a matter of concern. Between 2003 and 2005, 15 of the region's countries rose in the world ranking of countries according to the online presence of their governments. Meanwhile, 18 remained in the same position or declined in the ranking.
- The countries that advanced are principally the ones that are furthest behind. Colombia and Brazil are exceptions, since their performance in this area improved.
- The greatest progress was among the countries that lagged most severely, at rankings of 150 or lower, out of the 191 countries ranked. The countries whose decline was most noticeable are the ones whose rankings in 2003 were above 100, namely Paraguay, the Dominican Republic and Guyana, whose positions declined drastically, though some countries notable for their progress in this area also fell in the rankings. Thus, Chile, Mexico and Argentina declined, though remaining among the 30 countries with the greatest government online presence.

Challenge: Strengthen online government programmes to maintain the pace of improvement that other countries in the world are achieving in this area.

CHART 66
CHANGE IN RANKING OF COUNTRIES ACCORDING TO
ONLINE PRESENCE OF THEIR PUBLIC SECTORS, 2003 - 2005
(United Nations Internet Index)



Source: OSILAC, with data from "Global e-government readiness report 2005, from e-government to e-inclusion," Department of Economic and Social Affairs of the United Nations (online at <http://www.unpan.org/egovernment5.asp>).

Note: The Internet index comprises the United Nations Global e-Government Readiness Index, and is based on a model of online governmental presence. It reflects the status of 191 United Nations member States.

Goal 15: Electronic government

The progress of e-government based on regional cooperation

- The considerable diversity in the degree of development of e-government among the region's countries presents an opportunity to advance through regional cooperation, a process in which mechanisms for exchange are important. One example is the Electronic Government Network of Latin America and the Caribbean (Red de Gobierno Electrónico de América Latina y El Caribe, or RedGEALC), referenced in eLAC2007 Goal 15. This network includes 31 countries; its objective is to create opportunities for sharing of knowledge, experts and solutions in all areas related to e-government, in order to facilitate collaboration among the region's governments.
 - Between 2005 and 2007, over 10 cooperation and technical assistance exercises took place through RedGEALC. Many of these focused on design and strategy for the development of e-government, as well as on sharing computer solutions and applications for providing online services (see Table 18).
 - Workshops and other events are an effort to expand and deepen knowledge of different aspects of e-government, such as interoperability and customs management systems. Since 2004, 11 events of this type have been held, involving different countries in the region (see Table 19).
- Challenge:** Promote regional cooperation for the transfer of knowledge, and for sharing of solutions and applications relevant to online government, through active participation in schemes such as RedGEALC.

TABLE 18
CASES OF HORIZONTAL COOPERATION AND TECHNICAL ASSISTANCE AMONG
REDGEALC MEMBER COUNTRIES, AUGUST 2007

Countries involved	Year	Date	Objective of the cooperation
Peru - Nicaragua	2007	July 23 - 25	Technical support to Nicaragua in Digital Certification and regulatory aspects of the electronic government.
Brazil - Uruguay	2007	June 28-29	Working meetings to define the interoperability architecture, and the processes and standards for exchange of information.
Chile - Panama	2007	June 3-6	Agenda focused on information on Chile's experience with standards.
Peru - Uruguay	2007	May 10-11	Formulate legislative bills, regulations and standards as a basis for reform of the State, using e-government tools.
Mexico - Colombia	2006	Aug. 28-Sept. 1	Share Mexico's experience for implementing a public employment information and management system in Colombia.
Panama - Bolivia	2006	May 22-24	Create a framework for the Bolivian government to familiarise itself with Panama's experience in interoperability for government procurement.
Chile - Caribbean	2005	Nov. 28-30	Provide an opportunity for Latin American and Caribbean e-government experts to collaborate.
Colombia - Dominican Rep.	2005	August	Based on Colombia's experience, provide advice on designing a plan of action and implementing the citizen's website project and the government services project.
Mexico - Argentina	2005	Aug 30-Sept. 2	Share good e-government practices of Mexico's Secretariat of Public Service.
Brazil - Dominican Rep.	2005	June 4-7 .	Share experiences in the implementation of a government intranet.
Peru - Chile	2005	May 2-3	Review the experience of CONSUCODE in formulating and interpreting standards, and the experience of Peru's Procurement Tribunal.

Source: OSILAC, with information from REDGEALC (official website at www.redgealc.net).

Goal 15: Electronic government

TABLE 19
EVENTS HELD BY REDGEALC, AUGUST 2007

Year	Date/Place	Event	Number of participants	Participating countries and organisations
2007	May 24-25 de Dominica Rep.	Annual meeting	49	ATG (2), ARG (1), BHS (1), BRB (1), BLZ (1), BRA (1), CHL (2), COL (2), CRI (1), DMA (1), ECU (1), SLV (1), GTM (1), HTI (3), HND (1), JAM (1), NIC (1), PAN (1), PRY (1), PER (2), DOM (3), VCT (1), KNA (1), LCA (1), SUR (2), TTO (1), URY (1), VEN (1), ICA (3), SEDI (2), IDB (1), ECLAC (1), World Bank (1), Development Gateway (1), CARICAD (1), RedGEALC (2)
	May 2-4 Costa Rica	Interoperability and Governmental Intranet workshop	24	ARG (1), BRA (3), COL (1), CHL (2), JAM (1), MEX (1), NIC (1), URY (1), VEN (1) CRI (7), USA (4)
2006	Nov. 8-10 Colombia	Interoperability and Governmental Intranet workshop	25	ARG (1), BRB (1), BRA (1), COL (7), CRI (1), CHL (1), ECU (1), GTM (1), JAM (1), MEX (1), NIC (1), PRY (1), PER (1), DOM (1), TTO (1), ECLAC (1), RedGEALC (1), OAS (1), IDB (1)
	August 2-4 Dominican Rep.	Modernisation of Customs Systems: Transparency and its impact on collections	17	CHL (1), CRI (1), ECU (2), GTM (1), NIC (1) and DOM (11)
	July 24-26 de Jamaica	Working visit to customs	34	ATG (2) GRD (2) USA (2), JAM (28)
	April 4-7 de Brazil	GEALC meeting in Brazil. ICT Solutions for the Public Sector	30	ATG (1), ARG (1), BRB (1), BHS (1), BLZ (1), BOL (1), COL (1), CRI (1), DMA (1), ECU (1), SLV (1), GRD (1), GTM (1), HND (1), JAM (1), MEX (1), NIC (1), PAN (1), PRY (1), PER (1), DOM (1), VCT (1), KNA (1), LCA (1), SUR (1), TTO (1), URY (1), VEN (1), OAS (1), RedGEALC (1)
	March 6-8 de Canada	Sharing Canadian experiences in Electronic Government workshop	37	ATG (2), ARG (1), BHS (1), BRB (1), BLZ (1), BRA (1), CHL (1), COL (2), CRI (1), DMA (1), ECU (1), SLV (1), GTM (1), HND (1), JAM (1), NIC (1), PAN (1), PRY (1), DOM (2), VCT (1), KNA (1), LCA (1), SUR (1), TTO (1), URY (1), VEN (1), ICA (3), SEDI (2), IDB (1), ECLAC (1), Development Gateway (1), CARICAD (1), RedGEALC (2)
	July 26-28 Trinidad and Tobago	Caribbean workshop on Best Practices in Electronic Government	28	ATG (1), BHS (1), BRB (1), BLZ (1), CHL (1), DMA (1), GRD (1), GUY (1), JAM (1), MEX (1), VCT (1), KNA (1), LCA (1), SUR (1), TTO (5), ICA (1), ECLAC (1), UN (1), OAS (1), CARICAD (1), RedGEALC (2)
2004	May 10 – 12 Brazil	Workshop on Building Electronic Government Capacity	25	ARG (1), BOL (2), BRA (3), COL (2), CRI (1), CHL (1), ECU (1), SLV (1), GTM (2), HND (1), MEX (1), NIC (1), PAN (2), PRY (1), PER (1), DOM (2), URY (1) VEN (1)
	April 27-28 Peru	Workshop on Building Electronic Government Capacity	30	ARG (1), BOL (2), BRA (1), COL (2), CRI (2), CHL (1), ECU (2), SLV (1), GTM (2), HND (2), MEX (1), NIC (2), PAN (2), PRY (1), PER (5), DOM (2), URY (2) VEN (1)
2003	Nov. 17-21 Chile	Workshop on Building Electronic Government Capacity	31	ARG (2), BOL (2), BRA (1), COL (2), CRI (2), CHL (5), ECU (2), SLV (1), GTM (2), HND (2), MEX (1), NIC (2), PAN (2), PRY (1), PER (1), DOM (2), URY (2), VEN (1)

Source: OSILAC, with information from REDGEALC (official website at www.redgealc.net).

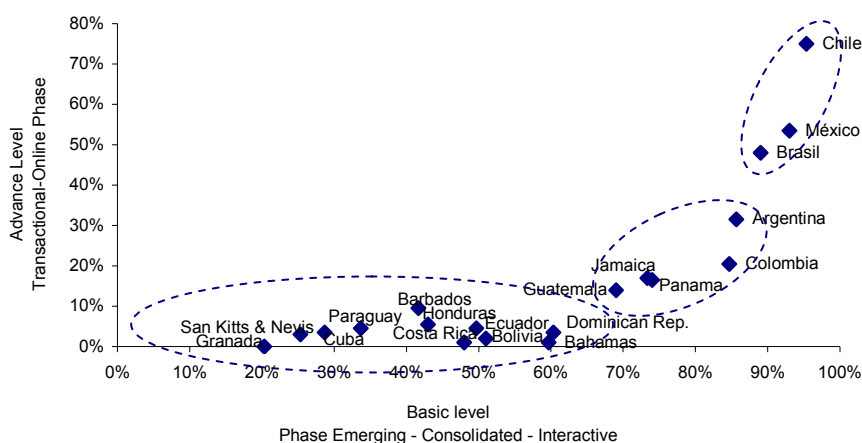
Goal 15: Electronic government

Interoperability: a prerequisite for government equipped for e-transactions

- An advanced phase in the development of e-government is the single-window, a single website that provides for all types of citizen transactions, regardless of what government agency they involve, and even if the information associated with the transaction is scattered among different databases. The fundamental prerequisite for this is interoperability of systems inside and outside different sections of government.
- In the region, there are different degrees of sophistication in the online presence of the public sector. For one group of countries, this is a basic level: institutions have official websites with essential information relating to the institution. Policies, laws, reports and downloadable databases are also provided, but the transmission of information is unidirectional. In some cases, there are downloadable forms for subsequent processing through traditional offline channels, a degree of audio and video functionality is provided, or the government office may be contacted via email.
- A second group of countries is in an intermediate stage, with approximately 20% of their websites in an advanced state of development, covering transactions and networking. In these cases, information can be transmitted in both directions. Payments can be processed online, and there is online bidding for government contracts. Services are available on a 24/7 basis. The functionality includes online advice to the public, and the system integrates various public-sector entities.
- In a third group of countries (Chile, Mexico and Brazil), over 85% of the websites are at the basic level, while over 50% are at an advanced stage of development.

Challenge: Promote the interoperability of public administration systems within and between different agencies, in order to improve processing of citizen issues and government processes by the use of single windows.

CHART 67
DEGREE OF SOPHISTICATION OF PUBLIC SECTOR'S ONLINE PRESENCE IN THE REGION
COUNTRIES, ACCORDING TO PHASE OF DEVELOPMENT OF E-GOVERNMENT, 2005
(Percentage of websites)



Source: OSILAC, with data from "Global e-government readiness report 2005, from e-government to e-inclusion," Department of Economic and Social Affairs of the United Nations (online at <http://www.unpan.org/egovernment5.asp>).

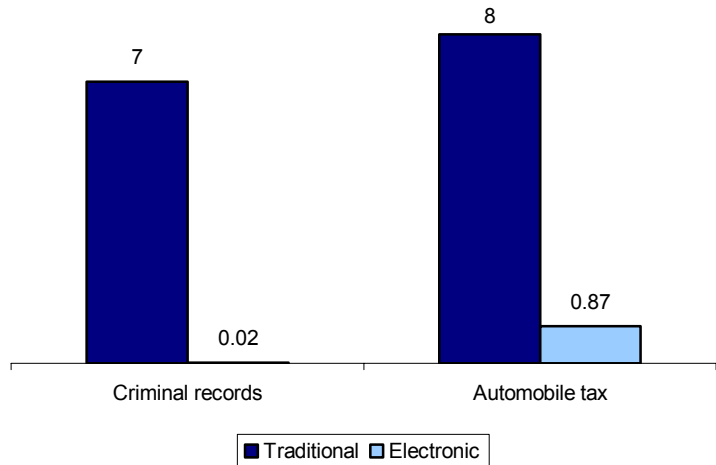
Goal 15: Electronic government

Significant savings through electronic government

- The provision of services by government requires significant State resources. The gains in efficiency from providing services to citizens are particularly important for developing countries. ICTs are an important tool for generating savings, insofar as they can improve the processes involved in providing services.
- As illustrated by the case of the state of São Paulo, in Brazil, the Internet significantly reduces the cost of providing individuals' police records from US\$ 7 to US\$.02, i.e., a 99% saving over the traditional method. Collection of the automobile tax via electronic platforms generates savings of US\$ 7 per case processed, reducing cost by 89%, from US\$ 8 to US\$.87.
- The greater efficiency associated with the adoption of technology goes beyond economic factors. It also provides benefits for citizens, such as 24-hour availability of services 365 days a year, savings in transportation, as well as savings in time. Chile has reduced the length of time needed for processing of municipal matters by as much as 24 days.

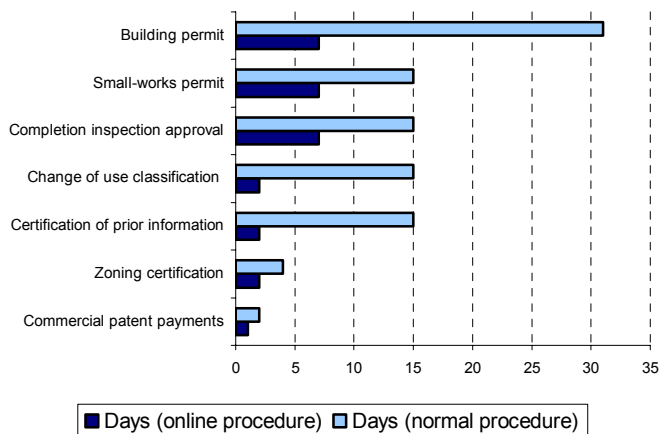
Challenge: Adopt ICTs to improve citizen services, taking advantage of regional cooperation and sharing of experiences.

CHART 68
COST TO THE STATE OF SÃO PAULO (BRAZIL) FOR PROCESSING CITIZEN ISSUES, ACCORDING TO TYPE OF PROCESS
(USD per process) (Based on 2003 procedures)



Source: "Relógio da Economia," (official website at www.relogiodaeconomia.sp.gov.br).
 Note: The official exchange rate was used.

CHART 69
TIME REQUIRED FOR PROCESSING OF MUNICIPAL MATTERS IN CHILE, ACCORDING TO TYPE OF PROCESS, 2005



Source: "Gobierno Electrónico en Chile 2000-2005, Estado del Arte II," Ministry, General Secretariat of the Presidency, Government of Chile.

Goal 15: Electronic government

Substantial savings through electronic contracting

- The use of ICTs in governmental procurement and contracting makes it possible to automate and simplify formalities and improve the management of information, which reduces operational costs for the State and for participating firms. Thus, a great number of the region’s countries have websites for government contracting.¹
- In Chile, the government procurement website is used more and more widely, as shown by increases in the volumes and values transacted.
- In Brazil, the state of São Paulo reduced its operating costs by 55% through the use of ICTs. Costs fell from US\$ 427 to US\$ 194 per purchase. For tenders, costs fell 73% from US\$ 1,875 to US\$ 513 per bidding process.
- Moreover, the availability of information on prices resulted in lower purchase prices. São Paulo’s savings as a result of processing efficiency and pricing are estimated to be on the order of US\$ 2,600 from 2000 through August of 2007. For these purposes, the state uses its online Electronic Procurement and Bidding Exchange. Savings in Chile in 2004 totalled US\$ 70 million, once again representing both improved efficiency and better prices.²

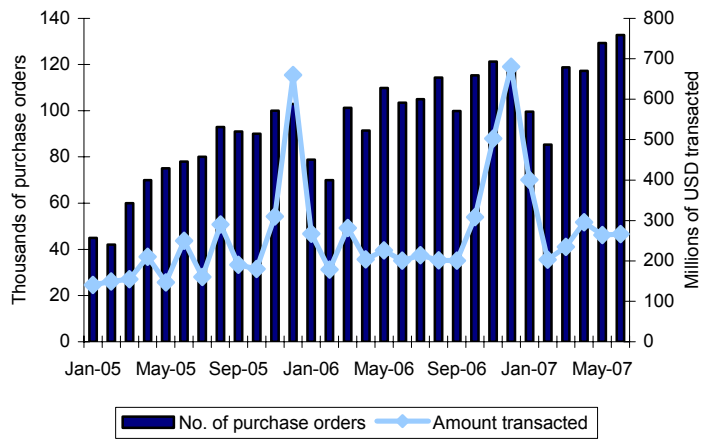
Challenge: Utilize digital solutions to improve government’s use of scarce public resources, while increasing government transparency.

Notes:

¹ Argentina: www.argentinacompra.gov.ar; Bolivia: www.sicoes.gov.bo; Brazil: www.comprasnet.gov.br; Chile: www.chilecompra.cl; Colombia: www.contratos.gov.co/puc/; Costa Rica: www.hacienda.go.cr; Ecuador: www.contratanet.gov.ec; Guatemala www.guatecompras.gt; Honduras: www.honducompras.gob.hn; Jamaica: <http://www.Procurement.gov.jm/procurement/>; Mexico: www.compranet.gob.mx; Nicaragua: www.nicaraguacompra.gob.ni; Panama: www.panamacompra.gob.pa; Paraguay: www.contratacionesparaguay.gov.py; Peru: www.contraloria.gob.pe/compras/compras.htm; Uruguay www.comprasestatales.gub.uy; Venezuela: www.compras.gov.ve.

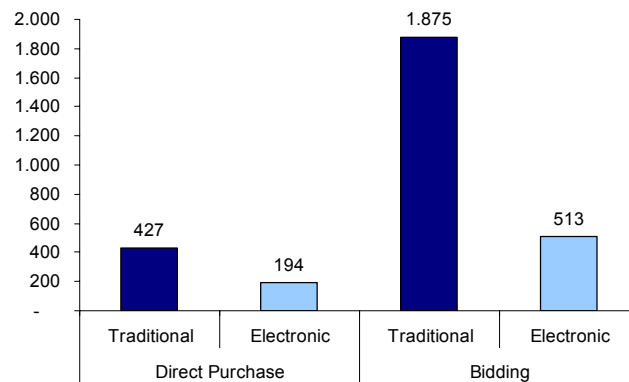
² Brazil: information published at www.relogiodaeconomia.sp.gov.br; Chile, “Informe de Gestión Chile Compra, Balance año 2005.”

CHART 70
VOLUME AND VALUE OF TRANSACTIONS CARRIED OUT THROUGH CHILE’S CONTRACTING WEBSITE, 2005 – 2007



Source: OSILAC, with data from Chile Compra (official website at www.chilecompra.cl).

CHART 71
COST TO THE STATE OF SÃO PAULO (BRAZIL) OF COMPLETING PUBLIC CONTRACTS, ACCORDING TO METHOD OF PROCESSING
(US\$ per contract) (Based on 2003 procedures)



Source: “Relógio da Economia,” (official website at www.relogiodaeconomia.sp.gov.br). Note: The official exchange rate was used.

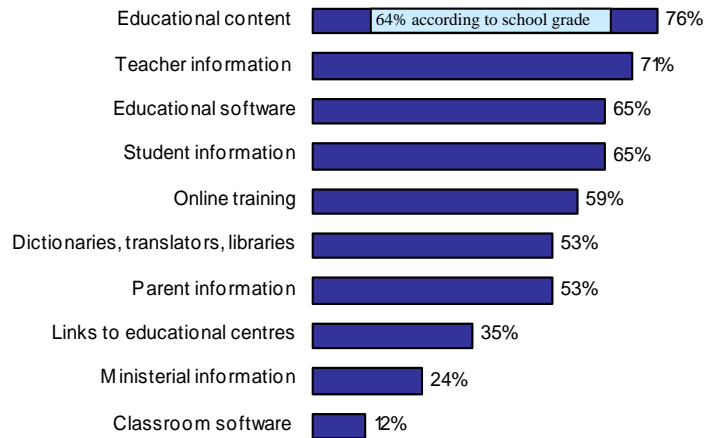
Meta 16: e-Education

Moving toward full use of ICTs in education

- The presence of pedagogical content is essential in maximizing the effectiveness of school connectivity. Cognizant of this, the countries of the region subscribed to the World Summit on the Information Society Plan of Action (Geneva, 2003), making a commitment to “adapt all primary and secondary school curricula to meet the challenges of the information society” by 2015.
- There are educational portals in the region created by private initiatives and civil society, along with governmental ones, generally administered by education ministries.
- Only 76% of the region’s official education portals have educational content. In many cases, what they provide is ministerial and sectoral information. Only 64% of educational content is grouped by grade level. Educational software is the least frequently available type of content on government education websites.
- As Chart 73 indicates, unlike the situation in OECD countries, the lack of educational software is perceived by Latin American and Caribbean teachers as a high-impact factor in their ability to teach effectively. This is not surprising, considering the expectations of a generation of children accustomed to PlayStations and Xboxes.

Challenge: Promote the creation and updating of educational content, taking advantage of the almost infinite economies of scale provided by digital information (copy-and-paste).

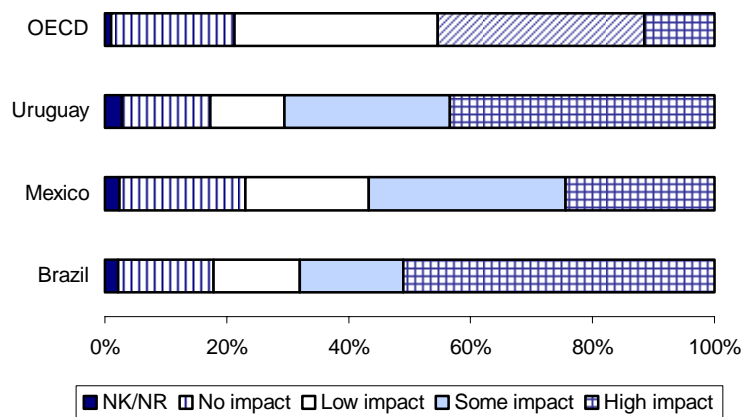
CHART 72
CONTENT OF THE OFFICIAL EDUCATION PORTALS OF LATIN AMERICAN COUNTRIES, FEBRUARY 2007
(Percentage of websites) (n=17)



Source: OSILAC, with information from the educational portals of members of RELPE (Latin American Education Portals Network), as identified by the Ministries of Education.

Note: Classroom software includes software used by teachers to prepare and conduct classes.

CHART 73
TEACHERS’ PERCEPTIONS OF HOW THE LACK OF SOFTWARE IMPACTS TEACHING CAPACITY, 2003
(Percentage of schools consulted)



Source: OSILAC, with information from the Program for International Student Assessment, OECD, Database 2003 (official website at www.pisa.oecd.org).

Goal 16: e-Education

Regional collaboration for ICT-based educational development

- eLAC Goal 16 is to “link national educational portals to create a Latin American and Caribbean network of educational portals to facilitate the sharing of experiences and content, while promoting the adaptation, localisation and development of educational content to be disseminated through this network.”
 - The last three years saw the creation of the Latin American Education Portals Network (Red Latinoamérica de Portales Educativos, or RELPE), designed as a regional distribution system for storing and circulating teaching content. Its nodes consist of the national educational portals designated for this purpose by each country. The network is expected not only to maximise exchange of educational software and content, but also to build a community for sharing and collaboration among educational personnel in different countries, so as to take advantage of existing educational content and the experiences of the network’s members.
 - In RELPE, each country develops its portal according to its educational plans and national interests. The choice of technological platform is made independently. The content developed by each member circulates freely on the network. Since the cost of digital content can be high, whereas reproducing it costs almost nothing, enormous economies of scale can be achieved.
 - Currently, 7 of the 18 RELPE partners are full members, which means that they have completed the protocol for indexing of the network content and have made the technical adaptations needed to connect to it (see Table 20).
 - 76% of the RELPE portals are purely educational, while 12% are institutional sites that also offer ministerial and administrative information. The remaining 12% are Ministry of Education websites focused exclusively on the dissemination of institutional and sectoral information.
- Challenge:** Maximize the benefits of the network for the development of educational content for students and teachers, and promote sharing of experiences in the region for the benefit of different groups interested in educational issues (students, teachers, parents, heads of educational institutions, etc.).

Goal 16: e-Education

TABLE 20
MEMBERS OF THE LATIN AMERICAN NETWORK OF EDUCATIONAL PORTALS, FEBRUARY 2007

Country	Portal	Type of member
Argentina	www.educ.ar	Full
Bolivia	www.minedu.gov.bo	Subscriber
Brazil	www.webeduc.mec.gov.br	Full
Colombia	www.colombiaaprende.edu.co	Full
Costa Rica	www.mep.go.cr	Subscriber
Cuba	www.rimed.cu	Subscriber
Chile	www.educarchile.cl	Full
Ecuador	www.educarecuador.ec	Subscriber
El Salvador	www.miportal.edu.sv	Subscriber
Guatemala	www.mineduc.gob.gt/default.asp	Subscriber
Mexico	www.sepiensa.org.mx	Full
Nicaragua	www.portaleducativo.edu.ni/default.asp	Subscriber
Panama	www.meduca.gob.pa	Subscriber
Paraguay	www.educaparaguay.edu.py	Subscriber
Peru	www.huascan.edu.pe	Full
Dominican Rep.	www.educando.edu.do	Full
Uruguay	www.todosenred.edu.uy	Subscriber
Venezuela	portaleducativo.edu.ve	Subscriber

Source: Latin American Network of Educational Portals (RELPE) (official website <http://ww2.relpe.org/Relpe/>).

Note: Full members are those, designated by the respective Ministry of Education (one per country), that have completed the network protocol for indexing and content and made the technical adaptations to connect virtually to the network. Subscribing members are those portals, designated by the corresponding Ministry of Education, that are in the design or development process, or that have not completed the activities necessary for actual connection to RELPE. These will become full members once they meet the conditions referenced above.

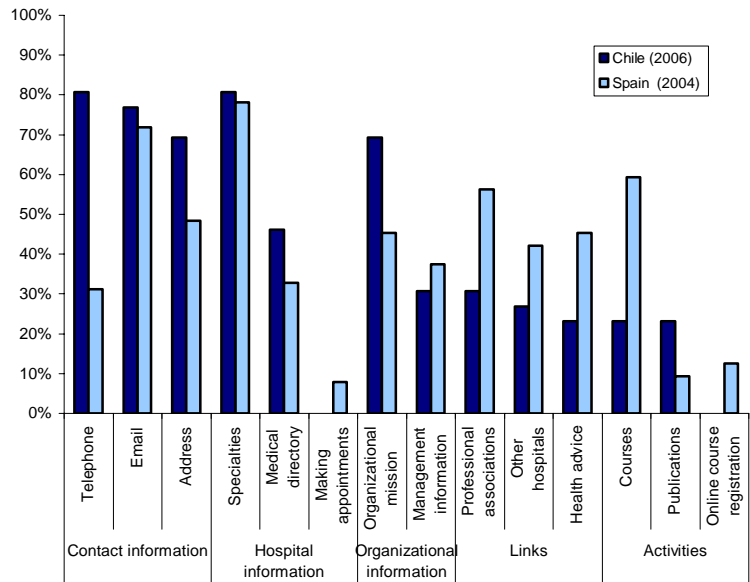
Goal 17: e- Health

Healthcare’s failure to exploit digital technology

- The Latin American and Caribbean healthcare sector is notably lacking in digital activity. Available information is dispersed and incomplete, reflecting desires rather than realities.
- A comparison of the website content of Chilean hospitals (2006) and Spanish hospitals (2004) shows that the former primarily provide information on the institution and its services, while the latter provide interactive content such as online courses or mechanisms for making appointments online.
- The possibility of offering services online flows from systematization of back-office processes, for which there are computer solutions designed specifically for the healthcare industry. The survey conducted by the Global Observatory for e-Health shows that developing countries place significant value on e-health applications, thus highlighting the necessity of these tools.
- Recent advances in diagnostic equipment and software are even more important—examples of these being ultrasound and MRI technologies. There are no indicators in Latin America and the Caribbean to gauge the extent to which these technologies have been adopted within the healthcare community.

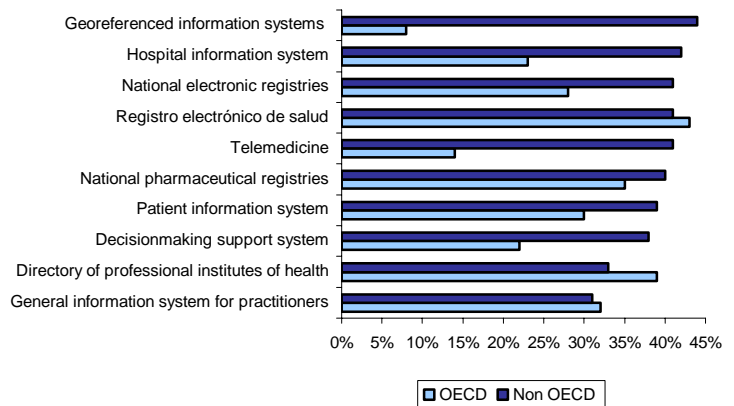
Challenge: Develop policies and research to modernise the health sector, using ICTs to improve provision of health services through national networks.

CHART 74
CONTENT OF HOSPITAL WEBSITES IN CHILE AND SPAIN
(Percentage of websites) (Chile n=26; Spain n=64)



Source: OSILAC. Chile data reflect information from hospital websites; Spanish data are from “eEspaña 2005, la eSalud,” Fundación Auna.
 Note: Chilean data reflect all hospitals for which websites were found based on the list of Chile’s National Health Services System. Spanish data are from the 171 hospitals listed by Spain’s Ministry of Health and Consumer Affairs that have websites. It is considered representative in terms of number of beds or clinical capacity.

CHART 75
HEALTHCARE TOOLS THAT ARE CONSIDERED EXTREMELY USEFUL, 2005
(Percentage of countries) (n=78)



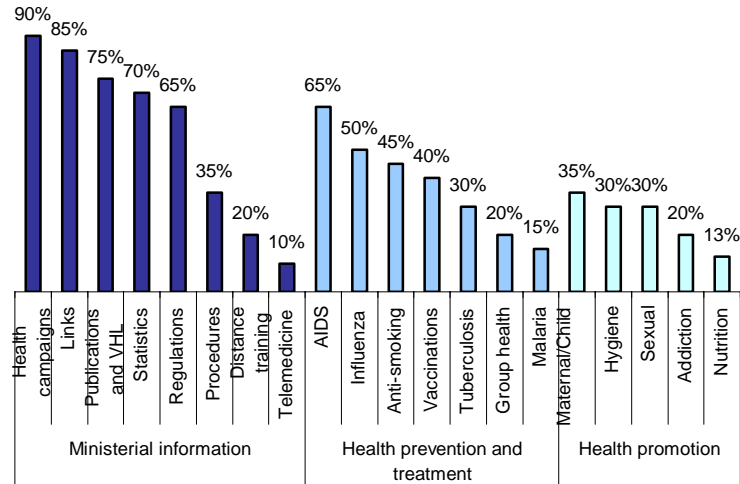
Source: "eHealth, Tools & Services, Needs of the Member States," Global Observatory for eHealth, 2006.
 Note: Covers 78 non-OECD countries and 30 OECD member countries.

Goal 17: e-Health

Without digital content there can be no e-health: an inexcusable deficiency

- The websites of governmental health agencies are oriented more to dissemination of ministerial information than to actual healthcare content.
- In 2006, 38% of the health ministries of Latin America and the Caribbean countries had no website. 65% provide information on AIDS, 30% on tuberculosis and 15% on malaria. Only 35% have information on maternal/infant health issues. Considering that the three major illnesses referenced in Goal 6 of the Millennium Development Goals (MDGs) (www.cepal.org/mdg) related to maternal health—and that MDG 5 is exclusively concerned with this issue—this situation can hardly be justified.

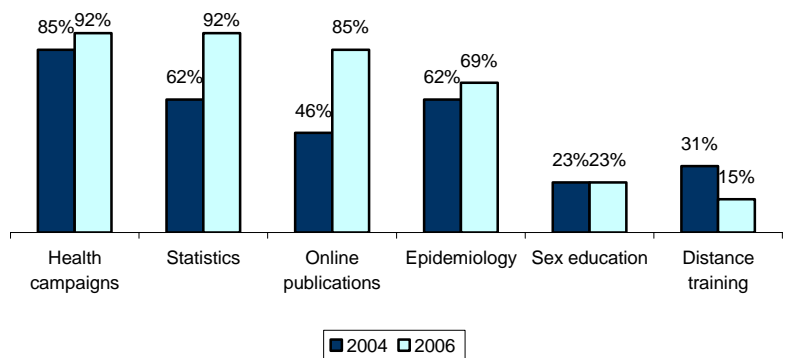
CHART 76
CONTENT OF LATIN AMERICA AND THE CARIBBEAN HEALTH MINISTRY WEBSITES, DECEMBER 2006
(Percentage of websites) (n=20)



Source: OSILAC, with information from health ministry websites.¹

- The content of the health information campaign websites maintained by the centre overseen by the region's health authorities provides links to government institutions, as well as to sectoral statistics and regulations. As Chart 77 indicates, health ministries significantly increased their websites' administrative content between 2004 and 2006, while the dissemination of interactive educational and training content remained unchanged, or even declined.

CHART 77
CONTENT OF LATIN AMERICA AND THE CARIBBEAN HEALTH MINISTRY WEBSITES, 2004-2006
(Percentage of websites) (n=14)



Source: OSILAC, with information from the countries' health ministries.²

Challenge: Take advantage of the experience of other e-sectors, such as education and government, in order to begin the important catch-up process and bring healthcare into the digital age.

Goal 17: e-Health

Virtual libraries as health information networks

- BIREME, an entity of the Pan-American Health Organisation (PAHO), represents a major initiative in attempts to advance the sector toward the digital age. BIREME's mission is to contribute to improving health teaching, research and care in the Latin America and the Caribbean countries, through creation and coordination of the Latin American and Caribbean System of Scientific Information of the Community of Health Professionals.
- Its principal objectives are to develop administrative and operational capacity among the national information systems of the region's countries, including libraries and documentation centres for healthcare; promote informational products and services based on shared methodologies and information technologies, in order to increase the efficiency and effectiveness of providing information; establish ongoing monitoring of health sciences endeavours in each of the region's countries; facilitate access to scientific Latin America and the Caribbean-based information on health; and promote national and international sharing of experiences among the system's entities.

Challenge: Strengthen virtual libraries through greater integration of their networks and information systems, and bring their experience and progress to other actors in the healthcare sector.

TABLE 21
VIRTUAL LIBRARIES ON HEALTH THAT HAVE BIREME LINKS, DECEMBER 2006

Country	Website
Argentina	www.bvs.org.ar
Barbados	www.vhl.bb
Belize	www.paho.org.bz
Bolivia	www.saludpublica.bvsp.org.bo
Brazil	www.saudepublica.bvs.br
Chile	www.bvs.cl
Colombia	www.col.ops-oms.org
Costa Rica	www.binasss.sa.cr
Cuba	www.bvs.sld.cu
Dominican Rep.	www.bvs.org.do
Ecuador	www.bvs.org.ec
Spain	http://bvs.isciii.es
Guatemala	www.medicina.usac.edu.gt/bvs/gt
Honduras	www.bvs.hn/html/es/collection.html
Jamaica	Site under development
Mexico	www.bvs.insp.mx
Nicaragua	www.bvs.org.ni
Panama	www.bvs/panama.gob.pa
Paraguay	http://paraguay.bvsalud.org
Peru	www.bvs.org.pe
El Salvador	http://www.bvs.edu.sv
Trinidad & Tobago	http://www.vhl.org.tt/html/en/home.html
Uruguay	http://www.bvssp.org.uy
Venezuela	www.bvs.org.ve

Source: OSILAC, with data from BIREME (official website at www.bvsalud.org).

Notes:

- ¹ Argentina: Ministry of Health (official website at www.msal.gov.ar); Belize, Ministry of Health (official website at www.health.gov.bz); Bolivia, Ministry of Health and Sports (official website at www.sns.gov.bo); Brazil, Official Health Website (online at <http://portal.saude.gov.br>); Chile, Ministry of Health (official website at www.minsal.cl); Colombia, Ministry of Social Protection (official website at www.minproteccionsocial.gov.co); Costa Rica, Ministry of Health (official website at www.ministeriodesalud.go.cr); Cuba, Official Health Website (online at www.sld.cu); Ecuador, Ministry of Health (official website at www.msp.gov.ec); El Salvador, Ministry of Health (official website at www.mspas.gob.sv); Guatemala, Ministry of Public Health (official website at www.mspas.gob.gt); Guyana, Ministry of Health (official website at www.health.gov.gy); Jamaica, Ministry of Health (official website at www.moh.gov.jm); Mexico, Secretariat of Health (official website at www.salud.gob.mx), and Official Health Website (online at www.e-salud.gob.mx); Nicaragua, Ministry of Health (official website at www.minsa.gob.ni); Panama, Ministry of Health (official website at www.minsa.gob.pa); Peru, Ministry of Health (official website at www.minsa.gob.pe); Trinidad & Tobago, Ministry of Health (official website at www.health.gov.tt); Uruguay, Ministry of Health (official website at www.msp.gub.uy); Venezuela, Ministry of Health (official website at www.msds.gov.ve).
- ² Argentina: Ministry of Health (official website at www.msal.gov.ar); Bolivia, Ministry of Health and Sports (official website at www.sns.gov.bo); Brazil, Official Health Website (online at <http://portal.saude.gov.br>); Chile, Ministry of Health (official website at www.minsal.cl); Colombia, Ministry of Social Protection (official website at www.minproteccionsocial.gov.co); Costa Rica, Ministry of Health (official website at www.ministeriodesalud.go.cr); Cuba, Official Health Website (online at www.sld.cu); Ecuador, Ministry of Health (official website at www.msp.gov.ec); El Salvador, Ministry of Health (official website at www.mspas.gob.sv); Nicaragua, Ministry of Health (official website at www.minsa.gob.ni); Panama, Ministry of Health (official website at www.minsa.gob.pa); Peru, Ministry of Health (official website at www.minsa.gob.pe); Uruguay, Ministry of Health (official website at www.msp.gub.uy); Venezuela, Ministry of Health (official website at www.msds.gov.ve).

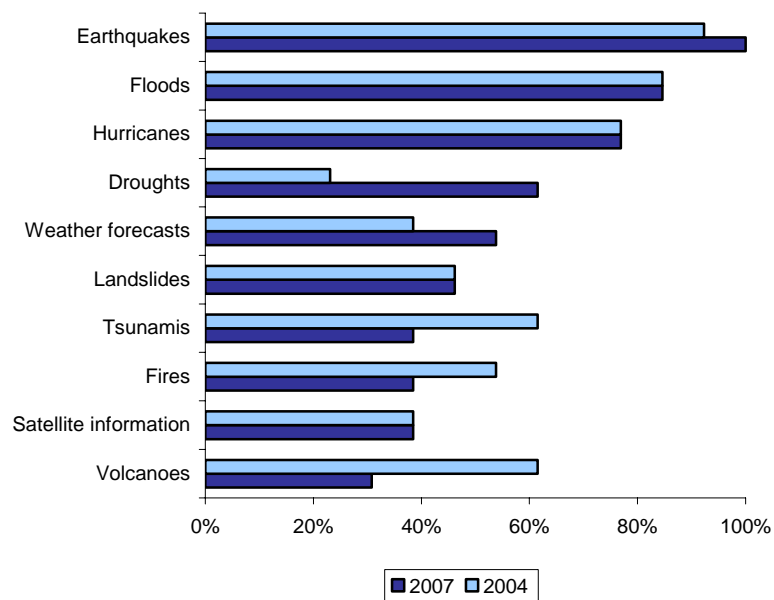
Goal 18: Disasters

ICTs as tools for dealing with disasters

- Information management is a basic aspect of mitigating and dealing with natural and other disasters. Efficient humanitarian response and numbers of lives saved in these situations are directly related to the capacity to compile, analyse and disseminate information, and to the speed with which this can be achieved.
- Voice messages, cellular and satellite telephony and teleconferencing are fundamental tools in ensuring the flow of information¹ needed for disaster response, and Internet websites are an important means of disseminating the information necessary for managing these crises.
- At present, the national disaster management centres in Latin America and the Caribbean with websites disseminate information on floods, earthquakes, hurricanes, droughts and tsunamis. The content is generally focused on the types of disasters most prevalent in the particular country where the centre is located.
- Between 2004 and 2007, no significant change in content was seen, though there was a major increase in dissemination of information concerning droughts, as well as more weather forecasting data provided through this medium, often in real time.

Challenge: Take advantage of the potential of ICTs as tools for disaster response, mitigation and management, through greater connectivity of disaster assistance centres and by generating and disseminating content to help people learn about dealing with such situations.

CHART 78
CONTENT OF DISASTER MANAGEMENT CENTRE WEBSITES IN LAC, 2004 AND JANUARY 2007
(Percentage of websites) (n=13)



Source: OSILAC, with data from websites of the countries' official disaster management centres.²

Note: Data reflect Argentina, Belize, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Jamaica, Mexico, Panama, Dominican Rep. and Venezuela.

Goal 18: Disasters

Digital disaster readiness, but not yet equipped for real-time use

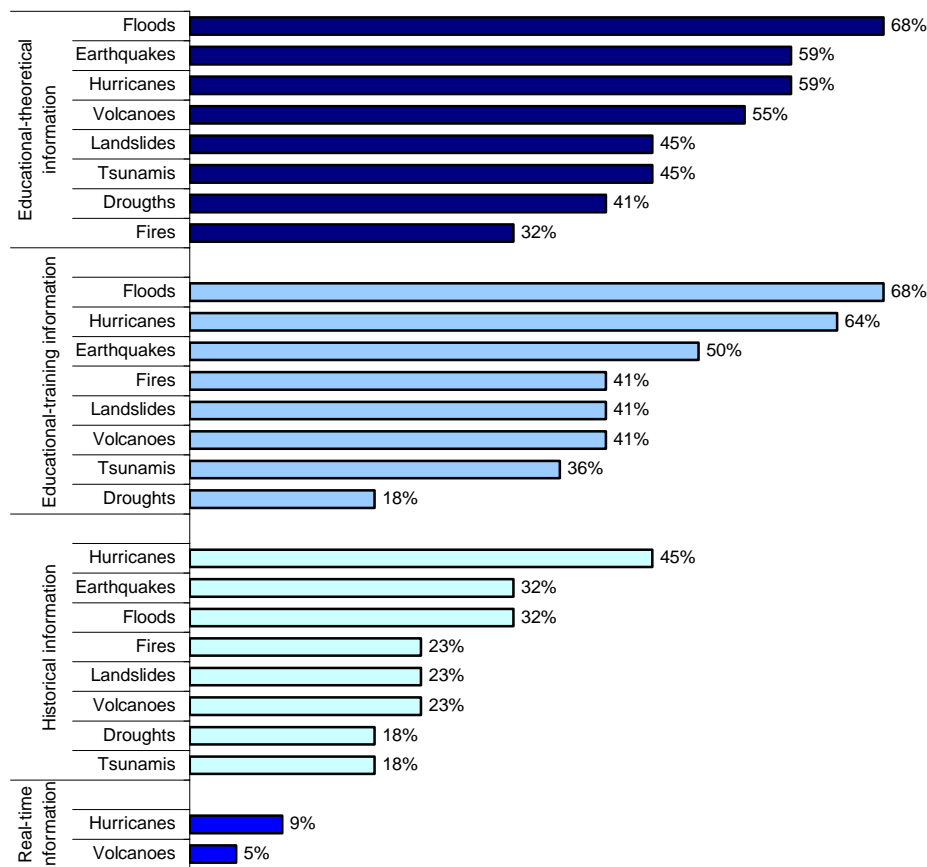
- The websites of the region’s national disaster prevention centres primarily provide information on types of disasters and their characteristics. To a lesser extent, they offer information to assist citizens in preparing for possible disasters and to alert them to events that, based on historical information for the different regions of a given country, have a high probability of occurring.
- The most common information provided by the region’s disaster response and management centres is related to floods and hurricanes. This

information is shared among the Caribbean countries, using ICTs as tools for preparing citizens to deal with natural phenomena.

- Despite their vast potential, the use of websites as a method of warning populations and providing disaster information in real time remains largely unexploited.

Challenge: Increase the use of websites to disseminate information that educates and trains the population to deal with disasters, while providing timely warnings through real-time information.

CHART 79
CONTENT OF LATIN AMERICA AND THE CARIBBEAN DISASTER PREVENTION CENTRE WEBSITES, ACCORDING TO TYPE OF INFORMATION, JANUARY 2007
(Percentage of websites) (n=22)



Source: OSILAC, with data from websites of the countries’ official disaster management centres.

Goal 18: Disasters

Regional cooperation to confront shared threats

- Regional organisations play an important role in disaster management, especially through their activity in promoting regional management and coordination of assistance.
- The centres aid a wide range of users in searching for and localising information on these events, employing both physical and digital means. They provide electronic access to documents and other data sources, distribute technical information, and share disaster information with other institutions. They conduct projects to manage information, as well as to implement and strengthen information systems. Moreover, they provide for sharing of bibliographic documents, complete texts, Internet sources of information, institutional contacts, etc.

Challenge: Improve the management and sharing of digital information among regional agencies, utilizing real-time applications and network interconnections.

TABLE 22
REGIONAL DISASTER INFORMATION/PREVENTION CENTRES, JANUARY 2007

Disaster information/prevention centres	Website
Regional Disaster Information Centre, Latin America and the Caribbean (Centro Regional de Información sobre Desastres de América Latina y el Caribe, or CRID)	www.crid.or.cr
Network of Social Studies in Prevention in Latin America (Red de Estudios Sociales en Prevención de Desastres en América Latina, or LA RED)	www.desenredando.org
Central American Coordination Centre for Natural Disaster Prevention (Centro de Coordinación para la Prevención de los Desastres Naturales en América Central, or CEPREDENAC)	www.cepredenac.org
International Strategy for Disaster Reduction in Latin America and the Caribbean (ISDR)	www.eird.org
The Caribbean Disaster Emergency Response Agency (CDERA)	www.cdera.org
Andean Committee for Disaster Prevention and Assistance (Comité Andino para la prevención y atención de desastres, or CAPRADE)	www.caprade.org
Pan American Health Organization (PAHO) Disaster Office	www.paho.org/desastres
Pan American Health Organization (PAHO) – Office for Central America	www.disaster-info.net/desastresCR/
Pan American Health Organization (PAHO) – Office for the Caribbean	www.disaster-info.net/carib/
Pan American Health Organization (PAHO) – Office for South America	www.disaster-info.net/PED-Sudamerica

Source: OSILAC.

Notes:

- ¹ Stolzenburg, Kathrin, Regional Perspectives on digital disaster management in Latin America and the Caribbean. ECLAC. April 2007.
- ² Barbados: Central Emergency Relief Organization <http://cero.gov.bb>; Belize: National Emergency Management Organization (official website at www.nemo.org.bz); Bolivia: Vice Ministry of Civil Defence and Cooperation for National Integral Development (official website at www.defensacivil.gov.bo); Brazil: National Secretariat of Civil Defence (official website at www.defesacivil.gov.br); Colombia: General Directorate for Disaster Prevention and Assistance (official website at www.dgpdpad.gov.co); Costa Rica: National Commission on Emergency Risk Prevention and Assistance (official website at www.cne.go.cr); Cuba: Health and Disasters—InfoMed (official website at www.sld.cu/sitios/desastres); Ecuador: National Directorate of Civil Defence (official website at www.defensacivil.gov.ec); El Salvador: National Emergency Committee (official website at www.gobernacion.gob.sv/eGobierno/direcciones/COEN); Guatemala: National Coordinator for Disaster Reduction (official website at www.conred.org); Granada: National Disaster Management Agency (official website at www.spiceisle.com/nero); Haiti: Directorate of Civil Protection; Jamaica: Office of Disaster and Emergency Preparedness (official website at www.odpem.org.jm); Mexico: National Centre for Disaster Prevention (official website at www.cenapred.unam.mx); Nicaragua: National System for Disaster Prevention, Mitigation and Assistance (official website at www.sinapred.gob.ni); Panama: National Civil Protection System (official website at www.sinaproc.gob.pa); Paraguay: National Emergency Committee (official website at www.pla.net.py/cen); Peru: National Civil Defence Institute (official website at www.indeci.gob.pe); Saint Lucia: National Disaster Emergency Office (official website at www.geocities.com/slunemo); Saint Vincent and the Grenadines: National Emergency Management Office (official website at www.gov.vc/Govt/Government/Executive/Ministries/PMOffice/NEmergencyM); Trinidad and Tobago: National Emergency Management Agency (official website at www.odpm.gov.tt/resources/default.asp); Uruguay: National Emergency System (official website at www.sne.gub.uy); Venezuela: Civil Protection and Disaster Administration (official website at www.pcivil.gov.ve).

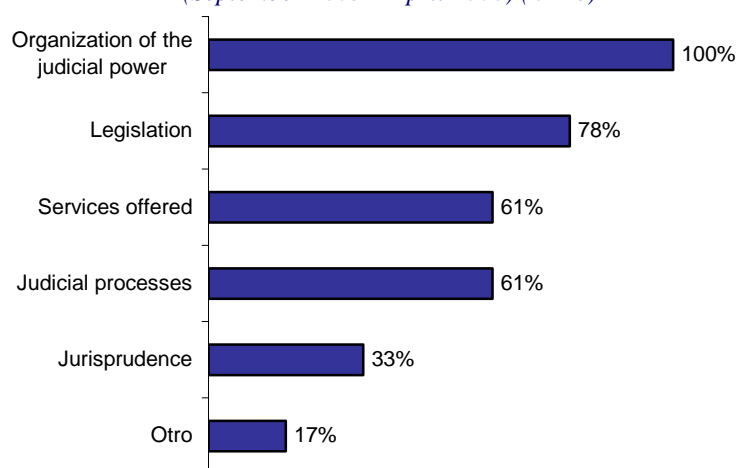
Goal 19: e-Justice

Use of ICTs to enhance efficiency and transparency in judicial processes

- The work of the judicial branch is information-intensive, in terms of both information use and information management. Thus, there is the potential for judicial systems to benefit greatly from digital technology.
- The incorporation of ICTs in the judicial systems of the Latin American and Caribbean countries is still in its infancy. According to a study conducted by the Ibero-American Judicial Summit¹ as a part of its e-justice project, while most of the countries have national ICT strategies that provide for government and public administration to move toward using electronic media, electronic justice is almost never mentioned as a priority area.
- Strategies to implement e-justice generally do not depend on the existence of overall digital strategies, but rather are specific freestanding strategies, linked in some cases to e-government strategies (see Table 23).
- The content of these strategies is limited to identifying the infrastructure needs involved in developing e-justice and to implementing applications for the dissemination of judicial information, or for internal management of judicial processes.
- Though the sector is one of the most recent to adopt these technologies, the countries of the region do have in place databases dealing with regulations and, to a lesser extent, jurisprudence. Applications have been developed to manage documentation of cases, thus facilitating the monitoring of judicial procedures.

Challenge: Enhance awareness regarding the potential that ICTs have for judicial systems, in order to promote the political leadership needed to modernise judicial systems, with the support of regional organisations such as the Ibero-American Judicial Summit.

CHART 80
PERCENTAGE OF IBERO-AMERICAN COUNTRIES DISSEMINATING JUDICIAL INFORMATION THROUGH INTERNET PORTALS, ACCORDING TO TYPE OF INFORMATION
(September 2005 – April 2006) (n=18)



Source: "Estudio Comparado e-Justicia: La Justicia en la Sociedad del Conocimiento," August 2006, XIII Ibero-American Judicial Summit, under the auspices of the Internet Interdisciplinary Institute (IN3), a body associated with Universidad Oberta de Catalunya (UOC).

Note: Includes Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, El Salvador, Spain, Guatemala, Honduras, Mexico, Panama, Peru, Portugal, Puerto Rico, Dominican Rep., Uruguay and Venezuela.

Goal 19: e-Justice

TABLE 23
NATIONAL STRATEGIES FOR APPLYING ICTs IN THE ADMINISTRATION OF JUSTICE , 2006

Country	e-Justice strategy	Oversight body	Legal reforms adopted
Argentina	Bases for informatization of the judicial system; Strategic Plan for Information Systems (in process)	Council of Magistrates Supreme Court of Justice of the Nation General Administration Judicial System; chambers	Law No. 25506 on Electronic and Digital Signatures (12/14/2001) Law No. 25326 on Protection of Personal Data (10/30/2000)
Brazil	General strategic document for all of Public Administration	Commission to Study Instituting the Technology Platform within the Federal Judiciary IT Commission of the National Council of Justice	Provisional Measure 2200-2 (8/24/2001) Supplementary Bill No. 71 of 2002 Rulings of the Federal Justice Council and the High Court of Justice
Chile	General strategic document for all of Public Administration	Judicial Branch (the institutions are autonomous in terms of their internal functioning)	Electronic signatures Digital registry of hearings
Colombia	Specific document	Administrative Chamber of the High Council of Magistrates	Agreement 201/1997 for procedures based on institutional data of the Judicial Branch
Costa Rica	Specific document: Strategic Plan for the Judicial Branch 2000-2005 Costa Rican System for the Management of Judicial Dispatches and Related Systems	Full Court Office of the President of the Court High Council	General Code of Procedures Law on Notifications and other judicial communications Law on Certifications, Digital Signatures and Electronic Documents Regulation of the Use of Electronic Mail
Cuba	Program for the Informatization of the Courts System (2001)	People's Supreme Court Government and Office of the President of the Republic	No specific reforms
El Salvador	Strategic Plan for the Modernization of the Judicial System	No data available	Reform of the Law of Constitutional Procedures
Guatemala	None		Internal provisions of the Supreme Court of Justice
Honduras	Strategic plan for Judicial Branch Information Systems 2004 - 2009	Body of the Judicial Branch Supreme Court of Justice	Legislative Bill on Access to Information Framework Bill on Information Technology Legislative Bill on Electronic Signatures Creation of the Electronic Centre for Judicial Information and Documentation
Mexico	Strategic IT Planning for the Supreme Court of Justice	Council of the Federal Judiciary Supreme Court of Justice	No specific reforms
Panama	IT Strategy for the Judicial System (1999-2006)		Law 13 (4/15/1997) Executive Decree 108 (9/14/1992) Executive Decree 102 (9/1/2004)
Peru	Strategic Plan for IT Systems	Office of the President of the Judicial Branch Executive Council of the Judicial Branch Judicial IT Users Committee	Legal provision for incorporating email in judicial notifications Law 27444 on General Administrative Procedures
Puerto Rico	Strategic Plan for the Judicial Branch 2002-2006	Presiding Judge of the Supreme Court	Regulatory amendments for incorporating the use of technology in the courts
Dominican Republic	National Strategy for the Information Society Strategic Plan for the Judicial Branch IT Office	Supreme Court of Justice	Law 126-02 on Electronic Commerce Digital Signatures and Documents Law 200-04 on Free Access to Public Information
Uruguay	Specific report	Supreme Court of Justice	No data available
Venezuela	General National Strategy and Plan for Modernization of the Judicial Branch	Supreme Court of Justice	Reforms to the Law on Labour Claims Electronic signatures Electronic crimes Decrees and Resolutions issued by the Ministry of the Interior and Justice

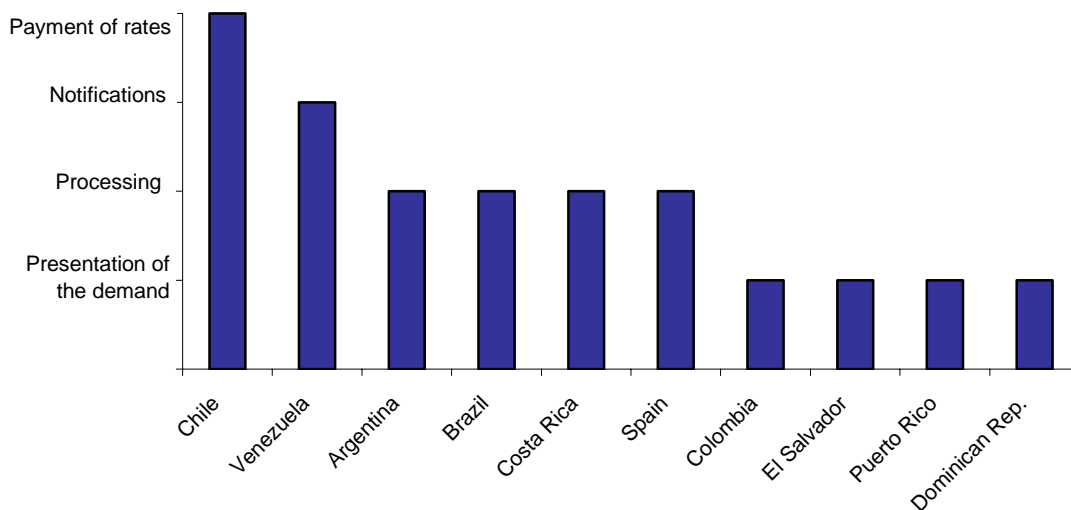
Source: "Estudio Comparado e-Justicia: La Justicia en la Sociedad del Conocimiento," August 2006, XIII Ibero-American Judicial Summit, overseen by the Internet Interdisciplinary Institute (IN3), a body associated with Universidad Oberta de Catalunya (UOC) (official website at www.ejusticia.org).

Goal 19: e-Justice

Digitisation of judicial procedures

- Accessibility to judicial-system information is an instrument of transparency. Latin America and the Caribbean saw little progress between 2004 and 2006 in this regard (see Chart 82). Of the 21 countries analysed, only 11 showed increases in the index of accessibility to information. The Caribbean countries continue to lag behind other countries in the region.
 - In terms of incorporating electronic media in judicial processes, there are few situations in which there are applications that make it possible to carry out all phases of the process online (submission of claims, processing of paperwork, notifications and payment of fees).
 - Chart 81 shows that in 2006, of 18 Ibero-American countries, 10 offered online procedures for at least one phase of the process, while 8 did not (Cuba, Guatemala, Honduras, Mexico, Panama, Peru, Portugal and Uruguay).
- Challenge:** Reform the procedural rules to allow for adoption of ICTs and their benefits, taking into account experiences of the various countries, in a framework of regional cooperation.

CHART 81
COUNTRIES THAT ALLOW FOR ONLINE PROCESSING OF LEGAL PROCEDURES, ACCORDING TO THE NUMBER OF PHASES OF THE JUDICIAL, SEPTEMBER. 2005 – APRIL 2006

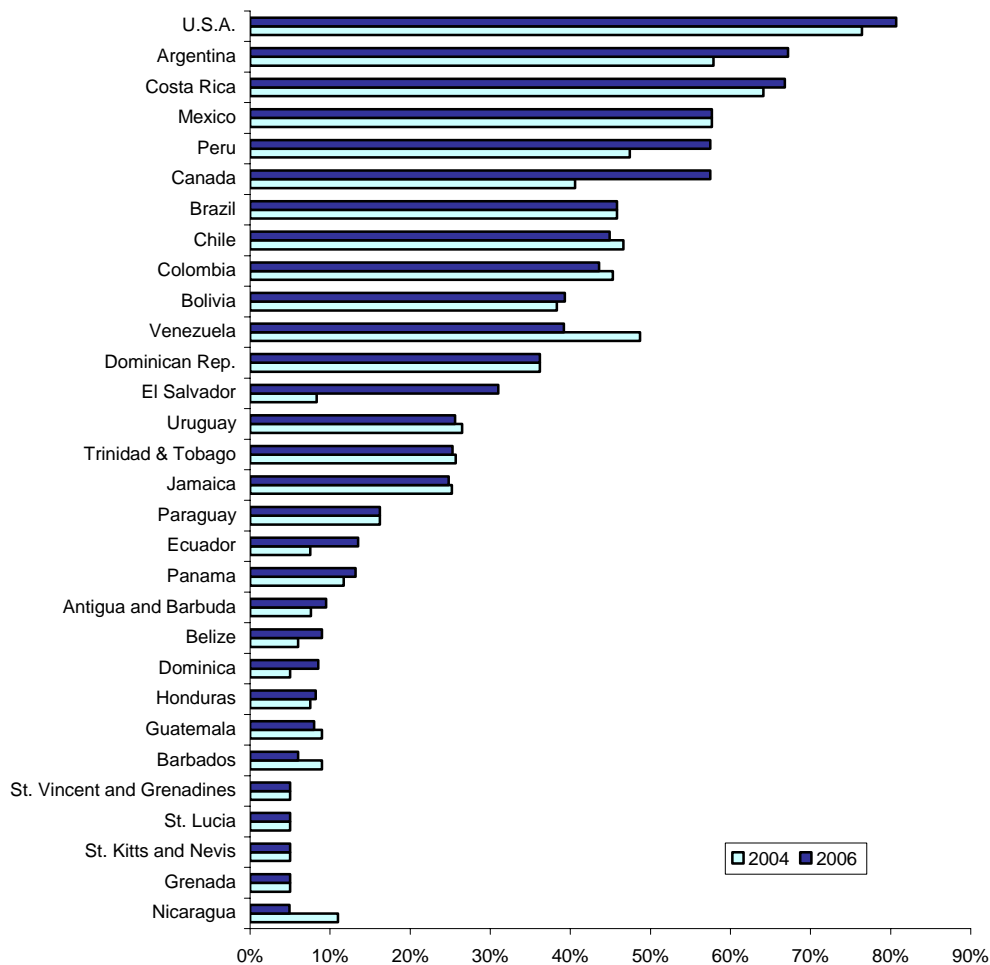


Source: "Estudio Comparado e-Justicia: La Justicia en la Sociedad del Conocimiento," August 2006, XIII Ibero-American Judicial Summit, overseen by the Internet Interdisciplinary Institute (IN3), a body associated with Universidad Oberta de Catalunya (UOC), based on surveys of Ibero-American countries.

Note: Includes Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, El Salvador, Spain, Guatemala, Honduras, Mexico, Panama, Peru, Portugal, Puerto Rico, Dominican Rep., Uruguay and Venezuela. Of the 18 Ibero-American countries that responded to the survey, 10 offer online processing of legal procedures, while 8 do not.

Goal 19: e-Justice

CHART 82
INDEX OF ACCESSIBILITY TO JUDICIAL-SYSTEM INFORMATION, JANUARY 2006



Source: Índice de Accesibilidad de la Información Judicial en Internet, Centro de Estudios de Justicia de las Américas (CEJA) (official website at www.ejusticia.org).

Note: The global index quantifies the accessibility of information on the activity of the judicial branch, such as information on prosecuting authorities.

Note:

¹ The Ibero-American Judicial Summit is the cooperation and coordination network of the judicial branches of the twenty-two Ibero-American countries.

Goal 20: Environmental and natural resource protection

Digital monitoring for sustainable use of natural resources

- As set forth in eLAC2007 Goal 20, a coherent approach to the development of information societies must include the use of ICTs for environmental protection and sustainable use of natural resources.
 - The use of satellite images, along with global positioning and geographic information systems, has enabled greater monitoring of natural resources. In the countries of Latin America and the Caribbean, these technologies are at varying levels of development, both in terms of infrastructure, and in terms of the areas in which they are being implemented.
 - Most of the region's countries have websites through which it is possible to obtain information on, and monitoring of, natural resources. Most of the sites provide access to databases and information systems related to the agricultural industry (see Table 24). There also are a number of initiatives by international and regional organisations that focus on developing technologies and knowledge for the agricultural sector.
 - Information technology has also facilitated the development of model scenarios to analyse and assess climate change, desertification and other environmental phenomena.
- Challenge:** Make greater use of ICTs as tools to monitor natural resources by promoting greater interaction and sharing of knowledge among the different local and regional initiatives, so as to share information on teledetection and geographic information systems based on specific needs. Create the capacity needed to properly use the new technologies in the agricultural sector, with a focus on regional and international cooperation to achieve this end. Conduct studies on the use of ICTs in the mining, petroleum and gas industries.

TABLE 24
PUBLIC SECTOR AND INTERNATIONAL ORGANIZATION WEBSITES WITH AGRICULTURAL INFORMATION AND INFORMATION SYSTEMS, 2007

Country	Information system / Organisation	Website
Argentina	Secretariat of Agriculture, Livestock, Fishing and Food	www.sagpya.mecon.gov.ar
	INTA Agricultural Information System	www.inta.gov.ar
	Agricultural Geographic Information System	www.sigagropecuario.gov.ar
Bolivia	Ministry of Rural, Agricultural and Environmental Issues – AgroBolivia	www.agrobolivia.gov.bo
	Bolivian System of Agricultural Technology	www.sibta.gov.bo
	INFOAGRO Agricultural Information System – National Outreach Committee	www.infoagro.gov.bo
Brazil	Confederation of Agriculture and Fishing of Brazil (CNA)	www.cna.org.br/cna/index.wsp
	Portal Rural Brasileiro Informações – RuralNet	www.ruralnet.com.br
	Agricultural Market Information System (SIMA)	www.agricultura.gov.br
Chile	Office of Agricultural Policy and Research	www.odepa.gob.cl/odepaweb/jsp/odepad.jsp
Colombia	Agricultural Information System of Colombia	www.minagricultura.gov.co/17_sistemas.html
	Strategic Information System for the Agrifood Sector	www.cci.org.co/cci/cci_x/scripts/index.php
Costa Rica	Costa Rican Agricultural Information System	www.infoagro.go.cr/
Ecuador	Agricultural Information and Census Service	www.sica.gov.ec
	Geographic and Agricultural Information Service (SIGAPRO)	www.mag.gov.ec/sigagro/

Country	Information system / Organisation	Website
El Salvador	National Agricultural Technology Centre (CENTA)	www.centa.gob.sv
	FIAGRO – Foundation for Innovation in Agricultural Technology	www.fiagro.org.sv
	Agricultural Sector Support Information System (SIASA)	www.agroelsalvador.com/directorio/index.php
Guatemala	Institute of Agricultural Science and Technology (ICTA)	www.icta.gob.gt
	INFOAGRO- Ministry of Agriculture, Livestock and Food	www.maga.gob.gt
Honduras	INFOAGRO – Secretariat of Agriculture and Livestock	www.sag.gob.hn
Jamaica	Agribusiness Information System (ABIS)	www.abisjamaica.com.jm
	Ministry of Agriculture	www.moa.gov.jm
	Rural Agricultural Development System (RADA)	www.radajamaica.com.jm
Mexico	Agri-food and Fishing Integral Information System	www.siap.gob.mx
Nicaragua	Agricultural Information System – Ministry of Agriculture and Forestry	www.sia.net.ni
	Ministry of Agriculture and Forestry	www.magfor.gob.ni
Panama	Institute of Agricultural Marketing	www.ima.gob.pa
	Agricultural Portal	www.mida.gob.pa
Paraguay	Ministry of Agriculture and Livestock	www.mag.gov.py
Peru	Agricultural Portal	www.portalagrario.gob.pe
Dominican Rep.	Agriculture and Forestry Documentation and Information Network (REDIAF)	www.agora.org.do
	Secretariat of State	www.agricultura.gov.do
Uruguay	Agricultural Statistics (DIEA)	www.mgap.gub.uy/Diea/default.htm
	Ministry of Agriculture, Livestock and Fishing	www.mgap.gub.uy
Venezuela, (Bol. Rep. of)	Agricultural Products Exchange of Venezuela	www.bolpriaven.com
	INFOAGRO Zulia	www.zulia.infoagro.info.ve
	National Agricultural Information System	www.sian.info.ve
	Agricultural Information and Documentation System (SIDVEN)	www.sidven.info.ve
International and regional organizations	Inter-American Institute for Cooperation on Agriculture: INFOAGRO.NET	http://infoagro.net
	FAO - World Agricultural Information Centre - WAICENT	www.fao.org/waicent/portal/about_es.asp
	Agricultural Information and Documentation System of the Americas	www.sidalc.net
	Inter-American Institute for Cooperation on Agriculture	www.iica.org.uy/online/Inicial.asp
	Regional Fund for Agricultural Technology	www.fontagro.org
	International Centre for Tropical Agriculture	www.ciat.cgiar.org
	Inter-American Institute for Cooperation on Agriculture	www.iicanet.org
	Caribbean Knowledge Management Centre	www.eclacpos.org/kmc/default.asp
	Observatory on Science and Technology for ACP Agriculture and Rural Development	http://knowledge.cta.int/
Caribbean Agricultural Information Service	www.caisnet.org/	

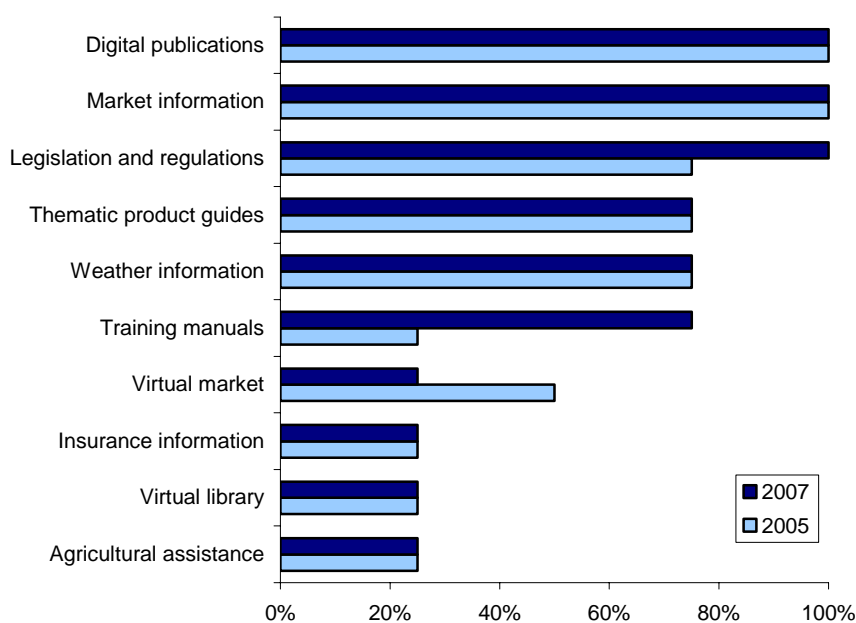
Source: OSILAC, with data from the Agricultural Information and Documentation System of the Americas (official website at www.sidalc.net), and Internet searches.

Goal 20: Environmental and natural resource protection

Online agricultural information for the development of the sector

- The portals of the ministries of agriculture and livestock, through their own websites and through the creation of agricultural portals, provide useful data for agents in the sector.
 - The content of the portals focuses on the dissemination of digital publications, market information, and sectorial legislation and regulations. Fewer than 25% of the sites make it possible to submit online queries, access virtual libraries, or carry out online exchanges (virtual market), indicating that this web presence is still in the emerging stage, with only unidirectional transmission of information.
 - Between 2005 and 2007, there has been no observable progress in the sophistication of this online presence, though there is greater use of tools to disseminate information, particularly in relation to regulations and training aimed at enhancing export capacities. Despite the above-mentioned benefits of digital information for those involved in agriculture, there has been a decline in the offerings of ministries in the virtual marketplace.
- Challenge:** Make greater use of ICTs as a tool for developing agricultural businesses.

CHART 83
INFORMATION AND SERVICES AVAILABLE ON AGRICULTURAL INFORMATION WEBSITES OF
MINISTRIES OR OTHER PUBLIC-SECTOR ENTITIES, 2005-2007
(n=4)



Source: OSILAC, based on data from Costa Rica: INFOAGRO Agricultural Information System – Costa Rican Agricultural Sector (official website at www.infoagro.go.cr); Guatemala: INFOAGRO Information Service- Ministry of Agriculture, Livestock and Food (official website at www.maga.gob.gt); Peru: Agricultural Portal (official website at www.portalagrario.gob.pe); Dominican Rep.: Information System – Secretariat of the State of Agriculture (official website at www.agricultura.gov.do).

Goal 21: Public information and cultural patrimony

The Internet as a path to more transparent public information

- ICTs contribute to governmental transparency by online publishing of information on public administration.
 - In the countries of Latin America and the Caribbean, there are legal instruments that facilitate access to information in State agencies by instructing them—and certain other institutions that provide public services or perform administrative functions—to make information on their activities available to the public (see Table 25).
 - The challenge, for countries that have regulations in this area, is to use ICTs for online publication of information, as well as to provide for online consultations. In some cases, there are requirements that questions be answered within a specified period of time.
 - Freedom of information legislation removes the burden of justifying a request for information from the citizen, who no longer needs to prove his or her reasons. On the contrary, the State agency has the burden of justifying any refusal to provide information.
 - The obligation to provide access to information is exempted only in cases of information that is confidential for legislative reasons, for reasons of national or international security, when it involves personal or professional secrets, etc.
- Challenge:** Promote the use of ICTs as a means of expanding access to information, in order to promote transparency and democracy in public administration, with the associated benefits to citizens.

TABLE 25
FREEDOM OF INFORMATION LEGISLATION IN LATIN AMERICA AND THE CARIBBEAN COUNTRIES, 2006

Country	Legislation and year	Scope of target organisations	Regulatory precedents	Use of electronic media	Cost of the service and response time (in days)	Formalities	Exceptions
Argentina	Access to Public Information (Decree 1172/2003) 2003	Any agency, entity or body with Executive Branch jurisdiction, or that receives government funds.	1994: Constitution of Argentina, Art. 1,33,41,42,75 (22)	Internet Publications: website of the <i>Boletín Oficial</i> of the Republic of Argentina.	Free and no-cost access. Requestor pays cost of reproduction of the information. max. 10 (+add. 10)	Written request with the identification of the requestor.	National security, international relations, business secrets, personal information, criminal investigations.
Belize	Freedom of Information Act (Chapter 13) 2000	Government Departments. Does not apply to the courts or to the Office of the Governor General.	1994: Freedom of Information Act (No. 9)	Individual online consultation: must use the medium of communication requested by the citizen, save for the exceptions in Art. 17 (3).	Not mentioned max. 14	Written request.	National security, international relations, business secrets, personal information, ministerial operations, economy.
Bolivia	Supreme Decree No. 27329 2004	Entities of the Executive Branch.	1995: Political Constitution Art.7, 23. 2002: Law of Administrative Procedure No. 2341 Art.18	Internet Publications: explicit obligation to post public information in electronic form.	Not mentioned Not specified	Not explicitly mentioned in the act.	National security, business secrets, international relations, economic and financial stability.

Goal 21: Public information and cultural patrimony

Country	Legislation and year	Scope of target organisations	Regulatory precedents	Use of electronic media	Cost of the service and response time (in days)	Formalities	Exceptions
Colombia	General Archives Law (594 of 2000) 2000	Public Administration at its various levels, and private entities that carry out public functions.	1888: Political and Municipal Code 1985: Law 57, which mandates making public official acts. 1991: Political Constitution Art. 74, 15, 78, 112 and 23.	Internet Publications: any technical, electronic, informatic, optical or telematic medium may be used, save for the exceptions in Art. 19.	Not explicitly mentioned max. 10	Not explicitly mentioned in the act	Confidential information under the Constitution or under statutes, personal information on third parties. (Article 27)
Ecuador	Organic Law on Transparency of and Access to Public Information (Law No. 337) 2004	Public sector, and any foundation, corporation, organization, institution or juridical person whose purpose is public in nature.	1998: Political Constitution Art. 81	Internet Publications: a period of one year to post public information on websites.	Free and no-cost access. Requestor pays the cost of reproduction of the information. max. 10 (+add. 5)	Written request with identification of requestor.	National security, information on third parties, criminal investigations. (Articles 6 and 17)
Jamaica	Access to Information Act (No. 21) 2002	Public officials	No prior legislation	Online requests: email and Internet may be used. Individual online consultations: must use the medium of communication requested by the citizen.	Free and no-cost access. Requestor pays the cost of reproduction of the information (price reduced when appropriate). max. 30 (+add. 30)	Request in writing, by telephone or by electronic means.	National security, international relations, economic stability, personal information on third parties, criminal investigations, etc. (Articles 14-22)
Mexico	Federal Law on Transparency of and Access to Public Government Information 2002	Federal government departments, autonomous constitutional entities and other government agencies.	1997: Political Constitution Art. 6	Internet Publications: obligation to post public information in electronic form. Online requests: the Federal Institute of Access to Public Information has in place an electronic system.	Free and no-cost access. Requestor pays the cost of reproducing and sending the information, based on rates established by law . max. 20	Written request	National security, international relations, economic stability, personal information, criminal investigations, etc. (Articles 13 and 14)
Panama	Law on Transparency in Public Administration (No. 6) 2004: Reform of the Political Constitution granting access to information (Art. 42,43,44) 2002	Government agencies.	1972: Constitution (as amended in 1978 and 1983) Article 41	Online requests: via email and via the Internet. Individual online consultations use the means of communication requested by the citizen; some agencies may respond via Internet. (Article 4).	Free and no-cost access. Requestor pays cost of reproduction of the information. max. 30 (+add.30)	Written request, either online or offline. Online request requires name, ID number, address and telephone.	National security, economic stability, international relations, criminal investigations (Article 14), personal information on third parties. (Article 1(5))

Goal 21: Public information and cultural patrimony

Peru	Law on Transparency of and Access to Public Information (27.808) 2002	Governmental bodies and private entities that provide public services or perform administrative functions.	1993: Constitution, Article 2, section 5	Online publication: explicitly requires government agencies to publish information online.	Free and no-cost access. Requestor pays the cost of reproduction of the information. max. 7 (+add. 5)	Written request	National security, international relations, economic stability, personal information on third parties, criminal investigations, etc. (Articles 15,16)
Dominican Rep.	Law on Access to Information (200-04) 2004	Public administration, State entities, public and partially State-owned private enterprises, as well as the administrative activities of the judicial and legislative branches	2002: Constitution, Article 8	Individual online consultations: information must be transmitted in original form, if possible.	Free and no-cost access. Requestor pays the cost of reproduction of the information. max. 15 (+add.10)	Oral or written request, with identification of requestor.	Personal information on third parties, international relations, national security, criminal investigations, etc. (Article 8)
Trinidad & Tobago	Freedom of Information Act (No. 26) 1999	Public officials, including public corporations and private agencies that exercise authority on behalf of the State. Does not apply to the President.	No prior legislation	Individual online consultation: must use the means of communication requested by the citizen, save for the exceptions in Art. 18 (4).	Free and no-cost access. Requestor pays the cost of reproduction of the information. max. 30	Written request signed by requestor.	National security, international relations, personal information on third parties, economic stability, etc. (Articles 24-34)

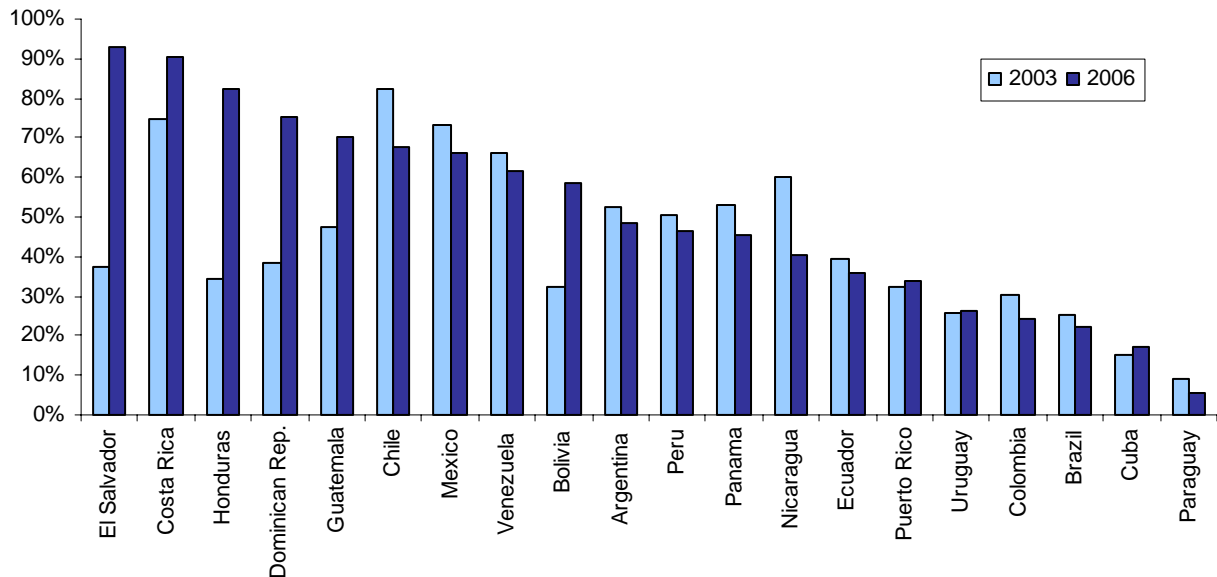
Source: OSILAC, with information from "Freedom of Information Around the World 2006: Global Survey of Access to Government Information Law," September 2006 (official website at www.freedominfo.org).

Goal 21: Public information and cultural patrimony

Digital preservation of cultural patrimony

- This goal is designed to develop initiatives and policies that provide wider access to public information and cultural, historical, scientific and educational patrimony through the use of ICTs, including digital preservation of these patrimonies and information.
 - Over half of the museums in Mexico, Venezuela and Chile have websites, while this is the case for over two thirds of those in Costa Rica, Guatemala, Honduras, the Dominican Republic and El Salvador. The percentage of those equipped with websites increased between 2003 and 2006, during which time these Central American countries made notable strides in this regard.
 - Though most of these websites still function solely as a source of information, there is growing interest in developing databases with texts and images. Software is currently being developed to facilitate standardised incorporation of cultural patrimony on the Internet.
- Challenge:** Encourage the online presence of institutions that manage cultural, historical, scientific and educational patrimony, by means of websites that provide access to digitised content.

CHART 84
PERCENTAGE OF MUSEUMS AND PARKS WITH WEBSITES, 2003-2006



Source: OSILAC, based on data from the Latin American Institute of Museums (ILAM) (official website at www.ilam.org).

Note: Includes museums and parks with a presence on websites managed by third parties (ministries, cultural funds, tourist websites, etc.), as well as those with their own institutional websites.

VI. Policy instruments

The policy instruments goals are:

- Goal 22: National strategies
- Goal 23: Financing
- Goal 24: Universal access policies
- Goal 25: Legislative framework
- Goal 26: Indicators and measurement

Goal 22: National strategies

The need for coordination on a multisectorial challenge

- In the World Summit on the Information Society (Geneva 2003) Plan of Action, all of the countries committed to “encourage the formulation of national cyberstrategies by 2005.” eLAC2007 Goal 22 specifically called for “establishing or confirming a body to coordinate national strategies in each of the region’s countries, with a view to drawing on civil society and private sector participation.”
 - The challenge of creating information societies is of concern to authorities at all levels within the countries. National strategies are aimed at launching a multisectorial effort as broad and varied as the issues addressed in this document.
 - Table 26 shows the national strategies regarding ICTs that the Latin America and the Caribbean countries have been carrying forward, distinguishing between coordinating authorities and those involved in strategic and operational oversight. Nearly all of the countries in the region have implemented national ICT strategies based, to one degree or another, on the cooperation of the public and private sectors and of civil society.
 - In each of the Latin America and the Caribbean countries, the digital strategies are progressing at a different pace, with varying degrees of political intensity and depth, affecting a cross-section of different economic and social sectors, while responding to local needs and interests.
 - There are, moreover, a range of different organizational and coordinative schemes, from decentralized models—involving authorities from various sectors, with cooperation and coordination enhanced by institutional interdependence—to centralized models in which a specific authority assumes principal responsibility.¹ It is also necessary to have strategic planning and implementation entities, the former generally directed by the top sectorial authorities, the latter overseen by entities of a more technical nature.
 - Despite progress in coordinating this multi-thematic challenge, problems have emerged in implementing the agendas. Entities charged with promoting these strategies often lack the institutional strength and necessary political support to implement broad policies that affect various economic and social sectors. At the same time, digital strategies have been subject to limited budgetary allocations, changes in priority policy objectives, and lack of continuity, all of which has been exacerbated by changes in government or in the officials responsible for implementing these policies. The difficulties are considerable, given the problems involved in coordinating the fragmented and wide-ranging budgets of the different national authorities concerned with addressing the digital challenge.
- Challenge:** Increase institutional and political support for the entities in charge of national ICT strategies, including efforts to enhance the ability to coordinate ICT-related public expenditures, in order to facilitate ongoing implementation and monitoring of such policies.

Goal 22: National strategies

TABLE 26
NATIONAL STRATEGIES FOR THE INFORMATION SOCIETY, AUGUST 2007

Country/ Region	Document	Agend a year	Year of initiation	Principal coordinator	Strategic oversight body	Operational oversight body
Antigua and Barbuda	Information Technology Strategic Plan	2001	No data available	Information Technology Centre	No data available	Ministry of Information, Broadcasting and Telecommunications
Argentina	National Program for the Information Society	2000	1998	Secretariat of Communications of Argentina	Cabinet of Ministers	Programmers from different levels of government
Bahamas	Policy Statement on Electronic Commerce and the Digital Agenda	2003	No data available	Ministry of Finance (e- Business Development Office)	Interagency Commission	Ministry of Finance
Barbados	Barbados National ICT Strategic Plan	2005	2005	National ICT Advisory Committee	Interagency Commission	Ministry of Commerce, Consumer Affairs and Business Development
Bolivia	Bolivian ICT Strategy for Development	2005	2002	Agency for Development of the Information Society	Vice Presidency for Interagency Coordination	
Brazil	Information Society in Brazil, Green Book	2000	1999	Electronic Government Executive Committee (Ministry of Science and Technology)	Executive Committee	Technical chambers of various levels of government
Chile	Strategic Plan for Digital Development 2007-2010	2007	1998	Digital Action Group	Committee of Ministers	Undersecretariat of Economy
Colombia	Connectivity Agenda	2007	2000	Connectivity Agenda	Office of the President	Board chaired by the Ministry of Communications
Ecuador	National Strategy for the Information Society 2005-2010	2005	2002	National Connectivity Commission	Interministerial	National Telecommunications Council
El Salvador	e-Pais Programme	2005	2005	National Commission for the Information Society	Presidency of the Republic	Council of Ministers
Grenada	ICT Strategy and Action Plan 2006 – 2010	2006	No data available	Central Agency for Information Management	Office of the Prime Minister	
Guyana	ICT4D National Strategy	2006	1999	Office of the Presidency	Interagency	Office of the Prime Minister
Jamaica	e-Powering Jamaica	2007	2002	Central ICT Office	Interagency	Independent, connected with the Ministry of Commerce, Science and Technology
Mexico	Sectorial Program for Communications and Transportation 2001 - 2006 (e-Mexico, Chapt.7)	2001	2001	National e-Mexico System	Secretariat of Communications and Transportation	
Panama	National Agenda for Innovation and Connectivity	2005	2004	Secretariat for Governmental Innovation	Interagency	Secretariat of the Presidency for Governmental Innovation
Peru	Peruvian Digital Agenda	2005	2003	Multisectoral Commission for Development of the	Presidency of the Council of	Vice Ministry of Communications, of

Goal 22: National strategies

Country/ Region	Document	Agend a year	Year of initiation	Principal coordinator	Strategic oversight body	Operational oversight body
				Information Society	Ministers	the Ministry of Transportation and Communications
Dom. Republic	National Strategy for the Information Society	2005	2002	National Commission for the Information Society	Technical Secretariat of the Office of the President	Technical Secretariat of the Office of the President
Saint Lucia	Public Reform Initiative	2002	1998	Office of the Prime Minister	ICT Subcommittee	ICT Subcommittee
Trinidad and Tobago	Fast Forward	2003	2002	National Information and Communications Plan Steering Group	Interministeria l, with Ministry of Public Administration and Information	Steering Group
Uruguay	Uruguay Digital Agenda	2007	2006	Agency for Development of e-Government Management and the Information Society	Presidency of the Republic	Agency for Development of e- Government Management and the Information Society
Vene- zuela	National Information Technology Plan	2001	No data available	National Information Technology Centre	Ministry of Science and Technology	
Caribbean	CARICOM ICT Agenda	2003	No data available	CARICOM Prime Minister's Subcommittee		
Meso- America	Puebla-Panama Plan: Information Society	In process	2006	PPP Meso-American Initiative on Integration of Telecommunications Services		

Source: OSILAC, with information from: Observatorio del Desarrollo Digital de la Corporación Colombia Digital (official website at <http://colombiadigital.net>); REDGEALC (official website at www.redgealc.net); documents of ECLAC, United Nations; "National Strategies for the Information Society in Latin America and the Caribbean," Martin Hilbert, Sebastián Bustos, João Carlos Ferraz (2003); "Information Society and Public ICT Policies in the Caribbean, Country Profiles," Carlos Miranda, unpublished; and information published on official websites of the countries.²

Notes: (1) CARICOM: Caribbean Community. Comprised of member states: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Granada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, St. Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago; and partner states: Anguila, Bermuda, British Virgin Islands, Cayman Islands, and Turks and Caicos Islands.

(2) Puebla-Panama Plan: regional integration mechanism made up of Belize, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama.

Goal 22: National strategies

The positive impact of national strategies is evident

- An instructive exercise is to compare the presence of a particular type of national strategy with the degree to which countries have succeeded in preparing for the information society.
 - The e-readiness indices comprise a set of different variables reflecting the degree of progress a country has made toward the digital paradigm. ECLAC analysed 12 e-readiness indices.³ An average for the Latin America and the Caribbean countries was calculated, indicating a country's progress with respect to others in the region, with the best-positioned country equal to 100%.
 - This index was compared with different types of national strategies. A three for three matrix is utilized, in which is distinguished among the existence or not of an official cross-sectorial strategy at a national level, and the degree of activities and initiatives TIC, although they be dispersed. Thus it is possible to differentiate among countries that do not have strategies declared; those in the process of defining strategies but with few initiatives; countries that have a defined strategy, but with few initiatives; countries with no defined strategies but with many dispersed initiatives; countries that are in the process of creating strategies and that already have numerous initiatives in place; and finally countries that have active strategies to coordinate its efforts and many initiatives in action.
 - As Chart 85 shows, the evidence indicates that countries with a greater number of coordinated national ICT activities on an ongoing basis are best positioned for the information society. This suggests that exists a virtuous circle between the consolidation of a coherent national strategy and advance toward the information society, although an inverse causality logic, from advances toward the existence of a strategy, cannot be dismissed.
 - Countries that have been engaged in the process of developing the information society for more than four years—a process to be understood as constituting the time between the point at which there are formal initiatives in place and the point at which an agenda is defined and is being implemented (Table 26)—are those that have shown the greatest (Chile, Barbados, Bahamas, and Mexico).
 - It is important to cause to note that not immediate causality exists between the existence of a national strategy and the advance achieved. It is emphasized the cases of Peru and Rep. Dominican. Both countries approved a national cross-sectorial strategy recently in 2005. As sample the Chart 85, these efforts have not yet materialized in advance of e-readiness. It is to expect that public policies contribute to improve their level of preparation toward the construction of a digital society in the future.
 - Additionally, it emphasizes the importance of concrete actions evidenced by the results achieved in Argentina, Costa Rica and Brazil, which are related to the actual implementation of a great many initiatives, despite the fact that there is no defined digital strategy in place or even being formulated. In these cases, there is wide latitude to take advantage of synergies.
 - Similar is the relation between progress and public policy regarding electronic government (see Chart 86). The index for measuring the degree of Internet presence of governments (UN/DESA e-government readiness report), that is one of the 12 indices of e-readiness utilized in the Chart 85, is correlated with the extent to which national coordination activities are occurring.
- Challenge:** Strengthen the coordination of dispersed activities that are in place, in order to avoid duplication of efforts and to create synergies, providing savings in resources for launching more initiatives aimed at more efficient use of ICTs for development.

Goal 22: National strategies

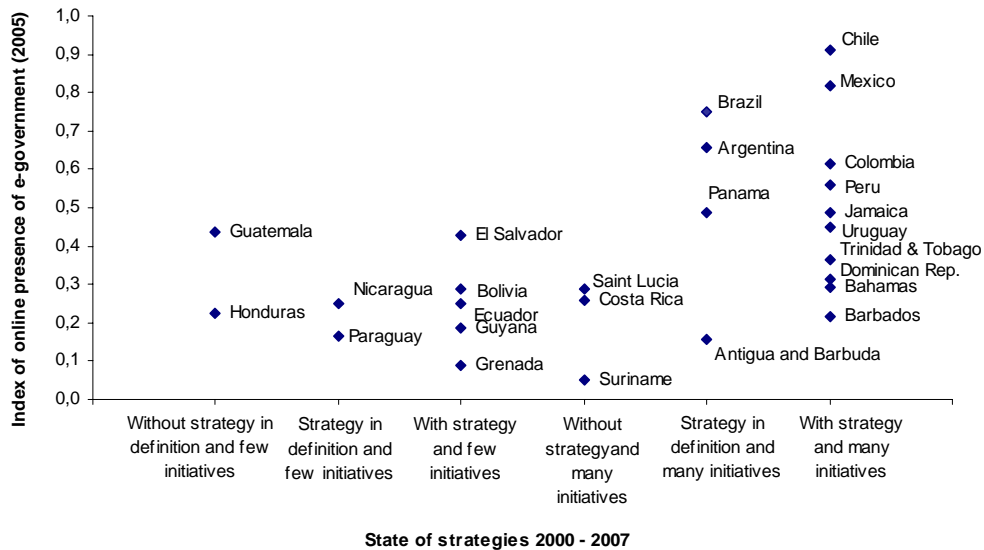
**CHART 85
INTENSITY OF ICT POLICIES AND DEGREE OF DIGITAL PREPARATION**



Source: OSILAC, with data from “Evaluation of e-Readiness Indices in Latin America and the Caribbean,” ECLAC, Minges, December 2005; and “Digital Review of Latin America and the Caribbean,” ECLAC, UNDP, IDRC, DIRSI, unpublished.

Note: The index of e-readiness is an average of 12 indices that measure the degree of preparation for the information society, indicating the position of a country in relation to the Latin America and the Caribbean countries as a whole, with the best-positioned country equal to 100%.

**CHART 86
INTENSITY OF ICT POLICIES AND INDEX OF ONLINE PRESENCE OF E-GOVERNMENT**



Source: OSILAC, with data from "Global e-government readiness report 2005, from e-government to e-inclusion," Department of Economic and Social Affairs of the United Nations (online at <http://www.unpan.org/egovment5.asp>); and “Digital Review of Latin America and the Caribbean,” ECLAC, UNDP, IDRC, DIRSI, unpublished.

Note: The index showing Internet presence of electronic government is made up of the United Nations e-Government Readiness Index, and is based on a model of online government presence. It takes into account 191 United Nations member states.

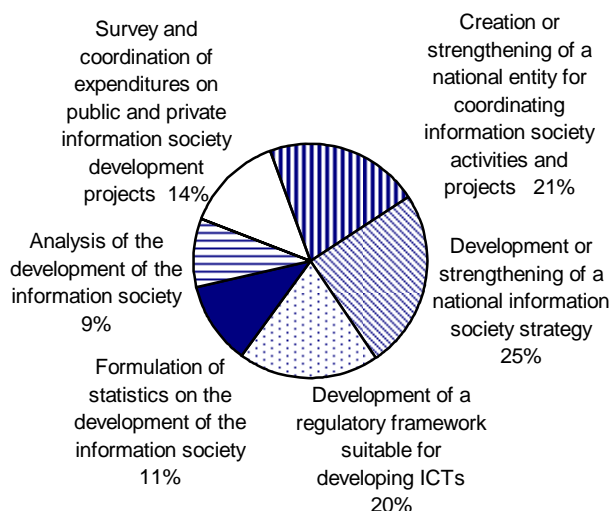
Goal 22: National strategies

Strengthening national strategies

- The development of national strategies, the creation or strengthening of a coordinating body, and the development of a regulatory framework are the priority issues in creating a system for coordinating national strategies for the information society, based on the results of the survey of financing needs conducted by eLAC2007 Regional Plan of Action's Goal 23 Working Group.
- This is in line with evidence showing the need for greater institutional strength among the entities charged with implementing national ICT strategies, in order to better equip them to execute transverse policies in the different areas that make up the information society: infrastructure, education, government, health, productive development, etc.

Challenge: Strengthen national strategies and reinforcing their transverse nature, as an instrument for building the information society in the countries of Latin America and the Caribbean.

CHART 87
PRIORITY ISSUES RELATED TO THE CREATION OF COORDINATING ENTITIES FOR ESTABLISHING A NATIONAL STRATEGY, NOV. 2006
(n=890)



Source: Survey of financing priorities conducted by eLAC2007 Regional Plan of Action's Working Group on Financing.

Note: 329 people participated, each entitled to 3 votes: Argentina (45), Bahamas (1), Brazil (16), Chile (98), Colombia (36), Costa Rica (2), Cuba (2), Ecuador (12), Guatemala (10), Guyana (3), Haiti (1), Honduras (4), Jamaica (5), Mexico (8), Nicaragua (9), Panama (6), Peru (34), Dom. Republic (19), Suriname (1), Trinidad and Tobago (1), Uruguay (5) and Venezuela (11). 41 of participants belonged to the public sector, 23% to the academic sector, 19% to the private sector and 17% to civil society.

Notes:

- ¹ ECLAC, “National Strategies for the Information Society in Latin America and the Caribbean,” Hilbert, Bustos and Ferraz (2003).
- ² Antigua and Barbuda: Information Technology Strategic Plan (official website at www.ab.gov.ag/gov_v1/itc.htm); Argentina: National Program for the Information Society (official website at www.psi.gov.ar); Bahamas: Policy Statement on Electronic Commerce and the Bahamian Digital Agenda (official website at www.bahamas.gov.bs/finance); Barbados: Barbados National ICT Strategic Plan (Draft) (official website at www.commerce.gov.bb); Bolivia: ETIC (official website at www.etic.bo); Brazil, Green Book on the Information Society (official website at <http://diamante.socinfo.org.br>); Chile: Digital Agenda (official website at www.agenda.gov.co); Ecuador: National Strategy for the Information Society (official website at www.conatel.gov.ec); El Salvador: Programa e-País (official website at www.epais.gob.sv); Granada: ICT Strategy and Action Plan 2006–2010 (online at <http://www.unpan.org/tasf/ICTStrategy-Grenada.PDF>); Guyana: ICT4D Guyana, National Strategy (Draft) (official website at www.ict4d.gov.gy); Jamaica: Five-Year Strategic Information Technology Plan (official website at www.cito.gov.jm); Mexico: Sectoral Program for Communications and Transportation 2001–2006, National e-Mexico System, Chapt. 7 (official website at www.e-mexico.gob.mx); Peru: Digital Agenda (official website at www.codesi.gob.pe); Dom. Republic: National Strategy for the Information Society (official website at www.edominicana.gov.do); Saint Lucia: Public Reform Initiative (official website at www.stlucia.gov.lc); Trinidad and Tobago: Fast Forward (official website at www.fastforward.tt); Venezuela: National Information Technologies Plan (official website at www.gobiernoenlinea.gob.ve/directorioestado/plan_nacional_02.html); CARICOM: ICT Agenda (official website at www.caricom.org); and Puebla-Panama Plan (official website at www.planpuebla-panama.org); Uruguay: Agenda Digital Uruguay (official website at www.agesic.gub.uy).
- ³ “Evaluation of e-Readiness Indices in Latin America and the Caribbean,” ECLAC, Minges, December 2005;

Goal 23: Financing

Education: the financing priority for development of the information society

- Goal 23 mandates the establishment of a working group to evaluate national and regional financing needs for development of ICTs. The resulting working group, headed by Argentina, conducted an online survey on this topic, using eLAC2007's virtual dialogue platform.
- The results of the survey identified education as the top financing priority for developing the information society in Latin America and the Caribbean, followed by infrastructure improvements and the capacity-building. Ten percent of the votes went to statistics development and analyses to support and assist in coordinating national strategies (see Chart 88).
- In regard to education (see Chart 89), one third of the votes received in the course of the survey chose, as priorities, the financing of equipment, connectivity, and content development at educational institutions. One fourth of the experts gave priority to developing networks for exchange of information among educational institutions, highlighting their potential for enhancing coordination and collaboration.
- At the same time, 27% of the votes supported the need to finance distance-education programs (14%+13%).

Challenge: Optimise the use of, and mobilize greater resources for, the priority issues for developing the information society.

CHART 88
FINANCING PRIORITIES FOR DEVELOPMENT OF THE INFORMATION SOCIETY, NOVEMBER 2006
(n=916 votes)

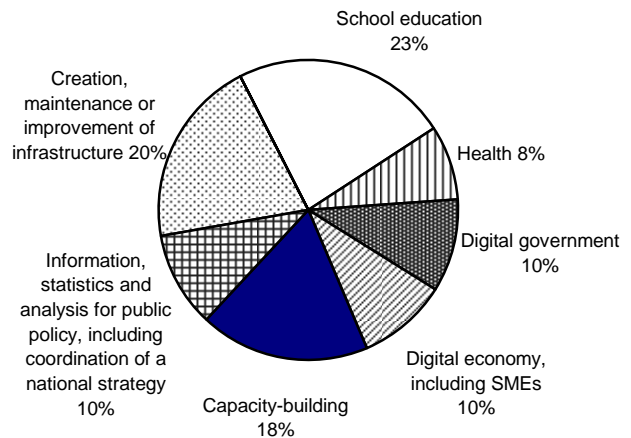
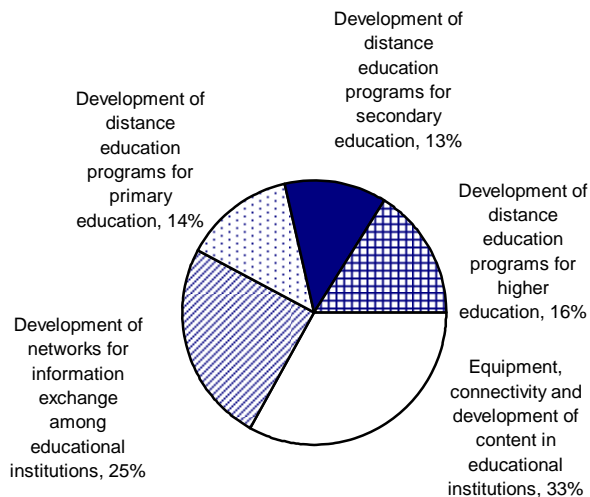


CHART 89
FINANCING PRIORITIES IN EDUCATION AND ICTS, NOVEMBER 2006
(n=853 votes)



Source: Survey of financing priorities conducted by the eLAC2007 Regional Plan of Action's Working Group on Financing.

Note: 329 people participated, each entitled to 3 votes: Argentina (45), Bahamas (1), Brazil (16), Chile (98), Colombia (36), Costa Rica (2), Cuba (2), Ecuador (12), Guatemala (10), Guyana (3), Haiti (1), Honduras (4), Jamaica (5), Mexico (8), Nicaragua (9), Panama (6), Peru (34), Dominican Republic (19), Suriname (1), Trinidad and Tobago (1), Uruguay; (5) and Venezuela (11). 41% of the participants belong to the public sector, 23% to the academic sector, 19% to the private sector, and 17% to civil society.

Goal 23: Financing

Financing to create widespread access and develop capabilities

- In regard to infrastructure—the second financing priority for the information society in Latin America and the Caribbean—the emphasis was on developing wireless technological infrastructure for rural and peri-urban areas, followed by installation of public Internet access centres.
- Among the issues for the development of capabilities, the priority concern is digital literacy for educational personnel, in line with the importance the interviewees assigned to financing ICTs for education.
- ICT research centres represent the second most important priority (18%), followed by the creation of centres to foster the development of projects related to these technologies.

Challenge: Increase efficiency in utilizing existing resources, by centralizing information on national ICT projects, allowing international cooperation agencies to better evaluate the allocation of resources.

CHART 90
FINANCING PRIORITIES FOR THE DEVELOPMENT OF
INFRASTRUCTURE FOR ACCESS, NOVEMBER 2006
(n=898 votes)

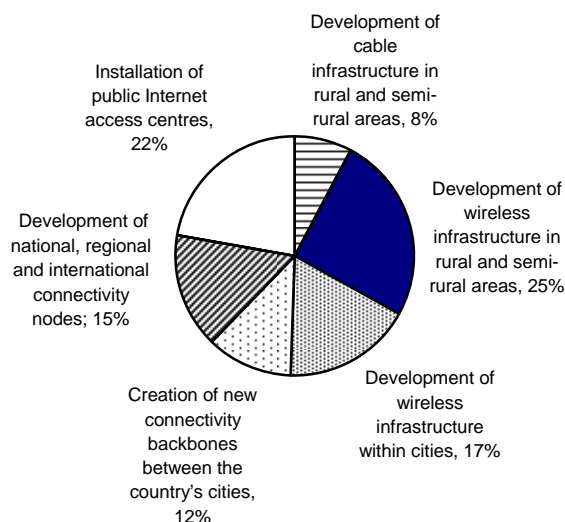
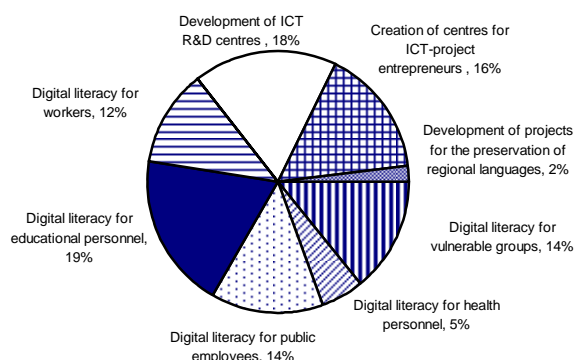


CHART 91
FINANCING PRIORITIES FOR THE DEVELOPMENT OF
CAPACITIES, NOVEMBER 2006
(n=930 votes)



Source: Survey of financing priorities conducted by the eLAC2007 Regional Plan of Action's Working Group on Financing.

Note: 329 people participated, each entitled to 3 votes: Argentina (45), Bahamas (1), Brazil (16), Chile (98), Colombia (36), Costa Rica (2), Cuba (2), Ecuador (12), Guatemala (10), Guyana (3), Haiti (1), Honduras (4), Jamaica (5), Mexico (8), Nicaragua (9), Panama (6), Peru (34), Dominican Republic (19), Suriname (1), Trinidad and Tobago (1), Uruguay; (5) and Venezuela (11). 41% of the participants belong to the public sector, 23% to the academic sector, 19% to the private sector, and 17% to civil society.

Goal 24: Universal access policies

Nondeployment of universal access funds in Latin America

- Goal 24 is designed to foster an examination of public policies regarding universal access to ICTs, so as to include lower-income segments of the population and those in rural or isolated areas.
- The most common practice for ensuring universal access involves extending telephone lines to isolated rural areas, along with subsidized Internet access, through community telecentres, for those with limited resources. This is being effected through universal service obligations imposed on service providers operating on a concessionary basis, and/or by establishing telecommunications access funds.
- In several Latin American countries, Universal Access Funds have been created, drawing on various sources of financing: a percentage of the revenues from telecommunications operators; revenues from electromagnetic spectrum use, licenses, fines and sanctions; funds resulting from energy and telecommunications concessions; and State funds (see Table 28).
- In many cases, such as those of Bolivia, El Salvador, Guatemala, Mexico and Panama, these funds are limited to access to telephone service, whereas the other countries also envisage Internet connectivity.
- The information in Table 27 highlights the fact that only Chile and Mexico, two countries with high penetration rates, have already used all of their universal access funds, while six countries (Bolivia, Brazil, Ecuador, El Salvador, Nicaragua, and Venezuela) have not made use of theirs, and three (Colombia, Peru and the Dominican Republic) have used less than 50% of their funds. It is a matter of concern that, despite the existence of policies dedicated to improving equity in Latin America, many of these policies remain realities on paper only, without bringing about any improvement in the lives of those they are intended to benefit.

Challenge: Review potential legal pitfalls in actually utilizing the funds, and reconsider the functionality and efficacy of these funds, so as to use them to optimal effect and expand their scope of application to include more advanced ICTs.

TABLE 27
UNIVERSAL ACCESS FUNDS IN LATIN AMERICAN COUNTRIES:
AMOUNTS COLLECTED AND DISBURSED, 2006
(In USD)

Country	Fund	Year begun	Collections	Disbursements	Percentage disbursed
Bolivia	FNDR	1996	43,461,797	-	0%
Brazil	FUST	2001	1,772,129,956	-	0%
Chile	FDT	1995	29,981,000	29,981,000	100%
Colombia	FCM	1994	448,599,640	165,995,817	37%
Ecuador	FODETEL	2001	997,977	-	0%
El Salvador	FINET	1998	32,701,810	-	0%
Guatemala	FONDETEL	1996	17,943,154	7,756,518	43%
Mexico	FCST	1995	25,300,064	25,300,064	100%
Nicaragua	FITEL	2004	3,278,559	-	0%
Paraguay	FSU	1998	12,966,954	12,485,360	96%
Peru	FITEL	1994	143,063,602	45,076,256	32%
Dom. Republic	FDT	2001	65,654,341	10,774,157	16%
Venezuela	FSU	2001	113,220,392	-	0%

Source: "Universal Service Study," REGULATEL, World Bank, ECLAC, March 2007.

Goal 24: Universal access policies

TABLE 28
FINANCING FOR UNIVERSAL ACCESS IN LATIN AMERICAN COUNTRIES, 2006

Country	Type of strategy	Name	Year created	Financing	Services
Argentina	Fund	Universal Access Fiduciary Fund (FFSU)	Not formed	1% of net revenues of operators	Telephony & Internet
Bolivia	Obligations	Rural Coverage Obligations	1995	Overseen by concessionaires	Telephony
	Fund	National Regional Development Fund (FNDR)	1995	Revenues from spectrum licenses, use and fines	Not limited to telecommunications
Brazil	Fund	Fund for the Universality of Telecommunications Services (FUST)	2000	1% of gross operating revenues minus contributions	No data avail.
Chile	Fund	Telecommunications Development Fund (FDT)	1994	Public Telephone and Internet funds	No data avail.
Colombia	Fund	Communications Fund (FCM)	1999	5% of revenues from mobile and long distance telephone 3% of revenues from value-added services (VAS) Revenues from spectrum licenses and use	Telephony & Internet
Costa Rica	None in place	None in place	Not applic.	Not applic.	Not applic.
Cuba	Obligations	Not applic.	2003	Overseen by ETECSA	National telephony and Internet
Ecuador	Fund	Fund for Telecommunications Development (FODETEL)	2000	1% of billings from providers	Telephony & Internet
El Salvador	Fund	Fund for Investment in Electricity and Telephony (FINET)	1998	Public funds, 98.5% of the proceeds from energy and telecommunications concessions; spectrum licenses, use and fines.	Telephony & Electricity
Guatemala	Fund	Fund for the Development of Telephony (FONDETEL)	1996	Up until 2003, 70% of proceeds from the auctioning of spectrum rights	Telephony
Honduras	None in place	Not applic.	Not applic.	Not applic.	Not applic.
Mexico	Fund	Fund for the Social Coverage of Telecommunications (FCST)	2002	Public funds	Telephony
Nicaragua	Fund	Telecommunications Investment Fund (FITEL)	2004	20% of revenues from TELCOR	Telephony & Internet
Panama	Obligations	Universal Service Obligations	1997	Up until 2004, overseen by Cable & Wireless, which had a monopoly on the provision of telecommunications services	Telephony
Paraguay	Fund	Universal Service Fund (FSU)	1995	40% of the contributions from commercial use rates	Telephony & Internet
Peru	Fund	Telecommunications Investment Fund (FITEL)	1993	1% of gross revenues from providers, plus public funds	Telephony & Internet
Dom. Republic	Fund	Fund for the Development of Telecommunications (FDT)	1998	2% of billings from users	Telephony & Internet
Uruguay	Not defined in the regulatory framework			Overseen by ANTEL	Telephony & Internet
Venezuela	Fund	Universal Service Fund (FSU)	2000	1% of gross revenues from providers	Telephony & Internet

Source: OSILAC, based on the "Universal Service Study," REGULATEL, World Bank, ECLAC, March 2007; ITU's ICT Eye (official website at <http://www.itu.int/ITU-D/ICTEYE/Regulators/Regulators.aspx#>); "DigiworldAmérica Latina 2007," Fundación Telefónica.

Goal 25: Legislative framework

Use of electronic signatures in developing means of exchange

- In recent years there have been major developments in the regulatory frameworks of Latin America and the Caribbean countries in regard to the protection of data, digital signatures, and computer-related crimes and crimes carried out by electronic means. This has resulted in changes to legislation or to specific regulations.
- While a description of all of these regulations is beyond the scope of the present work,¹ Table 29 illustrates some examples of important advances in informatic law, particularly as concerns electronic signatures, that emerged since the end of the 1990s.
- Having legal frameworks regulating the use and validity of digital signatures is vital in an information society, provided they serve to enhance the security of using the Internet for various types of transactions, in which it is essential that there be certainty as to who is engaged in the transaction. This is particularly relevant in developing electronic commerce and activities involving the exchange of personal information, such as banking services and e-government.

Challenge: Promote the implementation of legal instruments to facilitate the use of electronic means of exchange, such as electronic signatures, in order to further the use of ICTs for the development of commerce and the provision of public administration services.

TABLE 29
LEGISLATION ON ELECTRONIC/DIGITAL SIGNATURES, 2005

Country	Regulation	Subject	Year
Argentina	Decree N° 427	Approves digital signatures for the public sector	1998
	Law N° 25506	Law on digital signatures	2001
Barbados	Chapter 308 B	Law on electronic transactions	2001
Belize	Chapter 290:01 B	Law on electronic transactions	2003
Bermuda		Law on electronic transactions	1999
Brazil	Provisional Measure N° 2200/01	Establishes infrastructure for public keys	2001
	Decree 3587	Decree on public keys for the Federal Executive Branch	2000
Chile	Law N° 19.799	Law on electronic documents, electronic signatures and certification	2002
Colombia	Law N° 527	Regulates data messages, electronic commerce and digital signatures. Establishes certification entities and other provisions.	1999
Ecuador	Law N° 2002-67	Law on electronic commerce, electronic signatures and data messages	2002
Cayman Islands	Law N° 7 del 2000	Law on electronic transactions	2000
Panama	Law N° 43	Regulates electronic documents and signatures, and deals with certification	2001
Paraguay	Decree N° 21	Decree governing Law N° 2051	2003
Peru	Law N° 27269	Law on digital signatures and certifications	2000
	Law N° 27310	Amends the Law on digital signatures and certifications	2000
Puerto Rico	S.B. N° 423 (188)	Law on digital signatures	1998
Dom. Republic	Law N° 126-02	Law on electronic commerce, electronic documents and digital signatures	2002
Uruguay	Law N° 16.713	Articles 694, 695, 696, 697, 698 of the National Budget	1996
	Decree N° 382/2003	Regulates the use of digital signatures	2003
Venezuela	Law N° 1.204	Law on data messages and digital signatures	2001

Source: ECLAC, "Estado situacional y perspectivas del derecho informático en América Latina y el Caribe" (LC/W.25), Erick Iriarte, 2005.

Goal 25: Legislative framework

Digital legal framework: a priority on enforcement rather than legislation

- Legislation dealing with computer-related crimes and crimes carried out by electronic means has seen major advances in most of the countries of Latin America and the Caribbean since 2000 (see Table 30). Legal efforts have focused on adapting legislation to address crimes committed through the misuse of ICTs.
- At present, however, there are various problems in terms of implementing the legislation. These problems relate to the lack of knowledge on the part of those in the judicial system (judges, prosecutors, attorneys), as well as those in law enforcement concerned with forensic investigation.
- Moreover, the prosecution of computer-related crimes are also being encumbered by regulatory disparity at the regional level.
- Many countries throughout the world have launched efforts to ratify the international Budapest Convention on Cybercrime. However, as yet no Latin American country has signed the treaty. Thus, although the signatory nations are harmonizing their laws and making use of collaborative tools, the Latin American region is working in isolation and without coordination.²

Challenge: Provide training in prosecuting computer-related crimes and crimes carried out by electronic means for members of the judicial system and law enforcement, so as to have an appropriate judicial apparatus. Work in a collective and coordinated manner on issues of informatic law, in order to harmonize legislation at the regional and international levels and enhance participation in international agreements.

TABLE 30
LEGISLATION ON COMPUTER-RELATED CRIMES IN SELECTED COUNTRIES, JULY 2007

Country	Regulation	Subject	Year
Argentina	Law N° 25326	Law on protection of personal data (Art. 32)	2000
	Legislative Bill, Res. N° 476/2001	Regulation on computer-related crimes	2001
Brazil	Law N° 9983	Amends Decree Law N° 2.848, the Criminal Code and other regulations	2000
	Legislative Bill N° 5460/01	On the dissemination of child and adolescent pornography via Internet	2001
Chile	Law N° 19223	Law on computer-related crimes	1993
Colombia	Law N° 599	Law implementing the Criminal Code (Art. 195)	2000
	Law N° 679	Countering exploitation of, and pornography involving, minors	2001
Costa Rica	Law N° 8148	Law on computer-related crimes	2001
	Law N° 8131	Law on financial administration (Art. 110 and 111)	2001
Ecuador	Law N° 2002-67	Law on computer-related crimes	2002
Guatemala	Decree N° 17-73 of Crim. Code	Regulation on computer-related crimes	1973
Mexico		Criminal Code (Reform of 1999), Art. 211	1999
Mexico / Sinaloa	Decree N° 539 (Art. 217)	Criminal Code of the State of Sinaloa, Art. 217	1992
Peru	Legislative Decree N° 681 amended by Law N° 26612	Regulation on computer-related crime	1996
	Law N° 27309	Incorporates computer-related crimes in the Criminal Code	2000
	Law N° 28251	Law on child pornography	2004
Dom. Republic		Law on high-technology crimes and offences	2007
Venezuela	Decree N° 48	Special law on computer-related crimes	2001

Source: ECLAC, “Propuestas Normativas sobre Privacidad y Protección de Datos, y Delitos Informáticos y por Medios Electrónicos”, Erick Iriarte, 2007.

Notes:

¹ ECLAC, “Estado situacional y perspectivas del derecho informático en América Latina y el Caribe”, Erick Iriarte, 2005.

² ECLAC, “Propuestas Normativas sobre Privacidad y Protección de Datos, y Delitos Informáticos y por Medios Electrónicos”, Erick Iriarte, 2007.

Goal 26: Indicators and measurement

Advances in harmonizing measurement of ICTs

- eLAC2007 Goal 26 is designed to promote development of ICT access and use indicators, in order to assist in measuring progress toward information societies within the countries of the region.
 - ECLAC, through OSILAC, has promoted adoption of a basic set of indicators, harmonized among the countries, aimed at having national statistics offices include, in their statistics on households and businesses, the questions needed to construct ICT access and use indicators. This task is part of a global effort by the Partnership on Measuring ICT for Development.¹
 - The possession of radio, TV, landline and mobile telephony, computers and Internet is covered by basic indicators on access included in household surveys providing data on household equipment. Individual use of the Internet, where it is used and the type of activities engaged in online are covered by basic indicators on use, with extended indicators detailing frequency of use, speed of Internet connection, and use of mobile phones at a household level. In terms of businesses, the indicators point to trends in the number of computers and websites, Internet access, use of networks, and types of activities carried out online. Annexes provide data on ICT penetration at the individual and household levels for Latin America and the Caribbean countries, where such information is available.
 - Table 31 shows that between 2005 and 2006, 18 Latin America and the Caribbean countries included almost all of the basic equipment and ICT indicators in their surveys; 8 used indicators for enterprises; 13, indicators for households; and 17 incorporated in their surveys at least one question on Internet use.
 - Improvements in measuring ICTs have been accompanied by the holding of regional workshops and technical assistance meetings with those overseeing the ICT measurement process in the region's countries (see Table 32).
 - These efforts have helped in consolidating the OSILAC network and creating a network of national statistics offices to prioritize the measurement of ICTs, with mutual support through collaboration on, among other matters, methodologies, instruments and general knowledge concerning issues of common interest, providing greater visibility to ICTs in the different countries.
 - At the fourth meeting of the Statistical Conference of the Americas (SCA), held in Chile June 25-27, 2007, the databases of OSILAC's Information System (<http://www.cepal.org/SocInfo/OSILAC>) were presented. Officials from the national statistics offices of the region's countries acknowledged the accomplishments that had been made, and committed to increasing their efforts to harmonize, produce and centralize statistics on development of the information society in Latin America and the Caribbean.
- Challenge:** Continue to build on progress in methodology and in the formulation of indicators for ICT access and use, supporting the definition and monitoring of digital policies.

Goal 26: Indicators and measurement

TABLE 31
KEY INDICATORS INCORPORATED IN SURVEYS OF HOUSEHOLDS AND BUSINESSES, 2007

Country	Institution	Key household indicators			Key indicators for businesses	At least one use indicator
		Basic - equipment	Basic – equipment and use	Extended		
Argentina	INDEC	no	no	no	yes	yes
Bolivia	INE	yes	no	no	no	no
Brazil	IBGE	yes	yes	yes	yes (CGIB)	yes
Chile	INE	yes	yes	yes	yes	yes
Colombia	DANE	yes	no (2007)	no	no	no
Ecuador	INEC	yes	partial	no	no	yes
Paraguay	DGEEC	yes	yes	no	no	yes
Peru	INEI	yes	no	no	yes	yes
Uruguay	INE	yes	yes	partial	yes	yes
Venezuela	INE	yes	no	no	no	no
Costa Rica	INEC	yes	yes	Yes	no	yes
El Salvador	DIGESTYC	yes	yes	partial	no	yes
Honduras	INE	yes	yes	partial	no	yes
Mexico	INEGI	yes	yes	yes	no	yes
Nicaragua	INEC	yes	no (2007)	no	no	no
Panama	DEC, CGR	yes	partial	partial	yes	yes
Dominican Rep.	ONE	yes	yes	yes	yes	yes
Cuba	ONE	yes	partial	partial	partial	yes
Barbados	BARSTATS	partial 2003	partial 2003	partial 2003	partial 2003	yes
Saint Lucia	Saint Lucian Stats	yes	partial	no	no	yes
Trinidad & Tobago	NeCS	partial 2003	partial 2003	partial 2003	partial 2003	yes

Source: OSILAC, based on information collected by ONE.

TABLE 32
WORKSHOPS CONDUCTED BY OSILAC ON MEASURING THE INFORMATION SOCIETY IN LATIN AMERICA AND THE CARIBBEAN, 2007

Workshop	Date	Participants			Achievements
		Countries	Agencies and other institutions	Persons	
First Workshop 2004	Nov. 3 and 4, Santiago, Chile	10 from S. Amer. 5 from Caribbean 2 from C. Amer.	16 ONE, National E-Commerce Secretariat (Trinidad and Tobago), OECD, ITU, RICYT, UNESCO, ICA, ECLAC, CGI.br, LACNIC, Social Watch.	34	Adopt a regional list of questions for constructing ICT access and use indicators.
Second Workshop 2005	Oct. 20 and 21, Santo Domingo, Dom. Rep.	10 from S. Amer. 6 from C. Amer. 4 from Caribbean	20 ONE, OECD, ITU, CGI.br, EUROSTAT, UNCTAD, ECLAC, 9 public and private entities from the host country.	51	4 countries incorporated ICT indicators in their statistics on households, and 3 in their statistics on businesses. 2 countries presented their strategies for measuring ICTs.
Third Workshop 2006	Nov. 22 and 24, Panama City	9 from S. Amer. 7 from C. Amer. 7 from Caribbean	20 ONE, CGI.br, Min. Commerce Barbados, Min. Telecomm. Antigua and Barbuda, OECD, ITU, EUROSTAT, UNCTAD, IDB, IDRC, DIRSI, ECLAC, and 6 entities from the host country.	50	12 countries incorporated all or some of the ICT indicators in their statistics on households, and 6 incorporated them in their statistics on businesses.

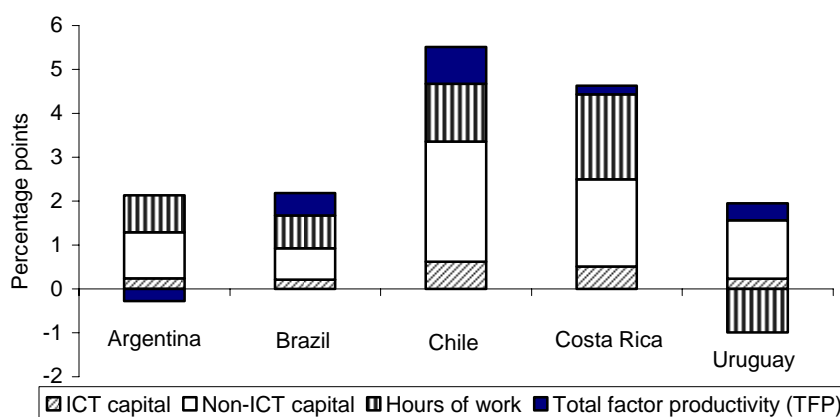
Source: OSILAC

Goal 26: Indicators and measurement

ICTs account for more than 10% of the growth in Latin America

- Goal 26 is also focused on developing studies on the economic and social impact of ICTs.
 - ECLAC carried out a series of studies on the contribution of ICTs to economic growth in the Latin American countries, an issue that has been widely studied and debated in the North American and European economies, but barely begun in Latin America and the Caribbean.
 - In the mid-1990s, studies showed that ICTs were impacting the productivity of businesses and of the overall economy. These results led to guidelines for the formulation of public policy on economic development, based on the importance that ICT production and/or use have in growth.
 - Evidence in the United States and Europe showed various results in regard to the degree of importance of ICT investment. ECLAC studies presented promising results for Latin America. Despite the fact that investment in software and computer and communications equipment has been substantially lower than in the United States and Europe, positive effects on economic growth were observed.
 - One of the studies, using a growth-based accounting methodology, identified the contributions of ICT capital, on the order of 10%-24%, to the rate of growth in GDP. Although, from 1990 to 2004, in Argentina, Brazil, Chile and Costa Rica, between 10% and 13% of the growth came from ICT capital, the corresponding figure for Uruguay was 24%.
 - Other studies conducted by ECLAC on the 2000 round census, along with recent household surveys, have shown that the sharpest social gap in ICT access and use correlates with income level, a person's skills level, and whether one lives in a rural or urban setting, while gender is a less significant factor.
- Challenge:** Continue to conduct economic and social impact studies to guide public policies on growth.

CHART 92
COMPOSITION OF THE RATE OF GROWTH IN GDP, 1990 – 2004



Source: ECLAC, "ICT Investment in Latin America: Does it Matter for Economic Growth?" De Vries, Mulder, Dal Borgo and Hofman, March 2007.

Note:

¹ The Partnership brings together 10 institutions that are working collectively to improve measurement of ICT access and use: UNCTAD, ITU, UNESCO, OECD, Eurostat, 4 United Nations regional commissions, and the World Bank. See: <http://measuring-ict.unctad.org>.

VII. Enabling environment

The enabling environment goal studied is:

- Goal 27: Monitoring execution of WSIS and eLAC2007

Goal 27: Monitoring execution of WSIS and eLAC2007

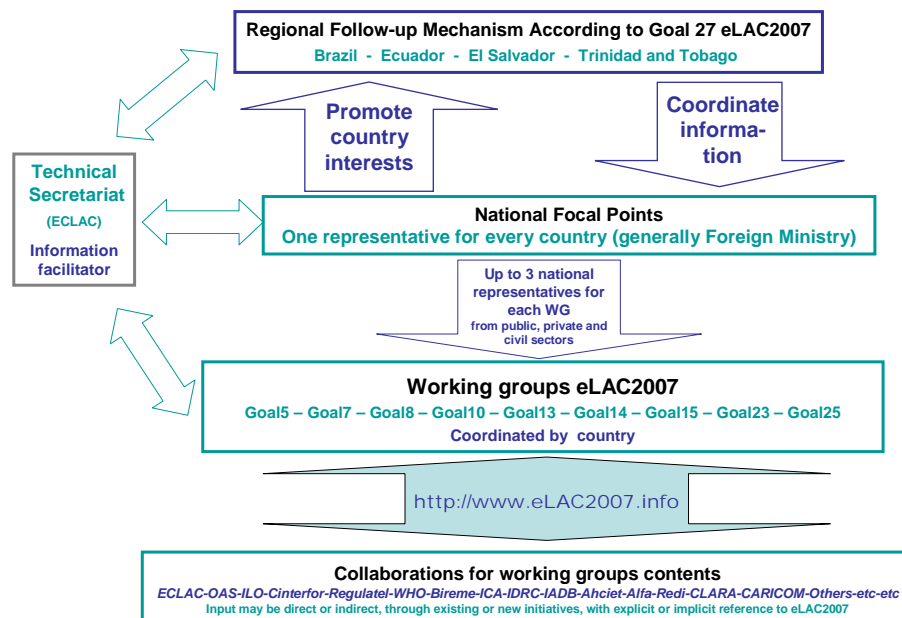
Regional integration and cooperation for advancing the information society

- Goal 27 established the creation of a regional mechanism for monitoring issues related to the World Summit on the Information Society (WSIS) and execution of eLAC 2007, taking advantage of existing regional cooperation structures and organizations.
- In response, a Regional Monitoring Mechanism was created, made up of Ecuador, El Salvador, Brazil, and Trinidad and Tobago. Each country in the region designated a National Focal Point, which organizes national participation in the different working groups (WGs), in coordination with the regional mechanism. The WGs correspond to those established under different eLAC goals, although they can be created at the request of the countries if there is common interest in a particular issue. The WGs are open to participation by the public and private sectors, as well as the civil society in

each country. To this end, the National Focal Point transmits the names of its representatives in the various WGs to the Regional Monitoring Mechanism. The WGs coordinate actions online at www.eLAC2007.info, a site that has been in operation since April 2006, and their work is sustained by contributions from international and regional organizations dedicated to supporting eLAC2007. The countries requested that ECLAC act as a technical secretariat, coordinating tasks and exchanging information among the different entities.

Challenge: Explore the possibility of creating a more formal, stable structure based on the experience gained, so as to provide monitoring of this increasingly important issue for the region, taking advantage of existing regional structures and organizations.

CHART 93
INSTITUTIONAL ARCHITECTURE ELAC2007



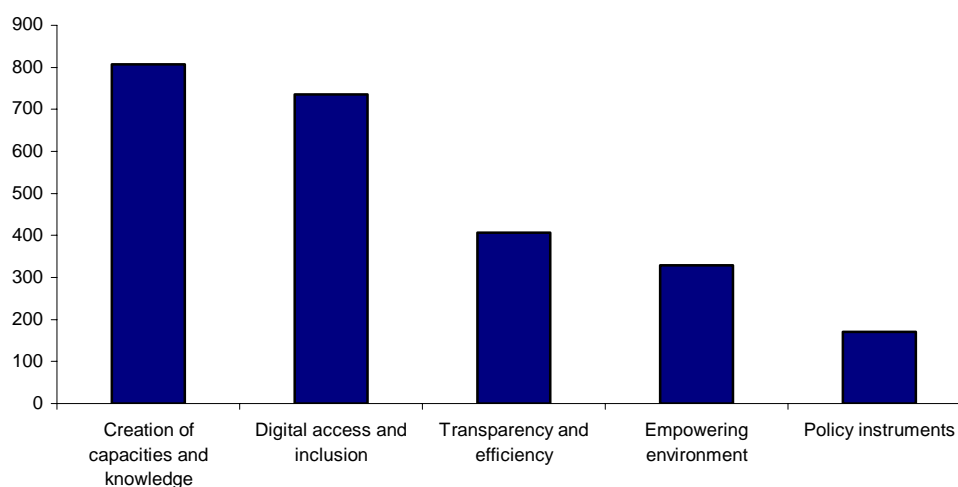
Source: Author's compilation.

Goal 27: Monitoring execution of WSIS and eLAC2007

Greater regional coordination and cooperation based on ICTs

- Pursuant to the eLAC2007 goals, WGs were formed, in order to deepen understanding in critical areas, creating and consolidating regional initiatives and projects on issues such as work, alternative technologies, software, research and education networks, creative and content industries, electronic government, financing and legislative frameworks. In addition, WGs on Internet governance and regional infrastructure was created, based on an agreement among the countries.
 - Each WG has coordinated activities on a virtual collaborative venue, (www.eLAC2007.info), in order to organize events and preparation of documents related to the activities for each of the goals.
 - At the same time, eLAC2007, as a platform for coordinating activities in the region, is not limited to a series of specific activities. There are numerous initiatives on the part of various members of international agencies, civil society and the private sector. The Regional Inventory of ICT Projects for Latin America and the Caribbean (Inventario de Proyectos en TIC para América Latina y el Caribe, or PROTIC) reflects the large number of ICT projects for development in the region, although it is not a complete and exhaustive database.
 - There are more than 1,500 ongoing projects related to technologies with application in various fields and sectors in the region, most of which are focused on enhancing capacities and knowledge, and increasing digital access and inclusion.
- Challenge:** Continue coordinating a large number of activities in the region related to using ICTs for development, within a framework of regional cooperation.

CHART 94
DISTRIBUTION OF 1,543 PROJECTS UNDER PROTIC, BY ELAC20067 SUBJECT AREAS, AUGUST 2007



Source: OSILAC, with information from PROTIC (official website at www.protic.org).
 Note: Takes into account 1,543 projects, which fall into more than one category.

Goal 27: Monitoring execution of WSIS and eLAC2007

TABLE 33
eLAC2007 WORKING GROUPS

Working groups	Coordinating country	Number of members in the WG (by nationality)	Output
Goal 1: Regional infrastructure	Uruguay		Article on current status and remaining challenges
Goal 5: Work	Argentina	ARG (1), BOL (1), COL (1), ECU (3), SLV (1), NIC (1), DOM (2), URY (1)	Study: "Report on regulatory legislation regarding telework in LAC.."
Goal 7: Alternative technologies	Colombia	ARG (1), BRB (1), BRA (3), BOL (1), COL (3), CHL (1), ECU (3), MEX (1), PER (2), DOM (1)	Event: "Andean Forum on Terrestrial Digital Television," April 23 and 24, 2007, Lima, Peru. Event: "Alternative Technologies Forum," August 16 and 17, 2007, Bogotá, Colombia.
Goal 8: Software	Brazil	ARG (1), BRA (2), COL (2), CHL (1), ECU (3), MEX (1), PER (3), DOM (2)	Event: "Seminar of the eLAC2007 Working Group on Software," February 13 and 14, 2007, Rio de Janeiro, Brazil. Study: "Concepts, International Trends and Economic Aspects of Software."
Goal 10: Research and education networks	Uruguay	BRA (2), SLV (1), ECU (3), MEX (2), NIC (1), PER (2), URY (1)	Study: "RedCLARA and Latin American Research and Education Networks.."
Goal 13: Creative and content industries	Argentina	ARG (3), BOL (1), BRA (2), COL (2), CHL (2), ECU (3), MEX (2), NIC (1), PER (2), DOM (1), URY (1)	Study: "Proyecto para un Observatorio Latinoamericano de Ind. de Contenidos."
Goal 14: Internet governance	Argentina	ARG (3), BRA (3), ECU (3), PER (1), DOM (2)	Report: "Forum on Internet Governance," November 2007, Rio de Janeiro.
Goal 15: Electronic government	Nicaragua	ARG (1), BRB (1), BRA (1), COL (1), CHL (3), ECU (3), SLV (1), NIC (1), PER (2), DOM (2), URY (1)	2 videoconferences: "Challenges and Progress in Electronic Government," March 14 and April 4, 2006. 3 workshops on interoperability Colombia, Costa Rica and Chile. White Paper on Interoperability for LAC.
Goal 23: Financing	Argentina	ARG (1), BOL (1), COL (2), ECU (3), SLV (1), NIC (3), PAN (1), PRY (1), PER (3), DOM (3), URY (1)	Survey: "On financing needs for ICTs in the region." 358 participants. Study: "Alternatives for ICT financing."
Goal 25: Legislative framework	Peru	ARG (1), COL (2), CHL (1), ECU (3), SLV (1), MEX (1), PER (2), DOM (3)	Event: "Sixth Latin American Congress on Informatics Law." Studies: "Comparative Report on Relevant Documents in Regulation of the Information Society in Latin American and the Caribbean," and "Regulatory Proposals on Privacy and Protection of Computer Data. and Computer Crime Carried out by Electronic Means."

Source: ECLAC.

Annexes

TABLE A-1
HOUSEHOLD ICT ACCESS INDICATORS, FROM THE OSILAC INFORMATION SYSTEM

Percentage of households with:		Electri-city	Radio	Televi-sion	Landline telephone	Cellular mobile phone	PC	Internet access	Low-bandwidth Internet	Broad-band Internet
Bolivia	2005	68.3	67.1	63.2	18.8	39.2	12.1	3.5		
Brazil	2005	97.1	88.0	91.3	48.1	59.2	18.5	13.6		
Cuba	2006	100.0	38.0	88.3	17.3	1.1	2.1	0.2		
Costa Rica	2005	99.1	86.3	92.8	65.6	49.8	27.0	10.2	79.7	20.1
Ecuador	2006	95.6	72.8	87.1	35.5	63.8	17.9	2.5		
El Salvador	2005				40.6	34.8	7.4	2.2		
Honduras	2006	70.4	65.4	64.4	30.4	41.4	7.6	1.6		
Mexico	2006		88.3	93.2	48.3	47.0	20.5	10.1	58.8	41.2
Panama	2006	88.1	80.4	82.7	40.1	64.2	15.6	8.1		
Paraguay	2005		80.8	79.1	18.6	49.0	8.7	2.2		
Peru	2006	77.0	83.7	69.0	27.9	28.1	10.1	4.7		
Dominican Rep.	2005	94.5	61.6	75.8	25.8	44.3	8.7	3.1	86.9	13.1
Uruguay	2006		94.4	90.7	69.9	48.9	24.3	13.7		
Venezuela	2005		82.8	91.5	34.5	25.7	10.3	2.5		

Source: OSILAC Information System (official website at <http://www.cepal.org/SocInfo/OSILAC>). OSILAC calculations based on data from national household surveys. Most recent year available.

TABLE A-2
INDICATORS OF ICT USE BY INDIVIDUALS, FROM THE OSILAC INFORMATION SYSTEM

ICT use by individuals Use per 100 inhabitants	Brazil	Costa Rica	Cuba	Honduras	Mexico	Panama	Paraguay	Dom. Rep.	Uruguay
	2005	2005	2006	2006	2006	2006	2005	2005	2006
Age of target population	≥ 10 years	≥ 5 years	>5; < 65	≥ 15 years	≥ 6 years	≥ 15 years	≥ 10 years	≥ 12 years	≥ 6 years
Percentage of individuals									
Using computers			56.5		30.4			28.2	38.6
Using Internet	21.0	20.3	24.2	15.0	19.9	22.4	7.9	16.4	29.4
Using mobile telephones	54.3		0.57	21.8		43.9		57.0	
Internet users according to place of use									
1. Home	50.0	15.5	6.7	10.2	34	5.7	19.1	20.3	40.6
2. Work	39.7	13.2	19.8	11.4	24	5.0	31.4	31.6	25.9
3. Educational establishment	25.7	6.5	67.8	6.5	16	1.9	20.3	33.9	14.0
4. Home of other person	0.0	2.4	0.0		2	0.8	4.2	27.8	11.0
5. Community access point	10.0	0.2	3.5	0.2	1			7.9	2.5
6. Commercial access point	21.9	29.5	2.3	81.2	42	8.9	38.4	41.4	51.6
7. Other	31.1	0.5	0.0	0.6	0	0.0	0.7	1.6	
Internet users according to activity carried out									
Information search		65.0		30.4		8.4	62.4		75.4
o On goods and services	24.5		64.0		8			30.9	
o Health-related					10			21.4	
o From government organisations			1.8		6				
o Other			15.6		41				
Communication	68.6	70.0	9.8	33.8	55	2.3	49.4	58.4	80.1
Purchases, contracting, orders	13.7	8.0	10.0	1.7	7	0.1	2.6	8.1	4.2
Electronic banking transactions	19.1	19.0			2			13.0	3.8
Formal education / Training	71.7				35		30.1	70.2	
Interaction with governmental organisations	27.4		39.4		5	0.9		11.0	12.1
Entertainment		45.0	3.1	18.3		0.2	11.9		41.8
o Video game use/downloading					10				
o Downloading of films/music/videos					5			19.0	
o Reading and download of magazines/books/newspaper s	46.9				3		3.9	38.6	
o Other entertainment activities					4			34.1	
Frequency of accessing Internet									
At least once a day	36.3				20			18.3	37.0
At least once a week	47.3		11.8		68			26.4	48.1
At least once a month	11.7		21.6		10			18.0	11.9
Less than once a month	3.1		46.4		2				2.8

Source: OSILAC Information System (official website at <http://www.cepal.org/SocInfo/OSILAC>). OSILAC calculations based on data from national household surveys. Most recent year available.