

Andean Readiness for the Networked World

Geoffrey S. Kirkman

Background paper examining the state of the Andean region for the
Andean Competitiveness Project

April 5, 2000

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THE INFORMATION REVOLUTION AND THE ANDES¹

The staggering technological changes of the last few decades have fundamentally changed the global economic system. These have important consequences for the entire world. Rapid increases in computing power, plunging prices for silicon chips and electronics, and advances in wireless communications have made powerful technologies accessible to many parts of the world which have historically lagged far behind in technology adoption.

The Andean countries have for the last few years languished near the bottom of global competitiveness rankings. Yet in that time, the information revolution continued and altered many of the factors that determine competitive advantage. For the Andean nations to strengthen old and develop new sources of competitive advantage, it is imperative for them to participate in the information and communication technology (ICT) revolution, thereby enhancing their competitiveness in today's world. And this means understanding how to become ready to productively use ICTs. A state of Networked World Readiness allows a community to capture the many benefits that information and communication technologies can bring.

THE BENEFITS OF NETWORKED WORLD READINESS

As effective utilization of information and communication technologies becomes more central to global competitiveness, it becomes increasingly important for nations to prepare for the deployment, incorporation and use of these technologies within their societies. A number of issues that are central to the effective deployment of ICTs include a stable electricity supply, quality transport and distribution infrastructure, a stable and clear legal environment, effective trade policy, an entrepreneurial business environment and a sound financial system with access to capital. These topics are dealt with in more detail in other sections of this report.

¹ Analysis of Networked World Readiness is notoriously difficult due to the lack of available data that accurately capture the penetration and use of the new technologies. Furthermore, the speeds with which information technology is adopted, adapted and utilized are extremely rapid. This makes ICT assessments merely best guesses in many cases. Finally, because much of the greatest impact of ICTs occurs at the microeconomic level within the firm, what macro-level statistics that do exist often do not adequately explain the nuances of Networked World Readiness. These conditions are further compounded in the Andean region, where accurate and current data are particularly scarce.

For these reasons, this paper does not present a complete picture of Andean IT Readiness. It attempts to establish a backdrop against which Networked World Readiness in the Andes should be analyzed. At this preliminary stage within the Andes Competitiveness Project (ACP), it is important to establish a roadmap that can be followed during the course of the project, during which time data gaps will be filled and Andean Readiness for the Networked World will be explored in greater depth.

The incentive for being Networked World Ready is that information and communication technologies provide powerful tools for enhancing competitiveness. Some of the benefits of ICTs are outlined in the following table:

<u>ICTs Create New Opportunities</u>	<u>ICTs Eliminate Barriers</u>	<u>ICTs Promote Efficiency</u>
<ul style="list-style-type: none"> • increase convenience and choice for consumers • extend market reach for businesses and support fair return on goods and services • allow new business models to develop 	<ul style="list-style-type: none"> • provide access to information to all on the network • overcome physical and virtual isolation • permit individuals to become better informed of government policies and processes 	<ul style="list-style-type: none"> • streamline product and service delivery • increase transparency of operations • reduce transaction costs

To effectively compete in the new global information economy, it is essential to improve the Networked World Readiness of the immediate environment. There are five broad areas that should be assessed to determine readiness to compete in the information age:

1. *Network Access*: What are the coverage and quality of telecommunications and information networks? What types of telecommunications and Internet services are available, how good are they, and how affordable are they? Is there quality auxiliary infrastructure in place to support information and communication technologies?
2. *Networked Learning*: Does the educational system integrate ICTs into its processes to improve learning? Is the populace being prepared to productively use ICTs now and in the future?
3. *Network Policy*: To what extent does the policy environment promote or hinder the continued spread and use of information and communication technologies?
4. *Networked Society*: To what extent are citizens using information and communication technologies and networks to communicate with each other and the world around them? Are there significant opportunities available for those with ICT skills?
5. *Networked Economy*: How are firms, governments and other organizations using ICTs to enhance their internal organization and activities, and how are they using them to interact with the public and with each other?

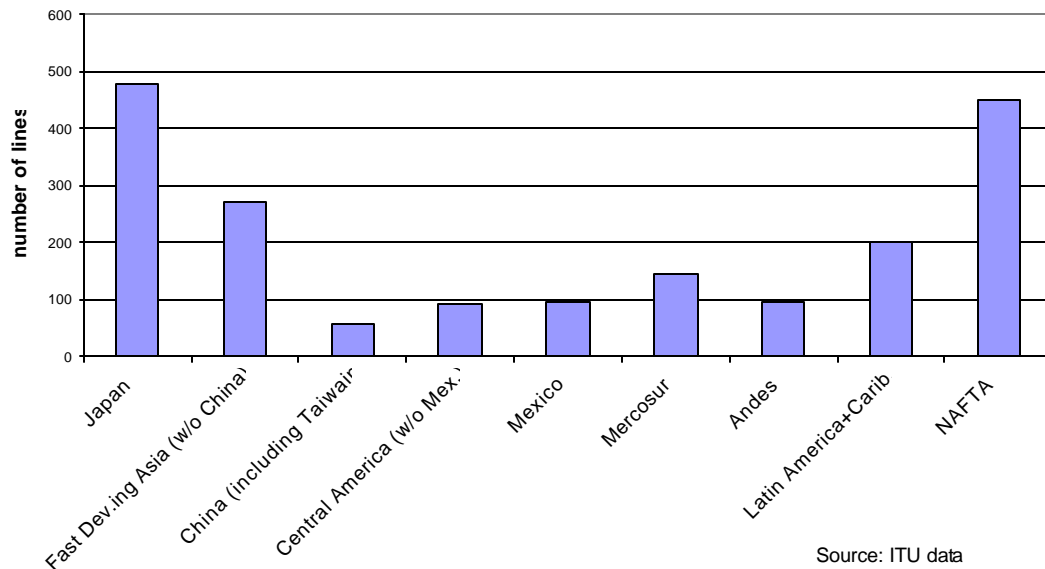
It is important to note that these five areas of Readiness reinforce each other as they each develop. Indeed, Networked World Readiness depends upon progressive development in all of these areas—emphasis upon one aspect of Being Ready at the expense of others does not result in a sustainable Readiness state.

ANDEAN READINESS FOR THE NETWORKED WORLD

As with most changes associated with the Internet and other new information and communication technologies, conditions are rapidly changing within the Andean countries. Even with the changes taking place, the Andean countries have yet to capitalize upon the new technologies to enhance their own competitiveness, both as individual nations and as a region. While small pockets of industry in the Andes are on the cutting edge of information and communication technologies, most of the region remains well behind in its incorporation of ICTs in its economic activity. Colombia and Venezuela are somewhat more Ready than the other countries across a number of indicators, but all five nations fall well behind much of the world in terms of Networked World Readiness. In all countries, most ICT activity is concentrated in the major cities. In sum, in all areas of Network Access, Networked Learning, Network Policy, Networked Economy and Networked Society, the Andean countries require significant upgrading and improvement to become ready to compete in the information age.

An assessment of one of the most traditional benchmarks of technology adoption, the number of per capita telephone mainlines, can serve as a rough proxy for Andean Networked World Readiness. As can be seen in Figure 1, the Andes falls well below the average for Latin America, and just above the average for Central America, in terms of main lines per inhabitant. With the many changes in the composition of telecoms and data networks, an examination of this kind does not capture many of the nuances of Andean Networked World Readiness. It does, however, speak roughly to the global position of the region in terms of adoption of information and communication technologies.

Figure 1: Telephone Mainlines (per 1,000 people)



Network Access

A minimum necessary condition to compete in the information age is access to adequate network infrastructure. Without access to the global communications network, it is not possible to participate in the Networked World. The network is the actual physical infrastructure over which voice and data are transmitted. The network is well deployed in some urban areas within the Andes, but rural connectivity is still an issue, despite pushes for universal access in all five countries. The information infrastructure can be composed of a variety of forms such as copper wire, fiber optic cable, and wireless delivery platforms. The deployment of the physical infrastructure as well as its quality are important in determining Networked World Readiness.

The competitive impact of ICTs also depends on the range and quality of services that are provided via telecommunications networks, particularly services related to the Internet, which has quickly become the predominant platform for much information-intensive communication. The Andean countries with regard to network services remain behind in Networked World Readiness. Following is an assessment of the Andean countries in areas relating to Network Access.

Internet Availability. Telecommunications infrastructure is deployed with widely varying local and regional rates of penetration. Of particular note are discrepancies in deployment between urban and rural areas. Lack of access by both individuals and firms to the telecommunications services provided by this network remains a significant impediment to competitiveness in the information age.

Because of the growing importance and unique character of the Internet, which provides a global platform for both data and (increasingly) voice services, the assessment of network access should be carried out in the context of Internet access, rather than access to *either* voice *or* data. While in the future, mobile wireless technologies will undoubtedly provide an attractive option for Internet access, as will cable networks and perhaps even the electrical grid, currently most Internet access in the Andes is provided through the traditional telecommunications network.

The urban-rural divide with regard to access to telecommunications services is particularly noteworthy in all of the Andean countries. Given the dramatically different geography within and among the Andean nations, the deployment of wireless solutions should prove to be most promising. (See the chapter on geography in this report for a more detailed discussion of the relationship between geography and economic growth.)

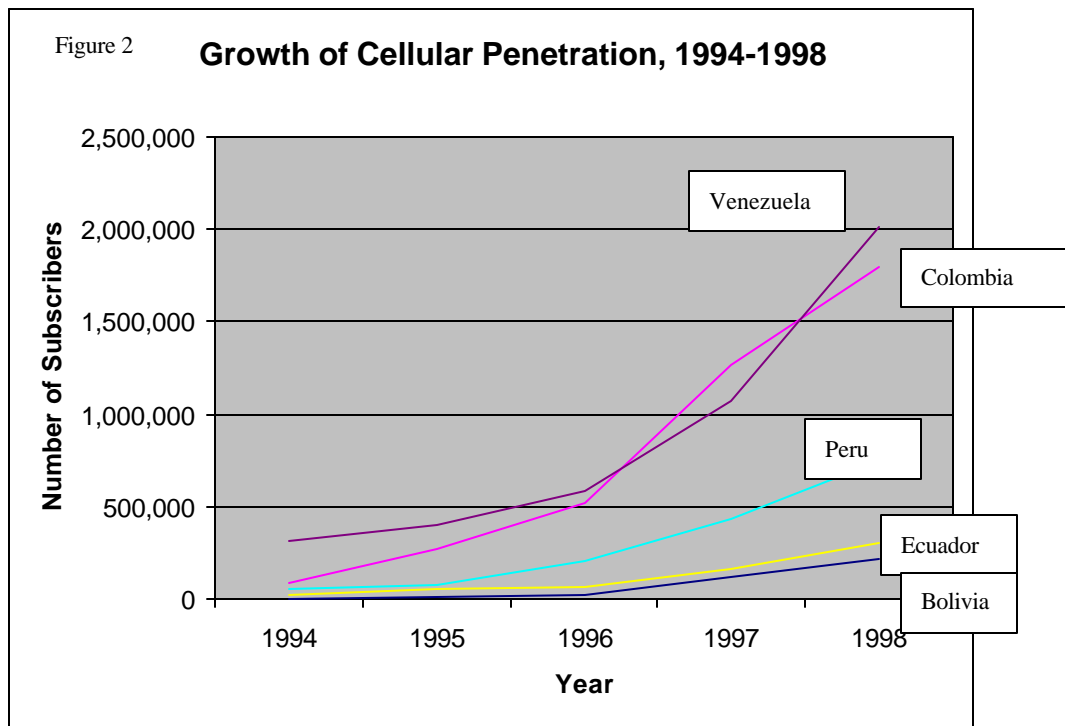
It is difficult to determine the state of aggregate access to telecommunications services, however, because there is no one indicator that captures mainline telephone, cellular and payphone penetration. Overall mainline telephone penetration is fairly low throughout the Andes, although teledensity (telephones per 100 people) is twice as high in Colombia and Venezuela as it is in the other three countries (see Table 1).

Table 1: Mainline and Cellular Telephone Penetration

<i>Country</i>	<i>Mainlines per 100 Inhabitants, 1997</i>	<i>Cellular Telephones per 100 Inhabitants, 1998</i>
Bolivia	7	3
Colombia	15	5
Ecuador	7	3
Peru	7	3
Venezuela	12	9

Source: ITU

The growth of cellular telephony is one of the strengths of the Andes region; the last few years have seen explosive growth in the number of cellular subscribers in all five of the countries (see the following figure). The overall effect of cellular growth upon total voice penetration is in question, however, because it is not known whether most cellular subscriptions serve as a substitute or complement to landline service. Given the suitability of cellular to overcome difficult topographies in the Andean countries as well as the greater ease with which numerous individual cellular handsets can be deployed, it seems likely that the numbers of cellular voice subscribers, particularly digital Personal Communications Services (PCS) users, will continue to rise rapidly.



Source: ITU

Network Speed and Quality. The speed of data transmission to which firms and individuals have access is an important component of Networked World readiness. Higher speeds allow increasingly complex and sophisticated transactions to take place online.

Better data are needed to analyze the speed of data services throughout the Andes, although it seems that anecdotally, connections are mainly dial-up at less than 56 kpbs. Until Digital Subscriber Line (DSL) technology (which allows data to be transmitted at much faster rates over traditional copper wires) is rolled out in the Andes, most access will remain limited by the somewhat lower speeds permitted by twisted-pair last mile solutions. In terms of other elements of the data network, Colombia is the only Andean country with any degree of Integral Digital Services network (ISDN) penetration, with over 39,000 subscribers.² The relatively high numbers (in absolute terms, but not in terms of overall penetration) of cable television subscribers in all countries except Bolivia suggest potentially strong future markets for the faster service offered by cable modems (see Table 2).

Table 2: Cable TV Subscribers

<i>Country</i>	<i>Number of Cable Television Subscribers, 1997</i>
Bolivia	n/a
Colombia	613,000
Ecuador	140,000 (in 1997, 1998 n/a)
Peru	350,000
Venezuela	600,000

Source: ITU

The quality of the information network is essential to Networked World readiness. Poor voice quality, high numbers of mainline faults, dropped calls and packet loss can render any network useless or operationally sub-optimal, thus discouraging use of and investment in new technologies.

With respect to quality of the network, an examination of main line faults suggests that with the exception of Venezuela, the quality of the traditional telecoms network is quite poor in the Andes (see Table 3). This translates into both poor voice and data reliability where the telecoms network is used.

² International Telecommunications Union, 1999.

Table 3: Mainline Faults

<i>Country</i>	<i>Number of Main Line Faults (Per 100 Lines), 1997</i>
Bolivia	n/a
Colombia	62
Ecuador	79
Peru	34
Venezuela	4

Source: ITU

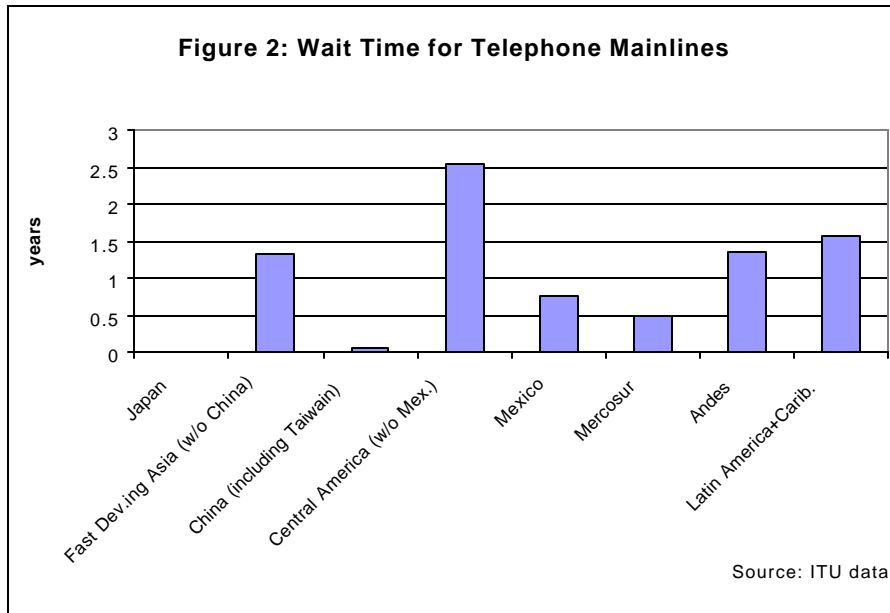
The quality and number of interconnections between the national voice and data networks and international networks are essential for Networked World Readiness as well. There are currently a number of major initiatives underway that will increase the number of international gateways for the Andean countries (see Appendix 1).

Service and Support. Long waiting periods for installation and repair and a lack of customer service orientation by telecoms and Internet providers pose major obstacles to competitiveness.

The experience seems to be rather mixed in the Andes with regard to service quality. For instance, what data do exist show that the number of people on the waiting list for main lines in Venezuela has declined over the last five years, from just over 900,000 in 1994 to some 420,000 in 1997. This is in large part due to the privatization of the state telephone company. In Colombia, on the other hand, this number doubled between 1994 and 1998 from around 750,000 to over 1.5 million. The number of people waiting for a main line in Peru declined from 280,000 in 1994 to hover around 50,000 for the last three years.³

As can be seen in the following Figure, in terms of waiting times for telephone mainlines, the Andean countries fall below the average for Latin America, and are about on par with the Asian Tigers. To better understand the service issues associated with data and Internet network services, however, better data are needed.

³ International Telecommunications Union, 1999.



Internet Service Provider Capacity and Availability. Access to the Internet is an essential precondition for competitiveness. This access is enhanced by competition and increases with the number and range of services of Internet Service Providers (ISPs) that operate locally. Better data about ISPs within the Andean nations are needed to assess the capacity and availability of local ISPs.

Readiness is facilitated by faster transmission rates and greater bandwidth although there are many fairly sophisticated transactions that can take place with low bandwidth. In communities where either income levels or the network infrastructure cannot support high levels of individual access, public shared facilities provide a needed alternative. Such venues may include telecenters, cybercafes, and community information centers.

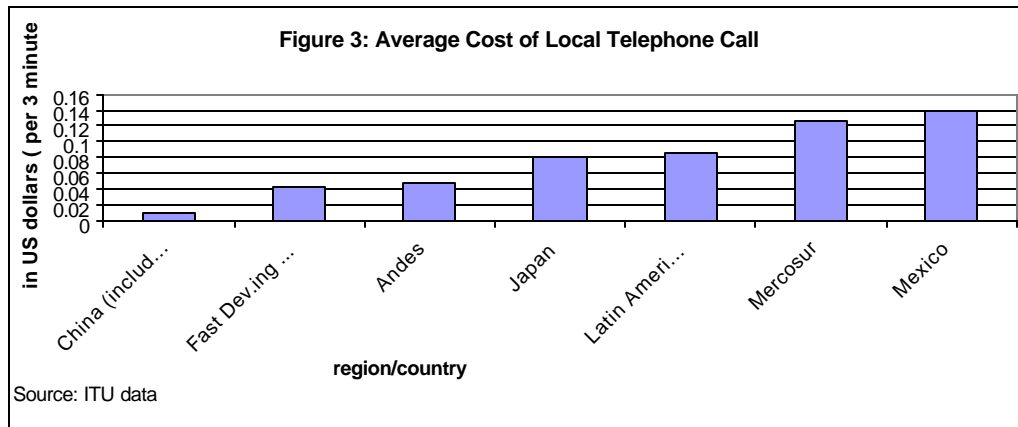
Internet cafes are becoming an important source of public access throughout all five countries, particularly in the major cities. More analysis should be done in this area to determine usage patterns within cybercafes, however, evidence suggests that foreign businesspeople and tourists are primary users of Internet cafes in major urban areas. This would indicate that efforts should be made to encourage use among the local community.

One of the most promising developments for expanding public data access is through telecenters. Perhaps the most notable regional effort to develop telecenters is the Red Científica Peruana, a company that maintains a network of telecenters throughout Peru, and whose model has been replicated across Latin America with financing from the Inter-American Development Bank.

Internet Affordability. If fees for basic network services such as telephone calls and Internet access, as well as for value-added services such as web-hosting or web development, are high, there is a disincentive to use information and communication technologies and access remains limited to small portions of society. This adversely affects competitiveness, because the more users on a network, the more valuable and competitive it becomes. A variety of pricing packages

improves the affordability for many subscribers because it allows them to purchase what they need.

The structure of the pricing packages is also directly correlated to the degree to which the network is used. In the ISP market, for example, flat fee plans which allow for unlimited access with one basic payment are more conducive to Internet usage than hourly pricing. And the composition of any associated telephone charges is also important in creating a disincentive to “surfing the Internet” and participating in electronic commerce. The average cost of a local telephone call in the Andes, as can be seen in the following Figure, compares favorably with a number of other regions in the world.



As can be seen in the following table, there is quite a range of ISP fees through the Andes. The most favorable rates are in Peru, where fees average about 65% less than the average for the entire region. The least favorable rates are in Venezuela, where average monthly access charge is quite high at US\$54. Telecenter fees, which generally give the consumer access to the Internet through a personal computer, also exhibit a wide spread.

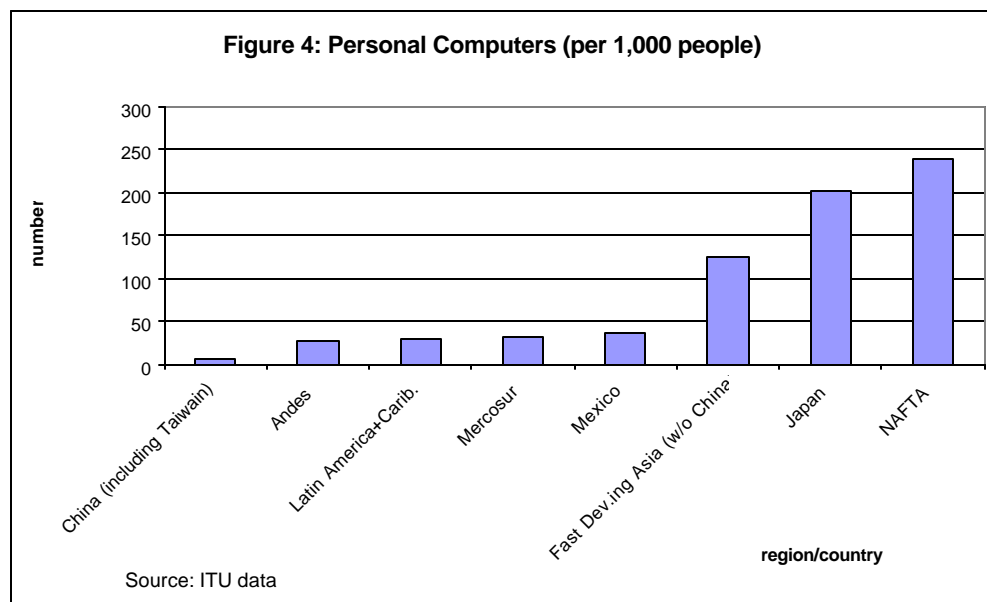
Table 4: Average Fees for Network Services (In US\$)

<i>Country</i>	<i>Average Monthly ISP Access Fee</i>	<i>Typical Hourly Telecenter Internet Access Fee</i>
Bolivia	n/a	\$6
Colombia	\$36	\$3-6
Ecuador	\$45	\$1-3
Peru	\$13	\$2-3
Venezuela	\$54	n/a
Andes Region Average	\$37	\$3.75

Source: Inter-American Bio-diversity Network Report, <http://www.nua.ie>; <http://www2.planeta.com>; <http://www.cenfeil.org>

ICT Hardware and Software. As important as the network itself are the complementary technologies that provide the essential interface between the network and the user. Fax machines, personal computers, software and wireless devices have enabled increasingly sophisticated communications to take place, and enhanced competitiveness, particularly on the microeconomic level. In broad terms, ICT usage is more easily embraced in places where information devices, such as radios, televisions, telephones, pagers, and computers, are culturally accepted and widely incorporated into the daily life of the community.

Andean penetration of the personal computer is actually quite substantial at this time, and as can be seen in the following Figure, only slightly behind the average for all of Latin America.⁴



⁴ Much better data are needed to analyze the wide range of other IT products that are essential for IT Readiness.

Networked Learning

The human aspect of Networked World Readiness is just as important as the reach and quality of the network and the hardware. Readiness depends upon a community that can effectively incorporate information and communication technologies in the fabric of its activities.

Literacy and Language. Once communities have access to the network, issues of language and literacy are paramount. While cutting-edge digital media do extend the usability of the Internet, it is still largely a text-driven medium. Illiteracy and language barriers seriously limit the ability of many communities to utilize online resources. English language dominance on the World Wide Web remains a serious impediment to the world's non-English-speaking communities. At the same time, the fact that the Andean countries share Spanish as the same official language offers an opportunity for intra-regional networking and creation of appropriate language content. Spanish has a significant and rapidly growing presence on the World Wide Web, creating additional opportunities for the Andes.

Literacy rates for the Andean region continue to lag behind those of Argentina and Chile, the two most educated countries in Latin America. Of particular note, school attendance in all five Andean countries drops off rapidly in children of secondary school age. As the chapter on education in this report notes, secondary education contributes more than primary education to a country's economic growth and levels of investment. Furthermore, the quality of education in the Andean countries is far behind other developing countries with similar year of schooling. Another factor that complicates educational attainment in the Andean countries is indigenous languages. The number of speakers within the region whose primary language is not Spanish may also be a stumbling block to widespread usage of information and communication technologies in more marginalized and rural areas (where indigenous languages are more likely to be spoken).

Table 5: Literacy Rates, 1995

<i>Country</i>	<i>Percentage of Population that is Literate</i>
Bolivia	83
Colombia	91
Ecuador	90
Peru	89
Venezuela	91

Source: World Bank Group

Skills Training. Exposure to information and communication technologies at an early age creates an ICT-savvy community. Schools that have wired their classrooms and trained their teachers to incorporate ICTs in their coursework are able to explore new, powerful models of learning. This leads to an ICT-literate populace that can elevate the nation's readiness to employ information and communication technologies for economic gain.

More data are required to rigorously assess the state of ICT in Andean schools. However, it is anecdotally known that even ambitious initiatives to put ICTs in the classroom such as that underway in Colombia have run into stumbling blocks such as poor planning, political misdirection and inadequate training of teachers.

Employment Opportunities and Skills. Diverse mechanisms for developing ICT-related skills help ensure an adequately trained workforce. There must also exist job opportunities attractive enough to retain these skilled employees. More detailed statistics of technical higher education, professional training opportunities and ICT-related employment are needed to assess this important area.

Network Policy

Public policy can be either a help or a hindrance to the networked economy. A favorable climate for Internet use and e-commerce encourages communities, organizations and individuals to invest in and depend upon ICTs. Liberalization and privatization of telecoms and information services are taking place throughout the Andean countries, albeit at different speeds and with varying approaches.

Telecoms Liberalization. Liberalization within the telecommunications sector establishes a regulatory framework that encourages multiple carriers to operate competitively. As more operators enter and compete in the marketplace, services become more accessible and affordable, while reaching higher levels of quality.

A detailed analysis of the intricacies of the various Andean telecommunications privatization and liberalization processes, including the local and long distance, digital and analog cellular, and the ISP markets is beyond the scope of this brief overview. However, it should be pointed out that each Andean country finds itself at a different stage in this process, and that the next few years will be crucial if productive competition is fomented within each of these markets.

Online Policy. Policies that ensure transactional security, personal privacy, and digital authentication of individuals and documents are essential to a vibrant and competitive ICT market, particularly in the area of electronic commerce. Excessive content regulation can undermine the willingness of individuals and users to view the Internet as a secure system to carry out transactions. A secure legal framework that governs electronic mediated trade is essential.

Very little has been done thus far in the Andes to address issues that pertain directly to the online environment, but coherent policies will need to be developed with an eye toward encouraging the growth of electronic commerce and online markets.

Networked Society

Individuals Online. The number of Internet users within a population is an excellent indicator of the overall national readiness to leverage information and communication technologies as a source of competitive advantage. The number of individuals online can serve as a broad proxy for levels of ICT education and consumer e-commerce activity, but much of the detail of Networked World Readiness is lost. While often used as a definitive statistic, the

number of Internet users is at best an approximation due to lack of knowledge of shared email addresses, access points, terminals, and rapid growth in Internet use.

However, as can be seen in the following table, a relatively small number of the global Internet users are Latin American.

Table 6: Global Breakdown of Internet Users, September 1999

	<i>Number of users (million)</i>
World Total	201
Africa	2
Asia/Pacific	34
Europe	47
Middle East	1
Canada & US	112
Latin America	5

Source: Nua

Internet penetration in the Andes, though growing quickly, is still extremely low. The Andean countries only account for 5.31% of Internet users in Latin America. All of the Andean countries have Internet usage of under one percent of the population. Colombia tops the list with 0.51 percent of the population using the Internet. The following table illustrates a rough breakdown of Internet use in some Latin American countries.

Table 7: Numbers of Internet Users in Selected Latin American Nations

	<i>Number of Users</i>	<i>% of Population</i>
Argentina	250,000	0.69%
Bolivia	8,000	0.10%
Brazil	1,773,900	1.07%
Chile	175,000	1.18%
Colombia	186,667	0.51%
Costa Rica	40,000	1.04%
D. Republic	25,000	0.30%
Ecuador	5,000	0.04%
Haiti	2,000	0.03%
Mexico	546,975	0.57%
Paraguay	1,000	0.02%
Peru	38,667	0.16%
Uruguay	9,000	0.27%
Venezuela	42,333	0.18%
Andes	280,667	0.27%
MERCOSUR	2,033,900	0.97%

Beyond looking at sheer numbers of Internet users within the Andes, it would be much more valuable to assess what these individuals are doing online. The collection of these data is still at the embryonic stage in the region.

Networked Economy

Businesses and governments that are able to effectively employ information and communication technologies both in their internal operations as well as their external activities find more sophisticated and efficient ways of managing their activities and communications. Networked World Readiness is enhanced by effective use of ICTs by both the private and public sector.

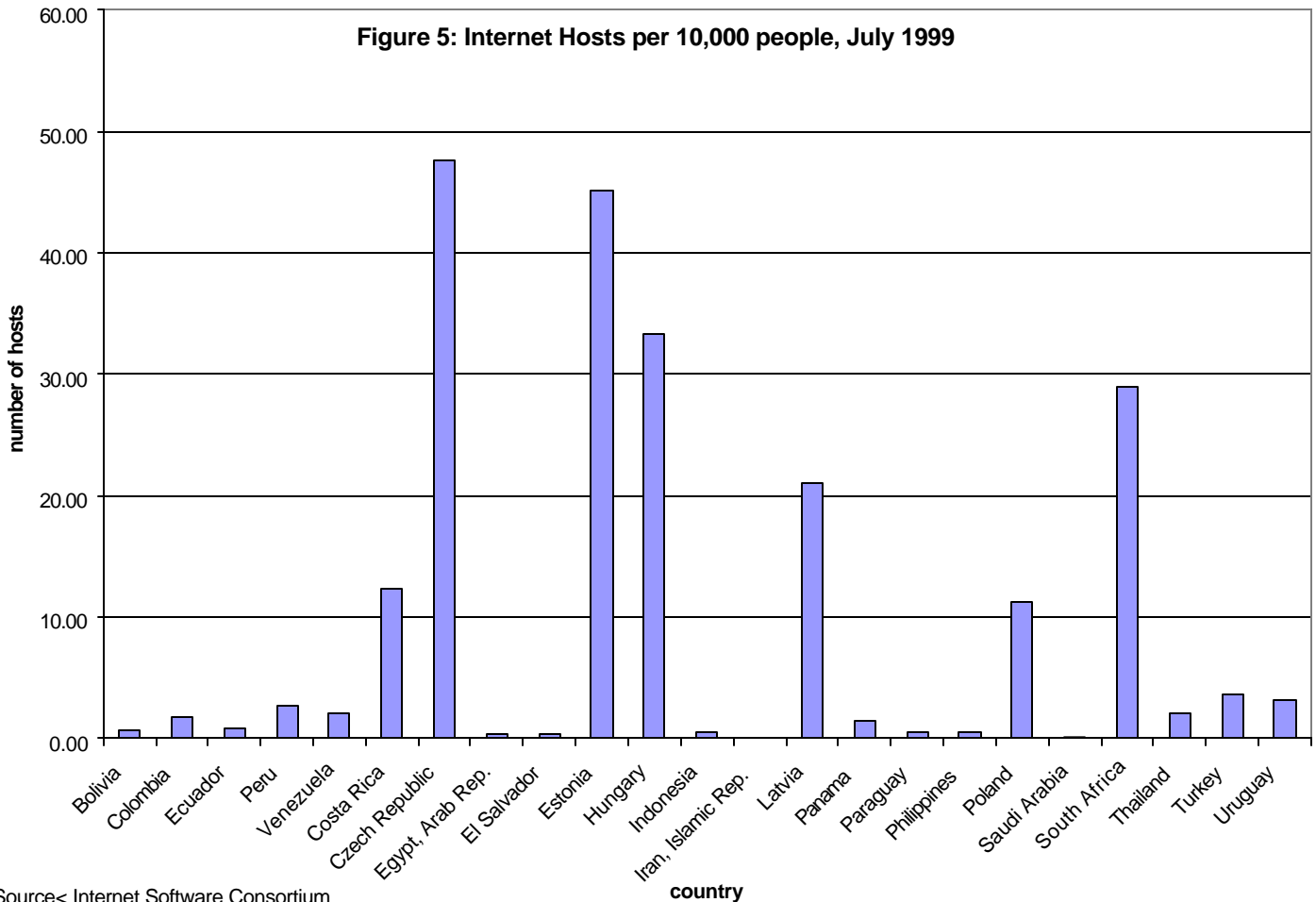
Deployment of ICT Systems. Firms can capture many of the benefits of information and communication technologies by deploying ICT systems that create new efficiencies in their internal operations.

Numbers and types of ICT systems used by firms would serve as excellent indicators of how ICTs are playing a role in enhancing the microeconomic competitiveness of firms within the Andes.

Local Internet Presence. The more firms with an online presence, the more likely it becomes that the local economy is taking advantage of the Internet and of the economic opportunities offered by ICTs. The accuracy of assessing this indicator by examining the number of registered

Internet domains is clouded by two major factors: (1) many organizations outside the United States choose to register under the first level domains of .com, .org or .edu, rather than their country domains and (2) each registered domain does not correspond to any requisite number of firms or organizations.

The following Figure illustrates how the Andean countries compare in total number of Internet hosts to a sample of other developing nations. There is a significant gap between the Andes and global leaders such as the Czech Republic and South Africa.



Electronic Commerce. An assessment of both the amount and nature of business-to-business (b2b) and business-to-consumer (b2c) e-commerce can provide excellent insight into Networked World Readiness. Of particular importance are the relative sizes of b2b and b2c electronic commerce. Current estimates of these two types of activity indicate that the total volume of b2b is between 7 and 10 times larger than b2c. Further projections indicate that in regions such as the Andes where most electronic commerce will most likely take place within and among firms, rather than among consumers, because of relatively low levels of disposable income, b2b will be perhaps as much as 20 times as large as business-to-consumer e-commerce.

No firm data yet exist in this area for the Andes, but if the region is to become competitive through the use of ICTs, electronic commerce will have to play a major part of its strategy. Appendix 2 illustrates some major e-commerce related initiatives that are being launched that could have a great impact upon the Andes.

Government and ICTs. Governments take advantage of information and communication technologies to improve connections with their constituents, including using the Internet to post information online and to offer interactive services for the public. Governments can also lead by example by investing in ICTs for their internal use, leading to potential efficiencies for their operations and helping to foster a local market for equipment and services.

Agencies within each of the national governments in the Andes have begun to utilize the World Wide Web to make information public; over 25 agencies in each country have active web sites. The degree to which governments have begun to use information systems to make their internal operations more efficient is not yet known. Similarly, the use of information and communication technologies in procurement and other relations with outside firms should be further investigated.

CONCLUSIONS

As is apparent in this brief overview of the state of Networked World Readiness in the Andean region, there is a great deal more research and analysis that needs to be carried out before the current situation is well understood and a coherent strategy can be outlined for the region as a whole to better use information and communication technologies to enhance its competitiveness.

While in general terms the Andean nations are still not Ready for the Networked World, there are certain areas in which the conditions are moving very quickly in a positive direction. The forces of change associated with information and communication technologies and the Internet are extremely powerful, and ICTs offers a great opportunity to these nations to fairly rapidly strengthen their old sources of competitive advantage, as well as develop new ones that can enhance their overall competitiveness.

As a general rule, however, the following guidelines should be kept in mind if Bolivia, Colombia, Ecuador, Peru and Venezuela are to indeed improve their Networked World Readiness:

1. An effective regulatory and legal environment that promotes competition, affordability, reliability, security, and transparency is critical.
2. The human component of incorporating information and communication technologies is just as important as the technologies and infrastructure themselves. Educational opportunities, skills training, and an awareness of the benefits of ICTs should be widespread.
3. Investment in infrastructure is crucial for a strong digital economy, though it is not sufficient in itself to guarantee Readiness.
4. Financial services are vital for all those involved in the information economy, from start-up funding for new businesses to credit services for consumers.

5. Based on these guidelines, the following general action points should be incorporated into a plan for improving Networked World Readiness in the Andes.

- Build out the information infrastructure. Consider a variety of media in infrastructure choices (landline, mobile, fixed wireless) while taking into account capital costs, operating costs, population density of area to be served, speed with which system can be deployed, scalability of services, and data needs of the community.
- Make consumer electronic equipment available and affordable.
- Create a market for online services by leading through example (migrating from paper-based systems in the office, online procurement, business-to-business online transactions, government websites for interacting with the public).
- Facilitate public access (libraries, online cafes) to the Internet and telecommunications.
- Encourage the localization of software and online content to make the Internet more accessible to the local community.
- Promote policies that protect privacy and provide online security and reliability.
- Introduce trade policies that do not disproportionately penalize trade in ICT equipment.
- Develop trade policies that do not disproportionately penalize goods and services bought online.

Appendix 1: Sample of Planned & Proposed Telecom Expansion Projects

Partnership	Origin	Project Name	Media	Type	Project Cost	Scope/Area	Proposed Services/Timing
Cisneros, DirecTV, MVS Multivision, Televisao Abril	Venezuela, Mexico, U.S., Brazil	Galaxy Latin America	television	satellite, cable fiber optic	\$1 billion	U.S & Latin America now in 600,000 homes	Started in 1996 & has 144 TV (spanish) channels - will provide internet access & local content
Andesat-Alcatel private venture by several companies	Venezuela, Columbia, Peru, Ecuador Bolivia, France	Simon Bolivar 2000	telecom.	satellite network	\$500 million	Andes countries, Latin America	plans to offer voice, imagery and data services at fraction of costs of leasing capacity from foreign satellite operators - 2001
GlobeNet-Global Telesystems	U.S.		telecom	fiber optics		New York-Bermuda- Brazil-Venezuela-Florida New York undersea connection. Seamless connection to Europe on existing network	managed, broadband services between European, South American & US cities. 1st leg operational 2000, complete 2001
New World Network	U.S.	Americas-8	telecom	fiber optics	\$2 billion	41 landing stations in 22 countries in Central and South America	allow carriers to lease in E-1 (small) increments, joint ownership of cable, capacity potential of 1.28 Tbps. 99-start
Telefonica & Tyco International		Saam-1	telecom	fiber optics		Central and South Am	ASAP
Poseidon Intermodal Cable	U.S.	Mercus-1	telecom	fiber optics		Central and South Am	ASAP
AT&T, MCI Worldcom & Sprint	U.S.	Americas-2	telecom	fiber optics		Central and South Am	ASAP
Global Crossing, Alcatel & IMSTAT	U.S., France, Argentina	South American Crossing System	telecom	fiber optics		10 main and 40 inter- mediate cities in S Am	direct link to S Am's maior cities plus telehouses that provide access to those not included in the network First segment - 5/00, complete in 4/01
Diginet Americas Ericsson		pan-regional network	telecom	fixed wireless broad band provider	\$250 million	Argentina, Brazil, Peru Columbia, Panama	provide data and internet service to small & medium sized corps Latin America as sole focus
Telscape International	U.S	"constellation of teleports"	telecom	satellite		Now have contracts to be ISPs in 6 Latin Am countries - connectivity will include all Latin Am	Established agreements with teleports in S Am. Enland. U.S - expand # of satellites that can be accessed & thus the available markets.

Sources: company press releases, industry periodicals and newspapers released Oct.-Nov. 1999.

Appendix 2: Planned & Proposed Local Content Portals and Providers

Company/ Partnership	Origin	Project Name	Media	Type	New investment	Scope/Area	Proposed Services/Timing
Cisneros-AOL	Venezuela, U.S.	Latin AOL	internet	cable & other I-net platforms	\$100 million	U.S & Latin America	spanish language ISP/portal Brazil launch was 11/99
Lycos Inc.	U.S.		internet	I-net platforms		U.S., Brazil, Mexico Argentina, Chile, Peru & Venezuela	spanish language provider search engine, etc.
Compaq Patagon.com (more pending)	U.S. Argentina		PCs, I-net	business formation		Latin America	support I-net startups with venture capital, sell more computers
Editora Abril & Universo Online newspaper	Brazil	UOL	print, internet	portal, ISP	\$100 million	Spanish speaking Am. Chile, Columbia, Venez. Mexico - later U.S.	spanish language ISP/portal Argentina launch was 10/99
Telmex-Microsoft	Mexico-US	MSN Prodigy	telecom, c. software	portal, ISP	\$100 million	Western Hemisphere spanish speakers Telmex now has 4.1 million wireless users	Mexico launch planned 12/99 email, chat, shopping, searches Will use telmex's 10.5 million phone lines, & 33,000 km. fiber optics network
IFX - Yupi	U.S.	Yupi.com	internet	web portal	\$13 million	Spanish speaking Am. now offers email, search engine, chat rooms, etc.	Founded in 1996 - plans to expand marketing, R&D and acquisitions
El Sitio	Argentina	El Sitio	internet	web portal		now in Argentina, Brazil, Mexico & Uruguay - country specific content	content for US hispanic mrkt, Chile, Venezuela, Columbia in 2000
Global DataTel	U.S.	eHOLA Surfer	internet, radio	portal, ISP, on-line retail		Latin America - links to 300 newspapers, can hear broadcasts from 40 radio stations	Launched 4/99 - plans to sign agreements with 100 radio stations and unveil 'Surfer' (can be used with TV screen and phone line)
StarMedia	U.S.		internet	web portal	\$1.3 billion from IPO - 4/99	bought 2 Braz search engines, Sp on-line service US audio/video company	now largest spanish portal wants to be Yahoo of spanish speakers
FirstCom. Corp.	U.S.		phone network	ISP		Latin America	currently operates phone networks - branching out to internet access service

Sources: company press releases, industry periodicals and newspapers released Oct.-Nov. 1999.

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Ecuador

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Thailand, Malaysia, Hong Kong, Indonesia, Singapore, Philippines

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