Strategies for Latin America in the Global E-economy

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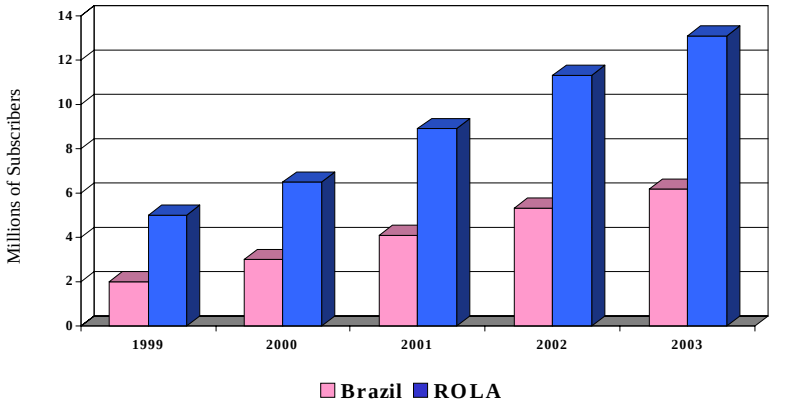
Even though Latin America is behind the developed world in telecommunications, forecasts for the region are rosy. Latin America's teledensity averages only 10%, far below the US's 70%, but it is growing.[1] According to IDC, Internet penetration in Latin America is about half the worldwide average, but the number of Internet users in Latin America should grow at a compound annual growth rate of 32% through 2003, a rate that is unmatched anywhere else in the world.[2] Figure 1 shows that Brazil is projected to consistently make up about one-third of the Latin American Internet users. IDC also forecasts that Latin American e-business will grow 117% annually over the next three years. Three-fourths of Latin American e-business will be business-to-business commerce.

Figure 1. Brazil and Rest of Latin America Internet Subscribers



Sources: Credit Suisse First Boston and IDC

If it comes about, this projected growth in telecommunications and e-business will benefit Latin American countries because telecommunications erases the accidents of geography that have separated Latin America from the developed world. This opportunity to participate in the global e-economy creates opportunities for economic

[1] Teledensity is number of telephone mainlines per 100 population.
[2] IDC, *Latin America's 1999 Internet and eCommerce Strategies*, 1999.

growth, improved services to citizens, and expanded social and cultural experiences. Businesses worldwide can also benefit by providing the hardware, software, education, and trade that are essential for the growth of Latin American economies.

Whether Latin America lives up to its growth projections will depend on Latin America's ability to extend its efforts in telecommunications market reform -- including privatization and opening markets to competition -- into a comprehensive entry into the e-economy.

Latin America's Telecommunications Past

In the 1980s, no one would have predicted the explosion that has occurred in telecommunications market reform in Latin America. Decades earlier, telecommunications had been largely provided by the private sector. But regulation of the sector was subject to the political pressures of the day and governments generally forced the private sector to keep prices below profitable levels. As a result, the private sector refused to invest in network expansion and maintenance, which resulted in a steady decline in the quality and availability of service. The governments then nationalized the telecommunications companies and made the investments necessary to improve service.

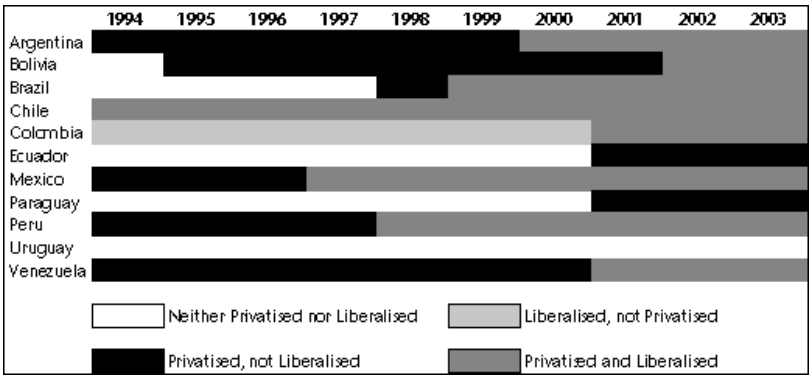
Eventually, the same political pressures that caused poor performance from the private sector came to bear on the state-owned operators. Governments were unable to charge prices for domestic services that were adequate to cover costs and allow for new investment. Fiscal pressures on countries' general budgets caused governments to look to telecommunications as a source of cash flow that could be used for other government projects. The result was a general decline in new investment and extensive cross subsidies from international services to domestic services.[3]

Chile was the first Latin American country to recognize the failure of the state ownership model. It allowed competition in the telecommunications sector in 1978 and privatized its state-owned companies in 1988. Mexico and Argentina soon followed, establishing a general trend towards market liberalization, privatization, and regulation in the region.

[3] Michael Klein and Neil Roger, "Back to the Future: The Potential in Infrastructure Privatization," in *Finance and the International Economy*, ed. Richard O'Brien, Oxford: Oxford University Press, 1994.

Figure 2 shows the market reform pattern that developed in Latin America since 1994 and that Pyramid Research projects will continue through 2003. The white bars represent countries that neither privatized nor liberalized during the indicated timeframes. Black bars represent countries that privatized, but that did not liberalize markets. The light gray bars indicate countries that liberalized markets, but that did not privatize. The dark gray bars indicate countries that both privatized and liberalized markets.

Figure 2. Latin America Wireline Market Reforms, 1994-2003



Source: Pyramid Research

Figure 2 shows that in 1994, Latin American countries were evenly split between those that had made no reforms and those that had only privatized state-owned companies. By 2000, about half of the countries had both privatized and liberalized markets. Pyramid Research indicates that by 2003, only Uruguay will have made no market reforms and only Ecuador and Paraguay will have privatized without liberalizing markets.

Luis Gutierrez and Sanford Berg have tracked the effects of these market reforms.[4] Figure 3 shows some of their results. The third and fourth columns in Figure 3 show the annual growth rates for teledensity before and after privatization for countries

that had privatized, and during the time frames of 1981-1989 and 1990-1997 for countries that had not privatized. Growth rates in teledensity increased for almost all Latin American countries during the decades of the 1980s and 1990s, but the increases were

Figure 3. Comparisons of Pre- and Post- Privatization Reform▽/

Countries that privatized their former state-owned operators◇/			
	Year*/ of Privatization	% Annual Growth Prior to Privatization	% Annual Growth From Privatization
Trinidad & Tobago	1990	15.0	5.0
Belize	1988	12.1	9.5
Barbados	1989	6.7	6.4
Chile	1987	5.7	13.7
Argentina	1990	5.2	8.2
Mexico	1991	5.1	5.6
Jamaica	1989	5.0	16.6
Peru	1994	4.2	23.7
Venezuela	1991	3.8	6.8
Bolivia	1995	2.4	29.0
Guyana	1991	-2.4	24.1
Simple Average		**5.7**	**13.5**
Countries that did *not* privatize their former state-owned operators			
		%Annual Average Growth Rate	
		1981-1989	1990-1997
Honduras		8.5	10.6
Suriname		8.3	6.9
Colombia		5.8	10.6
Uruguay		5.5	8.4
Ecuador		5.5	6.6
Paraguay		5.1	7.3
El Salvador		5.1	12.0
Brazil		4.7	7.1
Guatemala		4.5	11.3
Costa Rica		3.3	7.9
Panama		3.1	4.5
Nicaragua		1.8	11.1
Simple Average		**5.1**	**8.7**

▽/The information contained in this table refers to those countries that privatized before 1998.
◇/This refers to the year when control of major state's stake was transferred to private hands
Source: ITU Database Indicators (1997a) and author compilation.

[4] Luis H. Gutierrez and Sanford Berg, *Telecommunications Liberalization and Regulatory Governance: Lessons From Latin America*, 1999 (unpublished).

greater for countries that had privatized their telecommunications. Gutierrez and Berg show that the development of sound regulatory systems had a lot to do with this increase in growth. In a study of energy, telecommunications, and water reforms in Ghana, India, Korea, Mexico, Philippines, and Senegal, Mary M. Shirley and Lixin Colin Xu show that privatization improves operator performance because private ownership provides more effective financial incentives for managers than does state ownership.[5]

Latin America's Telecommunications Present

As Gutierrez, Berg, Shirley, and Xu show, Latin America's continued success in its market reforms will depend largely on the countries' abilities to establish communications policies that do not repeat the mistakes of the past. This means that the countries need to maintain their commitment to competitive markets, to regulation that encourages investment, and to policies that keep pace with the rapidly changing industry.

Maintaining commitment to competitive markets requires countries to develop policies that do not favor incumbent operators or new entrants, and to enforce those policies. A critical factor is the independence of the regulatory agency. Independence, or autonomy as some call it, means that operators and regulators are completely separate from one another, and that the regulator is able to operate independently of the political process. Independence from the operator is generally achieved at privatization, but may also be achieved by corporatizing the state-owned enterprise and having it operate independently from the government. Independence from the political process generally involves giving the regulatory agency statutory responsibilities and authority and its own budget, fixed terms in office for regulators and that the terms do not coincide with presidential and parliamentary terms, court and not ministerial review of regulatory decisions, and clear guidelines for removing regulators from office.

Independence needs to be accomplished in fact, and not just on paper. Some countries with independent regulatory agencies are still seen as favoring incumbent operators. Cofetel in Mexico is frequently viewed as being unwilling to enforce regulatory rules because of intense pressure from Telmex and from nationalist legislators.

[5] Mary M. Shirley and Lixin Colin Xu, "Information, Incentives, and Commitment: An Empirical Analysis of Contracts Between Government and State Enterprises," *Journal of Law, Economics, & Organization* 14(2): 358-378.

OSIPTEL in Peru is seen as adopting local interconnection prices that are so high that they deter many potential competitive local exchange carriers from entering the market.[6]

Legitimacy, credibility, efficiency, and transparency are also key to the success of Latin America's new and newly forming regulatory agencies. Legitimacy is the consumers' view of the regulatory agency and gauges whether the regulator as truly carrying out its responsibilities or is a weak agency, unable to reign in profit-seeking investors and operators. Credibility is the investors' view of the regulator and measures whether the regulator will ensure that the government keeps its commitments set out in laws or license agreements. Efficiency is the predictability and proficiency of the regulatory processes to make decisions on time and with minimal resources. Transparency refers to the information that is available to stakeholders on license application procedures, fees, current licensees, and regulatory decisions.

Figure 4. Pyramid Research Regulatory Scorecard, 1998[7]

	Autonomy	**Efficiency**	**Credibility**	**Transparency**
Argentina	2	1	1	1
Bolivia	2	2	2	2
Brazil	4	3	4	3
Chile	4	4	4	4
Colombia	4	2	4	3
Ecuador	2	1	1	2
Mexico	2	3	3	3
Paraguay	3	2	2	2
Peru	3	4	3	4
Uruguay	1	1	1	1
Venezuela	2	1	2	1

[6] Pyramid Research, *Telecoms Strategies in Latin America: Database Qualitative Review, 4th Quarter 1998.*
[7] Ibid.

Figure 4 shows Pyramid Research's regulatory scorecard for Latin American telecommunications regulatory agencies as of 1998. A score of 1 indicates that the country is not fulfilling the criteria. A score of 4 indicates that the country is fulfilling the criteria. Latin American countries score high in autonomy and low in efficiency. Chile has the highest scores in the region, followed closely by Brazil. Uruguay, which has no market reforms, and Argentina score the lowest, followed closely by Venezuela and Ecuador.

Figure 5 shows an institutional scorecard developed by Gutierrez.[8] The first column lists the countries. The next two columns grade the autonomy of the regulatory agencies in terms of funding and potential for removal from office. The next two columns score the agencies in terms of clarity of authority and responsibility for regulating prices and assessing fines. The next column scores the agencies' accountability in terms of review of their decisions. The seventh column averages the scores for autonomy, clarity of roles, and accountability. The eighth column, labeled "ITU," shows the independence of the regulator from the operator. The column marked "Legal Frame" grades the legal framework for the country, based on criteria developed by Brian Levy and Pablo Spiller.[9] The last column offers some estimate for the 1997 telecommunications regulatory framework index (RFI).

The Gutierrez RFI index is more comprehensive than the Pyramid Research scores. Gutierrez tested his index against telecommunications development in the region and found that his index has strong predictive powers for identifying which countries will have the highest teledensities.

[8] Luis Gutierrez, *An Index of Regulatory Frameworks in the Context of Privatization and Competition*, 1999, Tables 2.6 and 2.7, (unpublished).

[9] Brian Levy and Pablo T. Spiller, "Regulation, Institutions, and Commitment in Telecommunications: A Comparative Analysis of Five Country Studies," in *Proceedings of the World Bank Annual Conference on Development Economics, 1993: Supplement to The World Bank Economic Review and The World Bank Research Observer*, eds. Michael Bruno and Boris Pleskovic, Washington, D.C.: World Bank, 1994, pp. 215-52.

Figure 5. Gutierrez Regulatory Framework Index -RFI- 1997

	Autonomy (1)		Clarity of Roles (2)		Accountability (3)	Average	ITU	Legal Frame	RFI
Country	Funding	Removal	Prices	Fines	Appeal				.
ARG	1	0	1	1	1	0.8	1	0.5	.81
BAR	0	0	1	1	0	0.4	1	0.5	.48
BEL	0	0	1	1	1	0.6	1	1	.72
BOL	1	1	1	1	1	1.0	1	1	1.0
BRA	1	1	1	1	1	1.0	1	1	1.0
CHI	0	0	1	1	1	0.6	1	1	.60
COL	1	1	1	1	1	1.0	1	1	1.0
COS	1	1	1	1	1	1.0	1	1	1.0
ECU	1	1	1	1	0	0.8	1	1	.86
ESAL	1	0	0	0	1	0.4	1	1	.58
GUA	1	0	1	1	1	0.8	1	1	.86
GUY	0	1	1	1	1	0.8	1	1	.86
HON	1	1	1	1	1	1.0	1	1	1.0
JAM	0	0	1	1	1	0.6	1	1	.72
MEX	0	1	1	1	1	0.8	1	0.5	.81
NIC	0	1	1	1	1	0.8	1	1	.86
PAN	1	0	1	1	1	0.8	1	1	.86
PAR	0	0	1	1	1	0.6	1	1	.72
PER	1	1	1	1	1	1.0	1	1	1.0
RDOM	0	0	1	1	1	0.6	1	1	.72
SUR	0	0	1	0	0	0.2	0	0.5	.14
TRIT	1	0	1	1	1	0.8	1	1	.86
URU	1	0	1	1	1	0.8	1	0.5	.76
VEN	0	0	1	1	1	0.6	1	0.5	.67

The countries in alphabetical order are: Argentina, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, México, Nicaragua, Panama, Paraguay, Perú, República Dominicana, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

Recently, the University of Florida's Public Utility Research Center, working with Nortel Networks and *itFlorida.com*, held a forum for senior communications policy makers from Latin America.[10] These policy makers identified seven issues as key to the continued telecommunications development in the region.

[10] *Latin American Forum on Communications*, January 25-28, 2000, http://bear.cba.ufl.edu/centers/purc/LAFC/lafcmain.html.

1. *How can Latin American countries develop policies that are sustainable in the event of unforeseen changes in technology and industry?*

   Several times recently, Latin American countries have experienced unforeseen events that have obsoleted policies that appeared appropriate when they were made. For example, Colombia licensed long distance service providers and, within a short time, convergence made voice over IP technologically feasible, making the long distance licenses unenforceable. Other countries have issued wireless licenses for specific services. Soon thereafter, technological change made it desirable for the licensed spectrum to be used for other services. Latin American countries need to develop communications licenses and other policies that are sufficiently general to ensure that the countries are not locked into outdated technologies and industry structures. Latin American countries also need to develop processes that decrease the time required for adapting policies to new technological and market realities, while still providing the consistency and predictability required for the maintenance of credibility for investors.

2. *What institutional and legal policies will allow Latin American countries to maintain policy continuity during times of political change?*

   Several Latin American countries have experienced recent political changes, either from elections, constitutional changes, or political coups. Because Latin American countries generally have presidential political systems, political change can cause significant policy changes. Policy uncertainty adds risk for investors. This uncertainty can increase the cost of capital in Latin American markets, decrease prices that investors are willing to pay for licenses and privatized state-owned enterprises, and reduces private investment. Solution options include strengthening court systems, establishing arbitration systems, regional policy coordination among countries, and independent regulatory agencies.

3. *How can Latin American countries develop telecommunications infrastructure for rural and poor areas?*

State-owned telecommunications enterprises generally failed to develop infrastructure in rural and poor areas in Latin America. Privatization does not necessarily solve this problem. These areas are often unprofitable for private operators, which target higher income and lower cost areas in order to improve cash flows. As a result, governments generally need to develop policies that incent private operators to invest in rural and poor areas. Policies that Latin American countries have used include license build-out requirements, competition, and auctions of infrastructure subsidies.

4. *What is the appropriate balance between regulation and deregulation?*

Guatemala adopted a deregulation approach to telecommunications reform, relying upon competition, spectrum ownership, and light-handed regulation. Infrastructure has developed rapidly under this approach. Some observers are concerned that the incumbent has maintained a large market share and that a shared monopoly or tight oligopoly could emerge. However, these results are little different from the experiences of countries with much tighter regulatory controls. Incumbents' apparent dominant market shares raise concerns that the prospects for competition in telecommunications infrastructure are limited. Also, global industry consolidation may adversely affect competition within domestic markets and competition for licenses.

5. *How can Latin American countries adjust their economies to benefit from the development of globalization and e-business?*

The development of e-business affects nearly all aspects of an economy -- economic development, trade, taxation, education and workforce development, and communications infrastructure. For Latin American countries, communications infrastructure is the factor that most limits the development of e-business. This infrastructure limit includes both domestic infrastructure and backbone infrastructure.

The region needs to attract private capital and operators to develop infrastructure. Tariff structure is another limiting factor -- tariffs for US-Latin America communications are lower than tariffs for communications within the region. Other aspects of the Latin American countries that should be examined include contract law, education, privacy and property rights laws, security laws, trade tariffs, participation in international forums, trust, taxation, computer access, Latin American web content, network competition, and capital markets.

6. *What steps, if any, should Latin American countries take to develop a common communications market?*

The geographic make-up of the countries in Latin America, and differences in their approaches to communications reform, limit the development of communications infrastructure in Latin America. Some Latin American countries are smaller than the typical size of a modern network provider. Also, modern network providers are global rather than domestic, which means that their operations and services cross numerous country boundaries. Countries in Latin America lack uniformity in key communications policies that affect private investment. These policies include what is regulated, the opportunities provided for competitive entry, and the licensing of radio spectrum. These differences increase the cost of telecommunications development in Latin America, which limits infrastructure development.

7. *How can Latin American governments ensure the success of the current market reforms?*

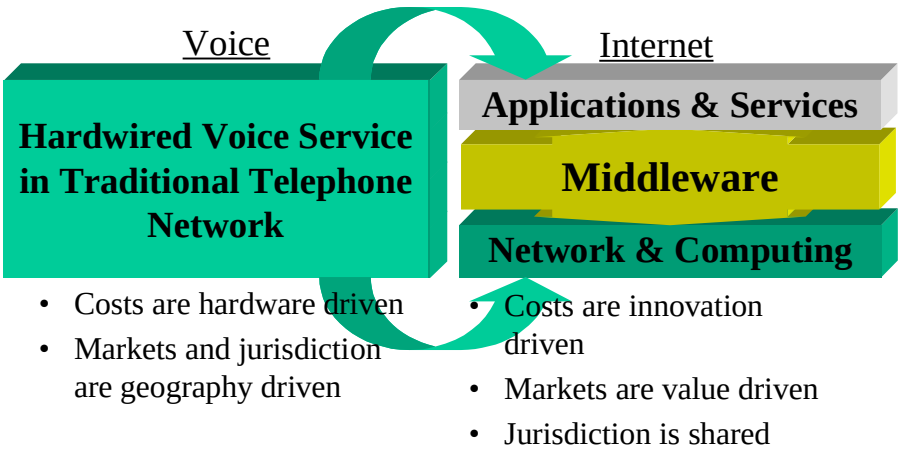
Latin American countries need to develop sustainable regulatory systems that encourage continued private investment. These policies include opening markets to competition, deregulation where competition develops and in other instances where regulation is unnecessary, and regulatory commitment in regulating prices and market structure. These policies depend upon a regulator that is independent from the operator, political control, and other stakeholders; credible with investors; legitimate in the eyes of consumers; and transparent in its processes for making decisions.

Latin America's Telecommunications Future

Latin America's ability to grow its telecommunications infrastructure -- especially its Internet and wireless infrastructure -- and to build e-skills in its government and population will determine the region's participation in the global economy. Internet and wireless infrastructure is key because this constitutes the platform upon which much of the global economic activity will take place. E-skills are important to ensure that the region's economies have the ability to exploit the infrastructure and be producers, not just consumers, in e-business.

Figure 6 illustrates the declining importance of voice telephony and the growing importance of data or new media, largely through the Internet. The rectangular cube on the left side of Figure 6 represents traditional voice telephony. The rectangular cubes on the right represent the software and hardware infrastructure that make up the Internet. The telephony cube is about the same size as the three Internet cubes combined because today in the developed world, approximately 50% of the telecommunications traffic are data. The arrows represent the movement of telecommunications traffic from telephony

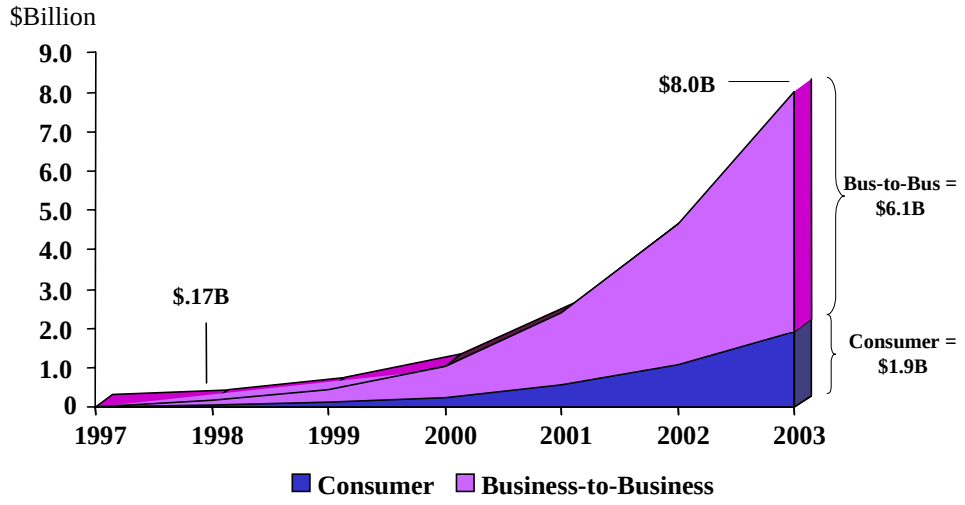
Figure 6. Transition from Telephone to New Media



to the Internet. This migration will continue as voice service becomes a software application on the Internet, instead of a hardwired service of the telephone network. Voice of IP was the initial step in this migration. Further steps will integrate voice into multimedia services that represent messaging, entertainment, education, participation in government, and commerce.

Furthermore, e-business is emerging as the normal way of doing business. According to Internet Research Group and SRI Consulting, US firms spent $153 billion in e-business infrastructure in 1999 and are projected to spend $349 billion in 2003. UK businesses expect that 15% of their sales will be electronic by 2002. Figure 7 shows that Latin American e-business is expected to grow at an annual rate of 117% between 1998 and 2003, and that most of this growth will be in business-to-business transactions.

Figure 7. Latin American Internet Commerce Value and Forecasts

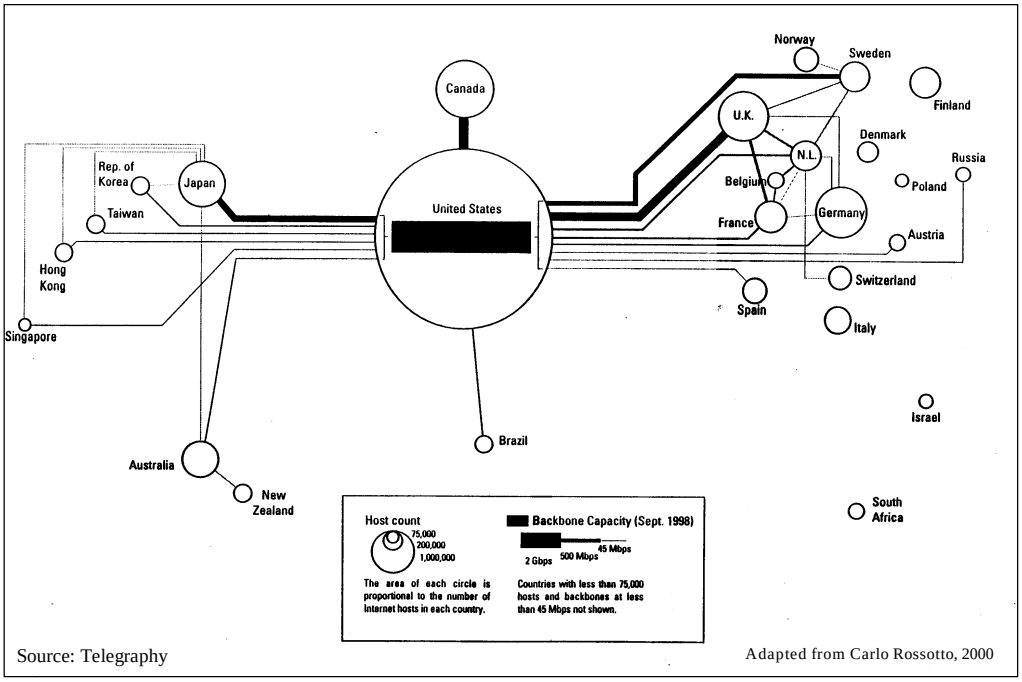


Source: IDC Latin America's *1999 Internet and eCommerce Strategies*

For the foreseeable future, Latin America will be linked with North America for the development of Internet and e-business. According to Nortel Networks, approximately 75% of all Latin American e-sales go outside the region, primarily to the

US.[11] Figure 8 illustrates this close linkage with the US. The US has the largest concentration of Internet host computers and Internet backbone capacity. Indeed, much of the world's Internet traffic routes through the US even when both the sender and recipient of the data are located outside the US. Figure 8 only shows countries with more than 75,000 host computers and 45 megabits per second backbone capacity. Brazil is the only Latin American country with sufficient host computers and backbone capacity to show up on the map.

Figure 8. Geographic Distribution of Internet Hosts and Backbone



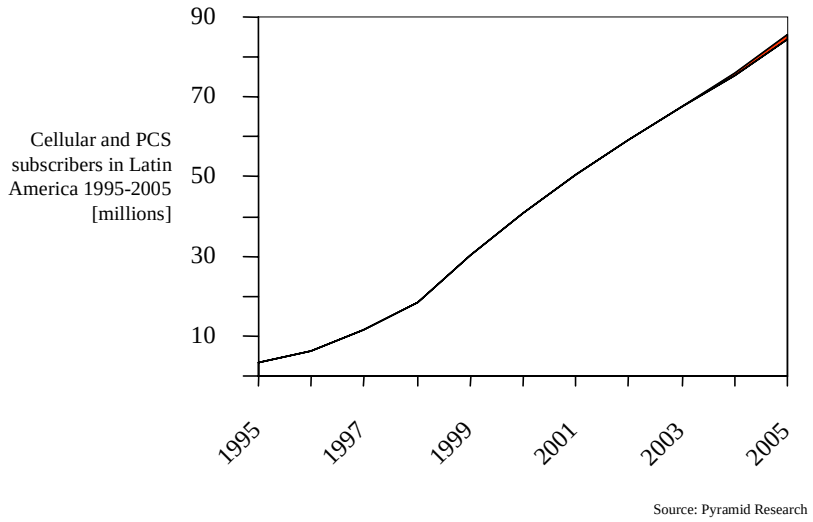
Florida is emerging as the US State with the strongest tie to Internet and e-business in Latin America. There are three reasons. First, many Floridians are ethnically Latin, which creates a strong cultural tie between Florida and Latin America. Second, many businesses that do significant volumes of business in Latin America have chosen to

[11] Adis Vila, "Can Latin America Take Advantage of Globalization," Presentation at the *Latin American*

locate in Miami, making Miami the world's gateway for trade in Latin America. Lastly, more undersea fiber optic cables going into Latin America land in South Florida than anywhere else, making Florida the electronic highway through which Latin American e-business is conducted.

Wireless technologies are emerging as the key technologies for Internet communications. According to the International Telecommunications Union, one-third of all of the world's telephones will be mobile phones by the year 2002. Nokia projects that by 2003, more Internet transactions in Europe will occur over wireless devices than over PCs. Figure 9 illustrates the growth of cellular and PCS services in Latin America. According to Pyramid Research, the expected growth rate is 28% per year.

Figure 9. Wireless Mobile Growth in Latin America



Work in the information economy is essentially mental work, so e-skills and institutions of higher education are key to Latin America's growth in e-business. E-skill

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development includes both basic education and technical training. It also includes the advancement of scientific education in engineering, computer science, and business.

Institutions of higher education play key roles in developing scientists, providing basic research, creating an atmosphere of innovation, and advising businesses and government. Technology clusters in the US illustrate the importance of scientists, basic research, and innovation. Stanford University is credited with spawning Silicon Valley. The Massachusetts Institute of Technology feeds the information technology cluster around Route 128 near Boston. The University of Texas at Austin is credited with springing the Austin Miracle, the rapid development of high technology industry around Austin, Texas. All of these universities reached their level of effectiveness because of the substantial investments that government and industry made to attract star faculty, build world class research centers, and attract top graduate students. Latin America will need to take similar steps to build its universities.

Universities and think tanks play key roles in advising businesses and governments. Top institutions provide leading edge thinking, in depth analysis of problems, and fertile ground for developing future leaders and policy makers. Top institutions also become part of a worldwide network of intellectuals and innovators. This network helps globalize perspectives and puts the participating countries in the forefront of international trends.

Conclusion

This paper highlights keys to Latin America's continued progress into the global e-economy. The further development of market solutions to infrastructure development, of world class regulatory institutions, and of world class centers for education and innovation appear to be the most critical factors. Indeed, empirical research on economic growth consistently finds that variations in population growth, investment (which market solutions and sound regulation advance), and education explain 80% of the differences in wealth among countries. Other frequently cited issues, such as the development of inexpensive terminal devices, Internet access and pricing, and tax incentives, will play minor roles in advancing Latin America's participation in the global economy.

Developing market solutions and building sound regulatory institutions involve many issues that this paper does not develop. These include erasing lines between wireline and wireless telecommunications, and dropping the policy distinctions between voice and data and between old media and new media. Improving domestic capital markets is key to promoting domestic start-up businesses is important because start-ups are the primary engines of the new economy. Fighting corruption is important to giving investors confidence that their performance in the marketplace will largely determine their financial success. Trade liberalization and removing tax differences between old economy and new economy are important to optimal growth of the information sectors and to ensuring that finance ministries view the new economy in a positive light.

All of these issues revolve around the theme of building an electronic place to work and building the human capacity to use it. This takes care of both sides of the economic supply and demand equation, and promises to move countries into the new economy.