

Chapter 7

Networked Readiness:

Latin America's Last Train

Lionel C. Carrasco, Neoris

Rossana Fuentes-Berain, ITAM

Roberto Martínez Illescas, CECIC

Networked Readiness: A Matter of Survival

Latin America has missed the development train twice. When feudal agriculture was transformed into modern agribusinesses, landowners sat by and, at their own risk, decided not to change their feudal ways. During the industrial revolution, oligarchic forces clung to the comfortable zone of producing raw materials without transforming them. In both cases the common local inability to understand the sense and direction of change stressed the region's weaknesses, rather than its opportunities. The third major revolution started a decade ago with the advent of the Internet. This revolution is as pervasive as previous ones and, as the others did, will change not only production modes, but also all interaction between humans, institutions, and businesses. Such interaction will become faster—exponentially faster. Being networked ready on time is not optional; it is about survival.

The train is passing through the Latin American station this time with the additional cargo of globalization and democratization, trends that were not there in previous economic shifts and which now have to be considered as rightful ticket holders in need of care. A third new passenger, market capitalization, is capricious, and we need to watch out for its behavior.

Regardless of the Enron saga, companies worldwide will continue to be rewarded for their innovative leadership and ability to execute, and their reward will be reflected in market capitalization over profits. Latin American companies will not be treated differently. But the capricious element within the equation is capital; as former Spanish Prime Minister Felipe Gonzalez warns, capital “has no social sensibility,” and left alone, it will continue to worsen the already blatant income disparity in the region.

Networked readiness, as other revolutions, entails risks and opportunities. This report (see Chapter 1) warns us of the generally mediocre performance in the region. Latin America, as a whole, performs below average. Latin Americans really need to jump on the train this time, or else bring to life the plot in Gabriel Garcia Marquez' famous story *Chronicle of a Death Foretold*, in which everybody knew that Jose, the main character, was going to die, but nobody acted to prevent it.

The Out-Of-The-Box Thinking Hypothesis

The formula, Fertility in the Environment + Level of Readiness x Usage = Readiness for the Networked Future, does apply to larger countries such as Mexico, Brazil, and Chile, as well as to other smaller, but comparable, high-income social strata scattered around the region.

In countries such as Nicaragua and Bolivia, or even in marginal urban populations within Rio de Janeiro, Santiago de Chile, or Mexico City, that formula still stands. Nevertheless, the self-fulfilling prophecy of “small markets equals high risk so why bother?” (a chicken-and-egg kind of dilemma) does not take into account unconventional and potentially profitable opportunities for enablers of networked readiness.

Therefore, the key is to identify within the economic and social environment of the region what unconventional factors need to be in place to enable individuals, governments, and businesses to participate in the benefits of the networked world.

Brazil has already identified these points—it fared well in the NRI rankings, and is a real success story. Argentina, the most aggressive Latin American country for Internet content production, has slowed—an obvious byproduct of its economic fall. Mexico and Chile have nothing to write home about; they are simply standing their ground while countries of smaller economic scale, such as Costa Rica, the Dominican Republic, and Trinidad and Tobago, are putting up a remarkable fight to achieve networked readiness by either leveraging a cluster approach, such as in the Intel case in Costa Rica, or betting on the financial industry strengths of the Caribbean nations and Panama.

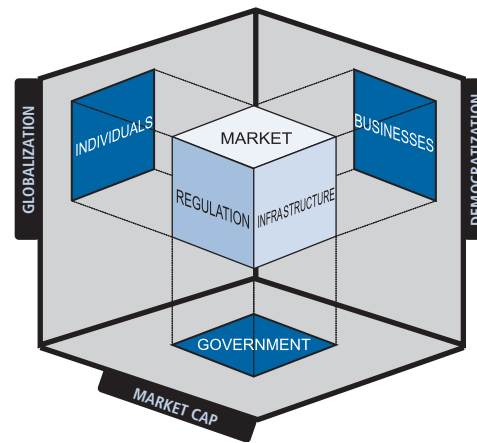
So what is the lesson for Latin America in this year’s *Global Information Technology Report*? Should we all learn to dance the samba? Is it that we need to follow the Brazilian government-led model? Is it feasible, desirable, or even possible to replicate it? Most likely, it is not.

Those who know Latin America, either for having made or lost money there, have learned that the region is extremely complex and diverse. Nevertheless, some common elements can be found. Those elements are the ones discussed in this article, although individual realities will force the design of specific national blueprints to expedite networked readiness.

For the bigger regional picture, such a blueprint calls for identifying the main stakeholders (government, individuals, and businesses) and the particular environment (market, political/regulatory, and infrastructure) in which it interacts in order to leverage and build a networked future.

The Networked Readiness Framework Cube represents the playground where individual governments and businesses interact, and that includes globalization, democratization, and market capitalization as part of a bigger set of variables to be considered.

Figure 1. **Networked Readiness Framework Cube**



Source: Authors

Another useful tool to visualize the variables that stakeholders have to take into consideration is a SWOT chart analysis (strengths, weaknesses, opportunities, and threats).

Latin America’s SWOT chart (Table 1) makes clear that information technology (IT) is a very important element of networked readiness, but it is just that—one element. Other factors in the table need to be assessed under a regional environment, which is primarily defined by three major forces: market, public policies, regulatory rules, and, yes, infrastructure.

In this chapter the region’s market environment, composed of firms and individuals that interact within a country, is segmented into three different tiers: high-income markets, such as Brazil, Mexico, and Chile; emerging markets, such as Costa Rica, Colombia, and Uruguay; and developing, low-income markets such as Bolivia, Guatemala, and Haiti. This segmentation is based not only on gross domestic product (GDP) or other economic factors, but also on the maturity of the nations’ political and legal systems as well as their social and cultural structures.

Corporate Latin America must also be divided into three groups: global competitive firms, large local firms that should be treated as such based on a local scale, and small- and medium-sized enterprises (SME).

Individuals within the market, for the purpose of this paper, do not include the low-income rural population that is not likely to have access to a Network Society in the medium term. Even without that sector, the Latin American urban population is large enough to constitute an interesting piece of the world pie.

Society in Latin America is an allegory of duality. Although high-end consumers are in the minority, their demographics

Table 1. Latin America's Strengths, Weaknesses, Opportunities, and Threats (SWOT)

Strengths	Weaknesses
<p>Large, young Internet-avid population</p> <p>Common language and cultural identity</p> <p>Qualified intellectual capital at low cost</p> <p>Abundant potential consumers via the Internet</p> <p>Extended patterns of collective consumption of services and content</p>	<p>Pervasive IT illiteracy</p> <p>Acute imbalances of income distribution</p> <p>Deficiencies in the rule of law</p> <p>Corruption and political instability</p> <p>Inefficient legislative bodies</p> <p>Poor venture capital infrastructure</p>
<p>Government can jump-start Internet usage</p> <p>A handful of world-class companies with organizational leadership committed to IT</p> <p>Adaptation of <i>maquila</i>¹ skills leveraging the Internet</p> <p>Setting a tradition of providers of rich content that could increase Internet use in Spanish</p> <p>U.S. Hispanic heritage as a hemispheric e-commerce detonator</p> <p>Lucrative market of low-income consumers with pent-up demands</p> <p>Unfulfilled demand of communication services</p> <p>Enhanced civil participation through trust-building</p>	<p>SME and government bureaucracies slow adaptation to global economy</p> <p>Political and economical instability</p> <p>Lack of coherent Internet readiness policies</p> <p>Antiglobalization movements</p> <p>Potential social disturbance due to deterioration of living conditions</p>
Opportunities	Threats

are more encouraging (they are younger and have larger families) than their peers in developed countries. Whereas moderately low-income and very low-income urban citizens, 88 percent of whom are literate, are poor by international standards, but they are also hungry for unconventional ways of becoming networked ready.

As for the political and regulatory environment, Latin America has been reservedly, but so far unmistakably, leaving behind its authoritarian heritage. Immature democracies nevertheless face a big challenge: they have to set in place a sound regulatory framework to give legal certainty to new activities; but more so, they simply have to make good on tenets for the rule of law that are badly needed to crystallize local and foreign investment.

Most Latin American governments are notorious for sitting at the train station watching as the Internet express passes by, because politicians in the region are focusing on urgent matters and leaving out of their agenda important ones, such as networked readiness, hoping to catch the train at the next (nonexistent) station.

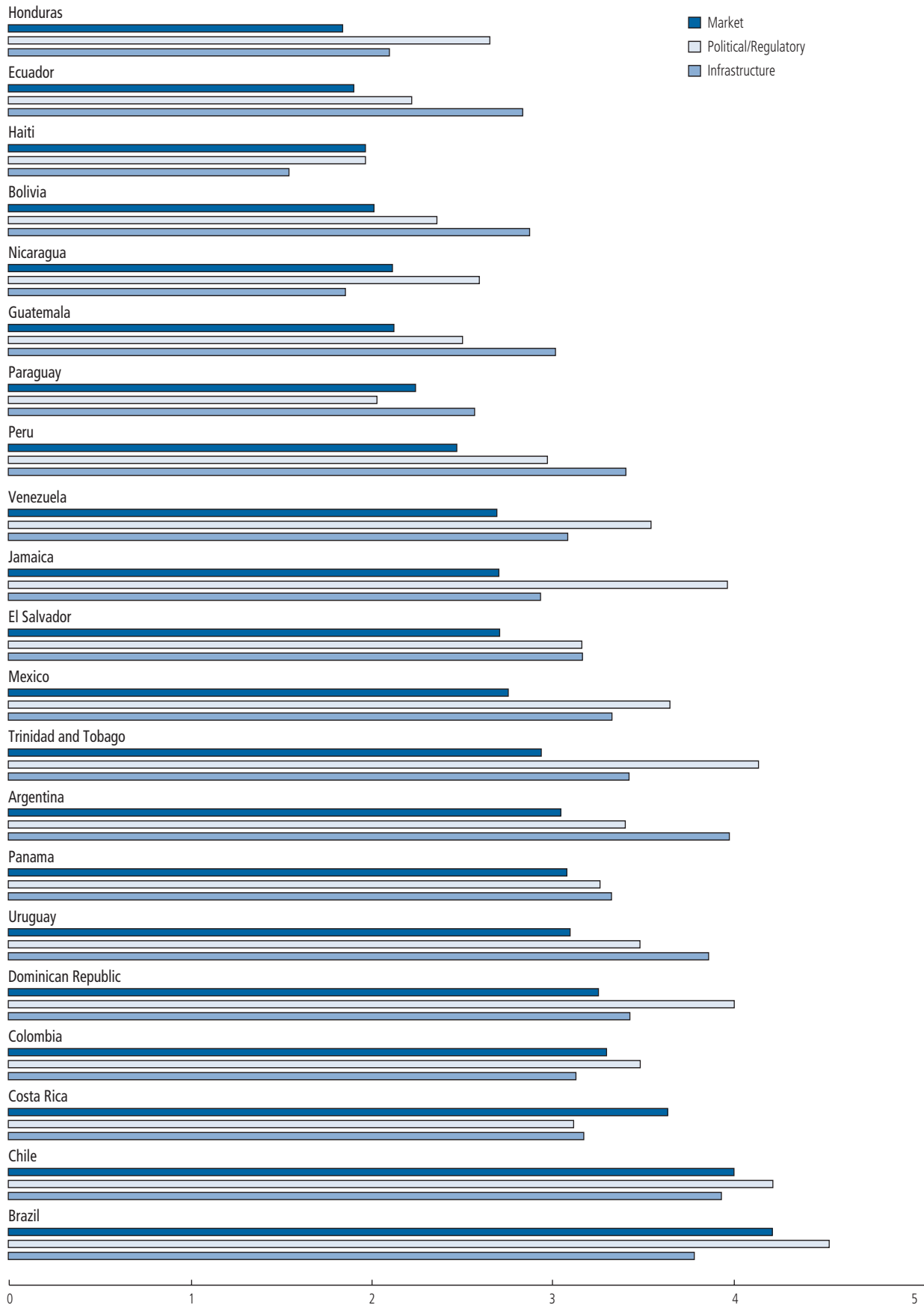
Brazilians are the exception to the rule. Their performance in this year's NRI attests to the existence of a strategic public agenda based on a clear understanding of government's role as a triggering factor as well as consumer and regulator of networked readiness.

Last, but not least, a key element of the region's environment is the infrastructure required for the Internet. Measured in terms of availability and quality, acquiring infrastructure will clearly be an uphill battle. The Washington Consensus of the 1990s had as one of its core elements the privatization of the telecommunications sector. Although privatization started, it couldn't go far enough, entangled as it was in conventional capital behavior that didn't find the expected return on investment, and burdened by the twice-bursting of the bubble—first the Internet business itself, and then telecommunications.

Clearly, as the SWOT table points out, one of the weaknesses of Latin America is infrastructure; using the same analysis, however, that weakness can also be seen as an opportunity. The opportunity combines the need for government leadership in setting a proper set of incentives and enlightened regulation, as Costa Rica has done for Intel, and the search for unconventional business models in terms of content-driven usage and alternative access models by private companies, both international and local.

Enhanced usage based on a true-value proposition for businesses and government would be advisable, but it would be even more courageous to go out and look for individual customers who have pent-up demands and are willing to pay for services. Looking for customers could also be profitable. A case in point is the continuing boom in mobile telephony

Figure 2. **Networked Readiness Report Regional Data**



that has seen a 42.8 percent growth rate in the past five years, compared to land lines.

Having analyzed the market, political regulatory and infrastructure variables in order to rank the countries, and considering Latin America's SWOT analysis, the rest of this chapter will focus on identifying what possible actions, strategies, and models could be embraced by the three main stakeholders: governments, businesses, and individuals.

e-Nation: The Development of a Strategic Public Agenda in Latin America

Latin America has entered the twenty-first century facing pressing challenges and a myriad of elusive opportunities, foremost of which are the flourishing of the Internet, combined with other globalization effects and young local democratization processes as shown in the Networked Readiness Framework Cube. In this scenario, the region is presented with several challenges:

1. Catching up with other latitudes in the development of physical infrastructure for the digital era;
2. Resolving endemic budget constraints;
3. Fostering IT awareness and network culture in government agencies and legislative and judiciary branches;
4. Developing human capital as well as information, goods, services, and industries;
5. Preventing the developing digital era from aggravating social inequalities.

Latin America approaches the digital challenge from a public policy perspective along the lines of three distinct agendas, each with its own distinctive locus and issues. These are as follows:

1. *The e-government agenda.* This agenda has been developed along the "transaction systems" paradigm. Just as has happened elsewhere around the globe, here the locus was on efficiency through the transparency of government behavior. From this perspective, e-government policies can be traced along three main lines: government-to-government transactions (G2G), government-to-citizen transactions (G2C), and, finally, government-to-business transactions (G2B). The role of the government in adopting the network early in this model stresses its role as a trigger of network usage.

Government can, and must, create traditional and transactional content to establish a critical mass of users through creative fiscal and other "soft" incentives. It can, and should, also use compulsory inducements such as nationwide digital identities and corporate and high-income digital tax payments.

2. *The e-nation agenda.* This is the most ambitious and complex agenda, as it implies the development of critical infrastructure for the digital era, where the locus is placed on achieving a balance between fostering competition in the provision of infrastructure and the delivery of digital public goods to counterbalance the widening of the digital gap. This puts a cap on market capitalization excesses.

The government's role is critical in fostering infrastructure for the digital era that involves not only physical infrastructure, but also institutional infrastructure for innovation (universities, technology centers, public development agencies) and, finally, a growing stock of digital-enabled human/intellectual capital.

A big task for government is creating the proper regulatory framework within a larger functional rule of law to promote and guarantee required local and foreign investments essential to building network infrastructure.

3. *The e-democracy agenda.* This agenda implies the enhancement of participatory/democratic governance, where the locus is citizen self-empowerment and public accountability.

Democracy is a fragile object in Latin America. Anything that encourages democratic values in a region that has seen more than its share of military coups, public and private corruption, and lack of transparency, should be warmly embraced.

These three agendas have in some cases converged strategically, and in other cases have been adopted haphazardly in broad "statements of vision" without an appropriate strategy to turn them into "statecraft policies." A general overview of the achievements and shortcomings throughout the region will highlight the importance of developing a strategic public agenda for e-readiness, in which the state must play a proactive and catalyzing role. More detailed appraisals of the e-democracy agenda and aspects of the "nation online" agenda—the issue of e-business development and of the mechanism of social inclusion to fight the digital gap—will be treated in separate sections of this chapter.

Transaction Systems and the e-Government Agenda

G2G. Government-to-government interaction is desirable because it implies integration across a diverse array of platforms and management systems, which is a true challenge. Integration implies linking and synchronizing entire areas and divisions within and across agencies. Thus, it requires unifying systems, programs, and even standards within a common platform.

Moreover, information must flow seamlessly from one department to another and from agency to agency whenever any single issue arises, calling for timely and effective action or decision-making—more so when the issue at hand falls within policy areas such as public safety or even national security.

This kind of initiative is more than justified, because the increased efficiency of public services translates into cost reduction, the liberation of resources, and the creation of faster, better services vis-à-vis corporate and citizen customers.

G2C. Much has been said and written about the shortcomings of public services and bureaucratic corruption in Latin America, and about the great opportunities that will be created if IT is used to curtail abuses of power and empower citizen surveillance.

Online services could, and should, be linked to civil-society pressure for governments to deliver on their political commitments. It is important, nevertheless, to foster a strategic and proactive vision so as to ensure that high-income members of the public are not the only ones who can make their points of view visible, but that the public at large has ubiquitous access through public kiosks.

G2B. In the area of procurement, there has been a decisive push towards the establishment of robust online procurement systems. Mexico, Chile, and Brazil have made substantial progress. Key initiatives are those that reduce costs. For example, promoting integral purchasing systems that leverage the huge, but not currently coordinated, purchasing power of governments. Common public services for business such as licensing and issuing permits could also be made more efficient by adopting digital practices.

A very obvious by-product of network usage in G2B is transparency. Fighting corruption and bureaucratic discretionary margins is as great a contribution as any.

Critical Infrastructure on the e-Nation Agenda

The development of telecommunications infrastructure was the outcome of a “deregulation and competition” wave that swept across the whole of Latin America through the second half of the 1990s, with mixed results. The most successful rapid deployment of telecommunications services through market liberalization occurred in Chile and, more pronounced, in Brazil. Mexico and Argentina embarked on a similar process of liberalization, yet their strategies had more pitfalls from an institutional perspective, insofar as their regulatory authorities were significantly weaker and had a less coherent package of policy instruments with which to enforce efficient competition and provide certainty

for private investors. This is easily seen in the varying rates of penetration of mobile services and in the rapid growth of online access services.

However, much less attention has been paid to two other aspects of critical infrastructure as part of the public agenda for digital readiness: institutional infrastructure for innovation and the stock of digital-enabled human capital. Compared to the more competitive group of emerging economies in Southeast Asia, Latin American governments channel far fewer resources to applied technology programs and cooperation between industry and public academic research institutions. Moreover, in this region, the private sector also invests much less in technology-intensive productive innovation. The pervasive Latin American trend is to neglect the strategic character of “innovating infrastructure”; the exception, to some extent, is Brazil, where there have been consistent policy steps to establish incentives for innovation in key sectors for technology transfer and domestic industrial competitiveness. It is no surprise then, that Brazil shows higher rates of foreign direct investment growth in areas such as software, telecommunications equipment, and biotechnology.

Similarly, lower relative importance is placed on developing a digital-enabled stock of human capital. This is not to say that there is no policy addressing this issue; rather, the policy initiatives dealing with the matter have not been purposefully linked to a “nation online” agenda that goes beyond universal access to online services. That is a pity, because a key area of opportunity in Latin America, according to the SWOT analysis, is establishing the conditions for clusters designed to foster IT intellectual *maquila*¹. A case in point: the Costa Rica-Intel investment of 1998. This is certainly the most successful example of how attracting one firm and establishing the right conditions for an IT hub can jump-start networked readiness.

Whenever the issue of universal access to online services arises, the challenge for Latin American governments becomes that of delivering a new set of public goods; that is, goods and services that the free market by itself is incapable of generating efficiently. It is true that, given the presence of a critical mass of consumers, the market will generate goods and services that may help draw new segments of the population into the digital era. However, it is also true that this critical mass may never be reached without the catalytic action of a proactive government. This is particularly true in areas such as Web content and culture, but also in the support given to “public key” and other authentication- and certification-related policies behind the blossoming of e-commerce and e-government.

If human capital development in IT-related matters is important across the board, such development within all

three branches of government activity and their interaction with the public (G2G, G2C, G2B) is essential. None of these goals will be achieved unless a higher understanding of the importance of networked readiness is embraced. Policy design, regulatory frameworks, and rule of law enforcement are essential to guarantee investment in network infrastructure.

The e-Democracy Agenda

Latin American countries have struggled for more than two decades to consolidate democratic rule. Great progress has been made, if only the peaceful transmission of power through democratic means is taken into account. However, there has also been growing disenchantment over the tangible benefits of democracy in the day-to-day lives of the population.

As the Chilean *Latinobarometro* statistics prove, levels of satisfaction with democracy in Latin America are very low. A staggering 60 percent of the population in Latin America thinks that the democratic system of values is unsatisfactory, 25 percent less than in European countries.

Only 29 percent of the population approves of government officials, 22 percent think positively of congress, and less than 15 percent trust political parties. In this context, direct tools of democracy such as the Internet, if wisely used, could offset the frustration of having to wait until elections to voice discontent and suggest alternative policies.

The Business Jungle

As a result of economic reforms implemented through the 1990s in almost all Latin American countries (i.e., open trading, privatization, liberalization of the financial markets, tax reforms), their enterprises faced a dramatic change in the competitive environment, going from a protectionist model limited to the local market, to an open market one that allowed foreign firms to come into the region. To survive in the new environment, Latin American enterprises had to implement structural reforms. Those fundamental changes contributed to the success of a handful of enterprises that stressed either making a high share of their sales exports or, if they did not have an ability to innovate, incorporating information technology as an integral part of their core business processes in order to help them achieve efficiency, reduce costs, increase productivity, and be competitive.

The business dimension of the Networked Readiness Framework Cube can be seen as an ecosystem that includes local/global companies, large local Fortune 500-equivalent companies, and small and medium enterprises. The number of Latin American local/global companies that

can swim confidently in the global 2000 sea is very small. But they are huge in terms of revenues, use of IT, and in the organizational leadership that permits them to innovate in their respective industry (e.g., Lorenzo Zambrano in CEMEX, the world's third-largest cement producer).

Large local enterprises are the ones that show sizeable revenues on a national, even regional in some cases, scale. They are linked to the international arena by their exports, although they have not yet established themselves as global players.

Most large local enterprises are latecomers to the networked readiness world. Conservative by nature, they waited too long to see if the whole IT thing was not simply a fad. Now they find themselves in a hostile environment because the economy has weakened, and they have learned that IT and being network-ready is not about buying expensive gadgets, but about making IT an integral part of business strategy.

Strained by the market contraction, large local firms surely do not have the resources to invest in IT, but they should rise to the occasion. Now that they need to streamline and reduce costs, they can do so by incorporating IT and network effects into their business landscape, not from the top down but from the bottom up. When this downward economic cycle ends, companies such as agro-industrial Bachoco in Mexico and food retailer CDB in Brazil could be in a better position to thrive in an intimidating and competitive environment.

When assessing SMEs, which comprise most of local business (around 80 percent of employment in the region is generated by SMEs), business analysts often divide them into medium and small. But for the purpose of Latin American networked readiness they should be lumped into a single category, because despite the differences of access and pricing models between the two business sizes, their IT needs are similar in terms of infrastructure.

The last thing on the priority list of an SME is networked readiness; SMEs simply have more urgent needs. That is why out-of-the-box thinking is essential for this business tier. To become network ready, they need an extremely pragmatic value proposition that is adapted to cultural particularities and investment capacity. The ultimate out-of-the-box thinking is required if they are to engage a huge amount of untapped network business: *los de abajo*.

It is important to note that our approach to Latin America business ecosystem does not account for two species: foreign multinationals that work with their homeland's corporate guidelines and that won't require incentives to hook into the network; and large state-owned enterprises that are under e-government because they are clearly public, rather than private, network catalyzers.

Box 1. An Example of Leadership: e-Readiness Policies in Brazil

Brazil shows an outstanding government readiness record. It ranks 32nd out of 82 countries, followed by Chile (34), Mexico (47), Colombia (56), and Argentina (75).

In terms of the Government Usage Index, Brazil's government ranks even higher at 10th out of 82 countries, even above developed competitors such as Hong Kong (11), Australia (12), the United Kingdom (13), Korea (14), and the Netherlands (15). Chile is ranked 21st for government usage, whereas Mexico ranks 35th and Argentina 46th. How is this remarkable Brazilian achievement to be explained? The answer lies in the effective translation of strategic vision into policy management, with the government acting as a catalyzing agent.

With less than two years remaining in his second four-year term, ex-President Fernando Henrique Cardoso set about reforming the Brazilian state and promoting the country's competitive insertion in the new international order. In this context, public management has definitely entered into the highest-level political agenda. Thus the president pledged to achieve three goals: paperless government, increased investment, and digital inclusion.

The Brazilian government already offers a wide range of services on the Internet. These services are completely integrated inside a government portal called Rede Governo. This portal offers more than 800 services and 4,800 categories of information. Some of the most important Internet services for citizens are:

1. Filing of income taxes—around 11 million people filed their income taxes electronically in 2000 and 13 million are forecast for 2002;
2. An e-procurement program, launched in January 2000;
3. Follow-up of judicial processes;
4. Information on retirement funds and other social security benefits (which registered 5.7 million transactions in the year 2000);
5. Distance learning programs;
6. E-mail services at public booths.

Brazil is 15th worldwide in information and communication technology (ICT) expenditures, and the federal government is the main consumer. The potential savings from lowering transaction costs, increasing productivity, and the injection of greater transparency are estimated to represent savings of nearly US\$154 million a year. These savings are to be reinvested in public services.

Despite these remarkable advances, intercommunication among the various systems is still very limited. A further problem is the lack of a legal framework to ensure the authenticity of electronic documents, particularly electronic payments to the government. The federal government is responding to this problem by establishing standards for electronic certification and authentication as part of an information security policy.

The coordination of several concurrent projects is a major challenge. The most comprehensive of ongoing programs is the information society program, led by the Ministry of Science and Technology. This program carries

out actions aimed at making the Brazilian economy more competitive and at extending access to IT benefits to the general public. The actions under this program involve government, business, and the scientific and technological communities in a diverse set of activities involving intensive use of ICT. However, most ongoing actions are brought together and coordinated in the electronic government program. An inter-ministerial committee overseen by the Presidency of the Republic supervises this program. The aim of the program is to develop public administration by enhancing public services delivery, improving access to information, reducing costs, and allowing social control over government actions.

Another important and ongoing Brazilian initiative is government transparency, which promotes legal and administrative action in order to encourage social control over the public sector. This is complementary to the advance in election automation in Brazil. In recent elections, more than 130 million people voted electronically, with the online system determining elected candidates in less than twenty-four hours.

Brazilian initiatives to achieve digital inclusion

In spite of the profound structural inequalities found across social groups and regions, the Brazilian government, as part of its responsibility in promoting effective policies to fight social exclusion, explicitly acknowledged that investment in IT is strategic and must constitute an instrument of social inclusion. e-Government must work as an instrument of social inclusion. Policies are, therefore, aimed at facilitating universal access to stimulate the creation and diffusion of services and opportunities so as to prevent IT from becoming another exclusionary factor.

With the privatization of the telecommunications sector, the Brazilian government had the strategic vision to make privatization conditional on the establishment of funding initiatives for the universalization of access to information technology. This ensured the creation of abundant financial resources to expand the telecommunication network in market segments that do not offer commercial viability, particularly those in remote communities. As a result, the federal government has been installing electronic points of presence to provide free access to the services delivered through the Internet. The main areas covered by access points are education, health, social security, labor, and public security. By 2002, even the smallest villages in the border areas and all the federal government field offices all over the country had at least one electronic point of presence.

By the end of 2002, the Brazilian government expects that 62,000 public schools will be connected to the Internet, and that by 2006 all 200,000 schools will be connected. In the health sector, 4,300 municipalities and 20,000 health units are being interconnected through a nationwide network. Further, personal magnetic cards are being used in the public health system, and the access points will be used as community telecenters opened to public. President Fernando Henrique Cardoso has achieved the challenging goal of offering all federal services through the Internet by the end of 2002.

Source: excerpts, Farias 2001

Box 2. The Big Fish Swimming in the Networked Readiness Pond

Sixty-four Latin American firms are considered globally competitive. The table below presents the fifteen largest ones (based on revenues). It is important to note that this study does not list the use of technology as a condition for being globally competitive, but if we take a close look at each enterprise, IT is clearly a fundamental part of its success.

	Enterprise	Country	Sector	Sales (US\$ billion)	Foreign (% sales)
1.	Telmex	Mexico	Telecom	12.14	2.2
2.	Cemex	Mexico	Cement	6.94	61.9
3.	Grupo Bimbo	Mexico	Food	3.70	24.6
4.	Vitro	Mexico	Construction	3.08	26.5
5.	Embraer	Brazil	Airspace	2.58	88.3
6.	Gerda	Brazil	Steel	2.54	8.7
7.	Grupo Imsa	Mexico	Steel	2.30	46.4
8.	Vale do Rio Doce	Brazil	Mining	2.24	32.7
9.	Grupo Televisa	Mexico	Media	2.15	13.8
10.	Codelco	Chile	Mining	1.78	82.9
11.	Grupo Elektra	Mexico	Retail	1.71	8.4
12.	Perez Companc (PECOM)	Argentina	Oil/Gas	1.64	25.5
13.	Sadia	Brazil	Food	1.57	25.6
14.	Lan Chile	Chile	Airline	1.42	4.3
15.	Arcor	Argentina	Food	1.10	19.7

Source: based on the list published by *América Economía* magazine

The world's third-largest bread maker is a Mexican firm called Grupo Bimbo. It has businesses in the United States and sixteen countries in Latin America and Europe and together they produce more than 750 products and ninety prestigious brands. According to the company's profile, Bimbo's commitment is "to be a highly productive and completely humane company, as well as to be innovative, competitive, and oriented to the full satisfaction of its customers and consumers."

To achieve its goals, in the 1990s Bimbo developed an effective client/server-based supply chain to manage its vast network of plants and distribution facilities. With the introduction of this system the company decentralized operations; and each of its units have information that tells them the needs of the market—especially useful because Bimbo's basic products are perishable. Recently, as part of its IT strategy, Bimbo invested more than US\$50 million on IT projects to enhance supply/demand and operations processes.

The Argentinian Arcor Group is the number one producer of caramels worldwide. It is also the leading chocolate manufacturer in Latin America. Regardless of the current Argentinian crisis, Arcor is considered a top-notch company that could indeed help economic recovery in that country. According to its executives, a very important part of its strategy

is to constantly reinvest in technology in an attempt to reach the highest world-class standards. It has launched a website (www.arcorsales.com) designed to encourage B2B transactions and marketing solutions, twenty-four hours a day, seven days a week. It offers a wide range of services and all the necessary elements to enhance operational efficiency.

The Brazilian company Embraer is the number three producer of airplanes in the world. As part of its IT strategy, Embraer has implemented the Transforming the Organization for Results (TOR) program, which includes entrepreneurship initiatives as well as the integration of business platforms and ERP systems. The company was also equipped with a Virtual Reality Center, a modern graphic computer enabling Embraer engineers to visualize, through electronic models, the aircraft's structure and systems during design and development phases,

reducing the development time and allowing customers to follow the aircraft's development using the Internet as a collaborative tool. Embraer also relies on its Customer Integration System Internet portal-focus for improving customer satisfaction.

The International Institute for Management Development in Switzerland explained that, "The CEMEX Way was an information system and process standardization program [developed] to create an open corporate information infrastructure and [to ensure] that 60 percent of the company's business processes were managed in a Web-based environment by the end of 2001. The CEMEX Way impacted the business bottom line by saving US\$150 million per year; [it] simplified business transactions, and enabled better customer service and increased loyalty." CEMEX is in good company—other Latin companies have understood how organizational leadership and innovation through IT can thrive regardless of a mediocre environment for networked readiness.

Box 3. Networking with Los de Abajo

The agro-industrial sector in Mexico represents 22.5 percent of the GDP and employs 20 percent of the workforce. In 2005 the volume of transactions in this sector is expected to reach US\$89.5 billion, and there is a margin of efficiency improvement for business processes estimated at between 25 and 30 percent.

One way to address this huge room for improvement is doing network-based out-of-the-box thinking, such as signing up small, medium, and large farms and cattle ranchers to the same Internet portal (see Agroenlinea.com website) so they can sell their products nationwide and export to the United States.

In the year 2000, Agroenlinea.com, a private company whose name translates to agro-online, launched an e-business initiative to provide an agricultural and food marketplace that could facilitate rapid and direct transactions between producers and buyers within the North American region. According to the company, by September 2002, approximately 1,200 Mexican agricultural businesses and producers were registered on Agroenlinea.com.

Also as of September 2002, Agroenlinea.com had signed partnership agreements with six state governments in Mexico. Five of the six state governments that have signed these partnerships, including those of Chiapas and Guerrero, are located in southern Mexico, where most of the country's poorest farmers are concentrated and where it is more difficult to gain access to the U.S. market.

Under the partnership agreements, local rural development agencies pay Agroenlinea.com a fee that allows local producers to use the company's portal at no cost. Thus, local farmers advertise their produce,

production and delivery capacity, and prices in the e-catalogue of Agroenlinea.com, and receive technical, logistical, and marketing services and advice from the company. Buyers can check the exact status and delivery time of their purchases, and also receive advice.

Rural development agencies play a critical role in helping small farms and individual producers form informal associations to increase their supply capacity and to homogenize quality standards. Such agencies also play a role in establishing communication between producers without access to the Internet or telephones and Agroenlinea.com, which in turn establishes communication between the producers and potential buyers.

To speed communications and the time needed for business transactions, Agroenlinea.com plans to provide Internet-ready computers to local producers. Installation of the computers inside the offices of governmental agencies in charge of rural development, whose facilities would in effect become rural kiosks, will reduce costs.

As part of the effort, Agroenlinea.com will also provide basic computer training to farmers and cattle ranchers. In the case of older farmers, who may find the use of new technologies difficult, Agroenlinea.com plans to train younger family members.

One of the main goals of Agroenlinea.com is to provide a cheaper option to producers and buyers, by eliminating expensive intermediary costs. Agroenlinea.com registers about 13,500 sessions per day. It has already opened new markets to poor, individual producers of pineapples in the state of Veracruz, women farmers in the state of Mexico, and coffee growers in Chiapas, among others.

Large global and local firms initiated business-to-business marketplaces with the aim of convincing smaller fish to invest in IT infrastructure so they (the smaller fish) could stay in the pond. The Latinexus initiative launched by Alfa, Bradesco, CEMEX, Botorantim, and Artikos, which was the business portal started by Banamex, did not work as expected partly because of the poor level of access to the internet of the targeted satellite companies, and also because of an immature IT culture and infrastructure.

Three years have gone by since the failed B2B portal. There have been some changes in the Networked Readiness Index—that is, in connectivity, usage, and availability—but more importantly there has been a cultural change that is reflected in, for example, the extended use of e-banking by companies in the first two tiers.

It is therefore advisable to revisit the idea of B2B marketplaces, leveraging the effect of the already existing industrial hubs not only to reduce costs and establish an efficient procurement for the big fish, but also to expedite networked readiness through incentives by government and large firms for those who wish to thrive in the pond.

The hub model, therefore, must provide clear value propositions for all players. This could be achieved by offering positive incentives such as faster payments, factoring options, and fiscal stimulus, especially for smaller firms.

Another area with substantial opportunity for businesses, both local and foreign, is the “intellectual *maquila*.”

Backroom office services, like accounting, calling centers, and software services support, can be done either in English in the English-speaking Caribbean, or at selected areas that have invested in bilingual education for their citizenry; but it can also be done in Spanish everywhere in Latin America in order to serve the 35 million Hispanics recognized by the U.S. census as living in the United States.

Intellectual *maquila* could also mean using Latin American engineers and business professionals trained at top-notch international schools to assemble projects at significantly lower prices than what they would cost in North America, just as manual workers do in traditional *maquila*.

With Forrester Research predicting that B2B transactions for Latin America could reach US\$84 billion by 2004, the game is not only about pushing for IT usage, but about making it an integral part of day-to-day operations and turning it into a big plus on the bottom line of every company. Doing so could very quickly heighten one of the main dimensions of the Networked Readiness Framework Cube.

A Society of Young, Poor, and Network-Hungry People

According to IDC, by 2006 only 6 percent of the Latin American population will be hooked up to the Internet, whereas they estimate that 70 percent of the U.S. population will have access.

Internet access through leased lines and shared devices in community centers—not just individual dial-up access—holds the key for growing the Internet as a mass medium in emerging economies, according to Red Científica Peruana, an organization promoting universal use in Peru.

A recent study financed by the Inter-American Development Bank about the use of telecenters (or Internet kiosks) in low-income neighborhoods in Peru (a country with significant experience in this area) concluded that community kiosks have benefited poor Peruvians and that these residents show potential to leave poverty behind. However, the study also showed that the direct impact of the telecenters had not been profound enough, particularly among Peruvians of lower educational and economic levels.

While access models are fundamental (they will be covered in some detail later in the text), there are two other key factors to promote network usage: content, understood as traditional and transactional, and network architecture and technology by themselves.

This section also stresses potential value propositions to get on board the network train most Latin American citizens in the urban areas: the young, poor, and network hungry.

Access models

Structural constraints like low income and high cost of Internet access services have limited the ability to replicate in Latin America access models based on mass-market and long-term profitability.

In order to overcome those barriers, efforts must be made at the community level to involve individuals and organizations in learning about electronic communications and in defining local access systems to meet their unique needs. Particular emphasis should be placed on establishing affordable and accessible community-driven systems; encouraging Internet service providers (ISPs) and community leaders to attract policymakers and community groups to the system; and on providing relevant content.

In many Latin American countries, including Brazil, new laws and regulations are necessary to allow citizens to pay flat rates to ISPs instead of paying for cost-per-minute connections. In the short term, this measure could potentially increase the number of narrowband dial-up subscribers in the regions, including many small businesses and students. According to a new Yankee Group forecast, the number of this type of subscriber could increase from 25 million in 2002 to 65 million in 2007. In Colombia, Internet traffic increased by 246 percent after a flat rate was imposed.

In the United States, pricing of Internet access not only is based on a flat rate, but for some ISPs this rate has dropped to as low as US\$5 per month. Until such rates of access are established in the Spanish- and Portuguese-speaking part of the hemisphere, other models can serve as bridges.

People in the forty-plus age bracket who witnessed the previous communication splash in Latin America—that is, the introduction of television sets during the 1960s—know that sharing a television set was a common and widely-accepted practice. This “barrio” sharing is still prevalent for their sons, therefore building Network Access models based on propositions that leverage communal use is not only advisable, but is at hand and proven.

According to most statistics, there are 3.5 million users of the Internet in Mexico. Yet one mail service provider alone, Hotmail, registers 5 million active subscribers. This can only be explained by the sharing effect, as opposed to office usage, of the Internet.

A single computer school lab and professional staff can serve several schools in a poor community or neighborhood. There, students can obtain basic network literacy and skills, such as an understanding of how to search, browse, and retrieve desired materials, and how to manipulate information to add value in the process.

According to Harvard University professor Pippa Norris, “the development of human capital—meaning the investment in digital skills and capabilities and education, training, and lifetime learning—represents one of the most important factors that might facilitate Internet access.” K-12 students throughout Latin America should be prepared with the skills necessary to survive in the information economy.

An economy whose largest, most dynamic engines are based on telecommunications (despite the current sector crisis), and which is thus far ruled by laws that describe the continuous price reduction of access while the capacity grows, has a natural upside for Latin America.

Fostering access is a must, but access to what? Transactional and traditional content in a language other than English is required to encourage greater network usage in Latin America.

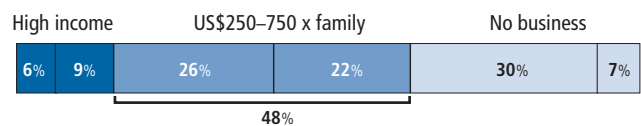
Spanish Internet pages are 2.4 percent of all available content. English pages stand at 68.3 percent, but according to data retrieved in 2000 by the Tomas Rivera Policy Institute, the speakers-to-Web page ratio in each case is a correlation of 43:1 in Spanish and 1:5 in English.

Regarding transactional content, job kiosks, in addition to the government services, banking, and other services directed towards individuals already discussed, are an excellent example for urging usage to search for specific content.

Access and content notwithstanding, business propositions able to take advantage of the huge pool of low-income customers are what can truly generate a “viral” effect in network usage.

So far, network-based commerce is targeted at the high-income consumer who holds credit cards and has fixed home or office lines. The bottom end of the consumer barrel is too poor to even be considered—these people are scattered, many of them in unconnected rural communities. In between those extremes are basically urban populations that in countries such as Mexico have monthly family incomes that range from US\$250 to US\$750 per month.

Figure 3. Mexico’s Family Income (2002)



Creative businesses making their SWOT analysis of Latin American markets will spot this large chunk of consumers as the number-one opportunity.

Conclusions

There is no time for a “siesta.” Networked readiness in Latin America could prove to be yet another missed opportunity if

Box 4. Banking on the Poor over the Internet

Latin American and Caribbean workers living in the United States are sending home more than US\$15 billion every year. Common transfers of an average of US\$200 each pay US\$20 to US\$30 in commissions, while the regular banking fee for a money transfer is US\$10. The price difference is due to the fact that illegal workers cannot hold bank accounts without a social security number.

A Mexican Coalition of Foreign Residents in the United States discovered, nevertheless, that those illegal workers, issued with a tax and a consular identification, could, in fact, open bank accounts.

They tested the idea with ten different banks. It took a while to get them going, but now a myriad are offering the service, some as conservative in their practices as Citibank.

Many other companies are now targeting the same customers with services ranging from provision of long-distance services using voice over Internet protocol and health insurance paid by relatives living in the United States, to ordering gifts for Christmas and Mother’s Day, all over the Internet.

In São Paulo, Brazil, Magazine Luisa (a domestic appliance store chain) opened several virtual stores in small low-income communities. The key to their service model is having an inventory near to zero. The small stores are empowered with a few large-screen PCs operated by store assistants who help customers not only order what they want at the e-store, but also sign them up with on-the-spot credit, because these kinds of customers are usually not cardholders.

Elektra in Mexico a company on the same retail sector has a similar business approach. With more than 1,000 networked branches scattered around low-income neighborhoods. Elektra recently got permission to start banking activities through Banco Azteca, which, according to company spokesmen, is targeting the very same low-income customers. At Elektra they are already able to collect 97 cents from every peso involved in their credit operations. Regardless of the fact that their highest interest rate can be as much as an astounding 40 percent, seven out of every ten are repeat customers.

Grupo Salinas, owner of Elektra, Banco Azteca, TV Azteca, Unefon, and Todito.com, is certainly going after the low-income market using all the tools of the Internet.

governments, businesses, and individuals do not seize the day. This year, Brazil, the number one Latin country in the Networked Readiness Index, has shown the benefits of using as a launching pad a presidential commitment to get the country going the e-way.

The State dutifully became the great digital content trigger, inviting both businesses and citizens to conduct business with it through the Internet. Legislation was put in place and incentives established to enhance the intellectual capital for networked readiness processes.

Brazil's best practices should be thoroughly studied and replicated where possible, but given this country's particular history, such practices will be hard to carbon copy.

In truth, using the *samba* or any other model and trying to fit everything into it is not going to work. As always, Latin America is far more complex than it appears from a viewpoint on Wall Street, or from Paris, Zurich, or Silicon Valley.

A country-by-country analysis is needed to set a specific agenda based on the combination of strengths, weaknesses, opportunities, and threats (SWOTs) that are to be found in individual countries in different combinations.

Granted, there are some characteristics that all Latin American countries share, such as, unfortunately, a large population of low-income citizens who are young and unserved in terms of communications.

How those consumers will be tackled should be an individual value proposition scheme, but it should be at the core of networked readiness advocacy.

Businesses or individuals that have the creativity, courage, and sensibility to work with "*los de abajo*," *los pobres*, show an interesting upside in the IT revolution. Despite complaints about a lack of or poor infrastructure, the "dirty little secret" is that infrastructure already in place (see Box 2) could be used, right now, by bold, bright entrepreneurs to offer the right pricing and to put forward the right access model.

Cultural tradition allows for shared access models that could be swiftly introduced as bridges to a more intense use of the Internet in urban populations with pent-up demands. But to what would these populations be gaining access? Less than 3 percent of Web pages are in Spanish. There is a desperate need for more content, both traditional and transactional, to enhance network usage in Latin America.

But nothing is more important than urging, within a general rule of law, the proper legislation that would allow stakeholders and agents of change to thrive in Latin America.

Figure 4. Change Agents for Networked Readiness

STAKEHOLDERS		AGENDA
Market	<ul style="list-style-type: none"> • Business • Individuals • Government 	<ul style="list-style-type: none"> • Serve high- and low-income segments • Uncover unconventional opportunities • Meet pent-up demands • Government acting as e-business trigger
Policy Regulation	<ul style="list-style-type: none"> • Executive branch • Legislators and parties • Business lobbies 	<ul style="list-style-type: none"> • Rule of law enforcement • Regulatory framework release • Fiscal and other incentive programs • Education and innovation facilitation • Guarantee investment endurance
Infrastructure	<ul style="list-style-type: none"> • Government agencies • Telcos and IT vendors • Content providers 	<ul style="list-style-type: none"> • Regulate Internet-related investments • Ensure proper pricing per audience • Ascertain quality • Stimulate unconventional offering • Study new access methods

VEHICLES		CHANGE AGENTS
Business Fertility	<ul style="list-style-type: none"> • Internet-leveraging business clusters • Proper educational infrastructure • Expand Internet business value to low-income strata • Government to catalyze Internet business • Fulfill Internet-related services needs 	<ul style="list-style-type: none"> • Embrace the business hub model to expedite SMEs' Internet adoption • Fostering B2B and G2B transactions • Blend maquila tradition with the Internet • Identify badly-attended services improvable by net • Government "enforced" digital transactions • Internet adoption incentives
e-Nation Agenda	<ul style="list-style-type: none"> • G2G to ensure the rule of law • Specialized SWAT expediting net regulation • G2C and G2B enhanced procurement of justice • Government incentives designed to embrace usage 	<ul style="list-style-type: none"> • Transparency to empower civil participation • Presidential agenda sets a G2B, G2C, and G2G plan • Enhance educational infrastructure • Greater Internet literacy of civil servants
Value Proposition	<ul style="list-style-type: none"> • Compelling traditional and transactional content • Creative fair access models • Government incentives for investments and usage 	<ul style="list-style-type: none"> • Guarantee flat access rates • Embrace shared access models as a bridge • Government digital services usage incentives • Incentives to connect migrant workers' families

Endnotes

The authors are part of Convergencia Digital, a not-for-profit organization involved in forwarding Network Readiness in Mexico. This paper could not have been written without the cooperation of Georgina Mendoza, Hugo Martinez—who contributed with additional research on access models—and Neoris, a global digital enabling company providing practical business solutions based on cutting edge technology.

1. A *maquila* is an assembly plant located in Mexico near the United States border to which materials are shipped; the finished product is shipped back across the border into the United States.

References

América Económica. Online. <http://www.americaeconomica.com/>

América Economía. "Tiempos Turbulentos," *América Economía* July 12–25:18. Online.

A Política de Governo Eletrônico no Brasil, Brasília, Agosto de 2001. República Federativa do Brasil, Ministerio do Planejamento, Orçamento e Gestao, Secretaria de Logística e Tecnología da Informação.

Bachoco. Online. <http://www.bachoco.com.mx>.

Ca'Zorzi, A. 2002. *Electronic Commerce and Development Implications for IDB Action*. Information Technology for Development Division, Inter-American Development Bank. Online. <http://www.iadb.org/ict4dev/pdf/ITD%20e-commerce%20paper%20Nov-00.pdf>.

Commonwealth Network of Information Technology for Development (COMNET-IT) and United Nations Educational, Scientific and Cultural Organization (UNESCO). 2000. Estudio Mundial Sobre El Ejercicio Del Gobierno En Línea: Informe Final. UNESCO No. CII-2000/WS/09. Paris: United Nations Educational, Scientific and Cultural Organization.

de Ferranti, D., G. E. Perry, D. Lederman, and W. F. Maloney. 2001. *From Natural Resources to the Knowledge Economy: Trade and Job Quality*. Washington, DC: The World Bank.

Development Gateway and E. F. Ivanovic. 2002. *e-Gobierno en Chile, Entrevista Con el Ing. Enrique Fanta Ivanovic*. Online. http://www.developmentgateway.org/download/117925/Entrevista_Fanta_OK.pdf.

Embraer. Online. <http://www.embraer.com>.

Eregion. Online. <http://www.arcor.com>.

Farias, P. 2001. "Electronic Government: The Brazilian Policy Document." Presented at Fostering Democracy and Development through e-Government, the Third Global Forum, Naples, Italy, March 12–15, 2001.

Goldstein, A. 2002. "Embrear: de Campeón Nacional a Jugador Global," *Revista de la Cepal* (77).

Grupo Bimbo. Online. <http://www.gibsa.com.mx>.

Iglesias, E. 2001. *MicroEnterprise Americas Magazine*.

Informes y formularios sobre el Gobierno Electrónico. Conferencia de Autoridades Iberoamericanas de Informática. Sesión Plenaria XIX de la CAIBI, Santo Domingo, Dominican Republic, September 27–28, 2001. Online. http://www.map.es/csi/caibi/sesiones/xix/d19_008.htm.

Inter-American Development Bank (IADB), Sustainable Development Department. SME Observatory. Online. http://www.iadb.org/sds/sme/site_167_e.htm.

Latinobarometro. Online. <http://www.latinobarometro.org>.

Mason, O. 2001. "Institutional and Human Capacities for e-Government: Lessons from the Hemisphere." Presented at the Organization of American States Third Caribbean Ministerial Consultation and High Level Workshop, e-Government and ICT in Public Sector Management, Montego Bay, Jamaica, December 10, 2001.

Reforma Newspaper, August 22, 2002.

Rogelio, O. and F. Fernando Suarez. 2002. *Learning to Compete: How Firms Transform Themselves In The Face of Radical Environment Change*. Online. http://www.london.edu/otm/Whos_Who/Fernando_Suarez/SO_CMR_12Feb2002.pdf.

Sun Microsystems. 1999. *Case Study: Grupo Bimbo's Winning Strategy for Latin American Prepared Foods Market*. Sun Microsystems.

The Americas Society. 2001 *Impact of the Internet and Information Technology in Latin America*. Online. <http://www.americas-society.org/as/events/pdf.d/studygroupii.pdf>.

The International Institute for Management Development, Lausanne Research, Switzerland, Copyright 2002 CEMEX case study