

### 3. The Economic and Business Dimension

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#### The Case of Mexico

The Internet appears poised to accelerate economic development in Mexico, but at the price of greater income disparities. Certainly, more broadly distributed gains would benefit Mexico -- a country of almost 100 million people and a GNP of about a half trillion dollars, or about a twentieth that of the United States. Its population is young, with seventy percent under 35 years of age, and the income distribution is skewed, with the top twenty percent accounting for 58 percent of income. As Table 3.1 shows, at present, the top 20 percent experience substantially higher penetration rates of various communications technologies than do Mexicans in general.

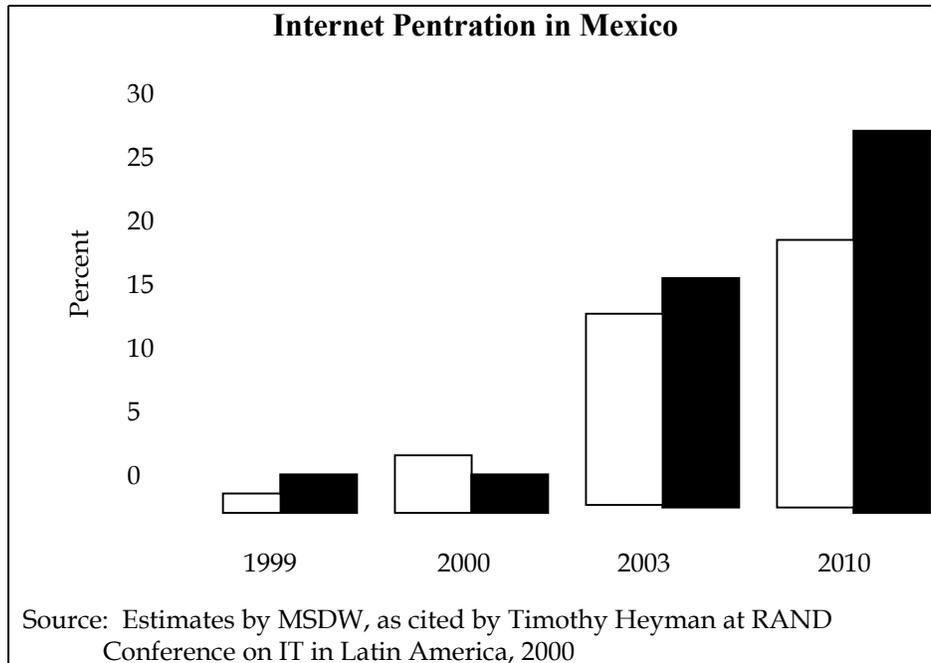
#### IT Penetration in Mexico by Access Device (%of population)

	Total (%)	Richest 20% (%)
Fixed lines	11.5	33.4
Wireless	7.6	22.0
Total lines	19.1	55.5
PC	5.6	16.2
Internet (estimate)	1.6	4.6
TV	87.0	100.0
Cable TV	11.0	31.9

Source: Telmex, Goldman Sachs, and author, as presented by Timothy Heyman at RAND Conference on IT in Latin America, 2000

**Table 3.1: Internet Penetration by Access Device**

As shown in Figure 3.1, current trends suggest exponential growth in Web access, from the current one percent penetration among homes and slightly higher penetration among businesses to approximately 18 percent among homes and 26 percent among businesses by 2010. This growth, however, is likely to be concentrated in the richest 20 percent of Mexicans.

**Figure 3.1 : Internet Penetration in Mexico**

The distribution of access to and benefits from the information revolution in Mexico is related to the industry structure, which can be divided into seven key categories:

- Connectivity Providers: Within Mexico there are multiple connectivity providers. Latin America connectivity providers operating in Mexico including Telmex and Telefónica, fixed line country operators such as Telmex/Telcel, Avantel (Worldcom), Alestra (ATT), and Bestel, and regional operators such as Iusacell (Verizon), Pegaso (Qualcomm), and Telefónica. New entrants to “last mile” access – that is, access to consumers – include

Unefon, Axtel, Metrored, and/or Megacable. Internet service providers include Prodigy (Telmex), Terra (Telefónica), AOL, and Psinet. At this time, satellite, cable and utility companies have no clear strategy for providing connectivity.

- Old Economy Incumbents: Not only the information technology companies are affected by the information revolution; all companies have an incentive to develop an Internet strategy, whether it is defensive or involves new businesses – and many companies such as Bimbo, Cemex, ICA, and Walmex have done so. While these traditional “bricks and mortar” companies face less risk of being displaced by new entrants – being “Amazon-ed” -- than do their counterparts in the United States, some banks, media corporations, and telecommunications companies are more exposed to changes in the business environment brought about by the information revolution.
- Telmex: Teléfonos de Mexico, or Telmex, is the national telephone company of Mexico, and it looks like the clearest “winner” in Mexico’s IT sweepstakes. A connectivity provider, Telmex, which was privatized in 1990, stands out in almost every respect. First, it controls the “last mile” of wire to the consumers, controlling 99 percent of local telephones, and thus competitors are the position of having to get “let in.” Second, it has more flexibility than the incumbent telephone companies in other Latin American countries, which either had to develop their Internet strategies outside their corporate structure, or were prevented from becoming Internet service providers (ISPs), as in Brazil. In Mexico, Telmex currently controls 58 percent of all Internet accounts. Several Wall Street analysts believe that Telmex’s dominance is the biggest obstacle to the spread of the Internet in Mexico.

On the other hand, Telmex was the first to provide computer financing in Mexico. Telmex also differs from other Latin telecoms in that the company is owned largely by one man: Carlos Slim's Grupo Corso, in conjunction with Southwestern Bell Corp. and France Telecom. Slim is Latin America’s wealthiest businessman, who also own Prodigy Inc., the third-largest Internet service provider in the U.S, and whose Grupo Sanborns recently bought CompUSA. Given its size – it accounts for a third of Mexico’s fledgling stock market – and its connections, it is hard to imagine strong regulation or other action against Telmex.

- Media: In the media sector, some companies are extending their information services. Televisa, the largest media company in Mexico with interests in television production, broadcasting, satellite services, publishing, and music recording, recently announced an Internet initiative. TV Azteca, a television programming company with a 30 percent market share, set up a cellular

service called Unefon and bought a substantial portion of Todito.com, which will allow it to distribute content on the Internet. One family owns all of TV Azteca, Unefon, Todito.com, the Elektra retail chain, Grupo DataFlux, and CNCI, a chain of 77 computer schools.

- Banks: As is the case with banks in general, the existing electronic infrastructure of banks in Mexico provides a foundation for e-commerce based on their established clearing systems. Foreign banks have made substantial inroads in Mexico in recent years; Spain's presence is particularly notable, with Grupo Financiero Santander Mexicano and Banco Bilbao Vizcaya Argentaria, S.A., topping the list. These, among other banks, are offering online banking and e-trading services, but unlike Brazil, banks are not offering Internet service in general. At present there are no "pure" Web-based banks or brokers, although a Patagon-Santander broker is leading a group planning such an institution.
- New Economy Start-ups: While there are few Internet start-ups in Mexico, there is a handful of companies, not really "Mexican," that provide services to Mexico and the surrounding region. Such start-ups are listed in Table 3.2 on the next page. The obstacles to start-ups are financing and lack of legal and other infrastructure. Given the need for scale, most Internet start-ups have to include several countries in a regional strategy, which makes set-up costs higher than in larger markets. Start-ups in Mexico have been financed mainly through international venture capitalists and established Mexican corporations, and only to a much lesser extent by local capital.
- Global Internet Companies: The final category of players in the information industry in Mexico are the global Internet companies such as Prodigy (Telmex), AOL, Yahoo, Terra, and PSINet. While these companies have a presence in Mexico, Latin America is not a priority for them. Other companies, like Amazon, serve Mexico without regional presence.

At present there are four primary revenue streams in information technology in Mexico --Internet connectivity, advertising, business-to-business (B2B) e-commerce, and business-to-consumer (B2C) e-commerce. In Internet connectivity, Infosel, owned by Spain's Terra Networks, is a distant second to Telmex, holding approximately 11 percent. Infosel, however, has recently introduced free Internet access. There are 44 other Internet service providers in Mexico, but the fact that they have, on average, fewer than 200,000 subscribers each suggests future consolidation.

Advertising on the Internet has yet to take-off in Mexico, although it does offer a new and unique way to reach the high-income population. There are only a few major online sites by new start-ups, and e-commerce is hampered, as everywhere

**Table 3.2**  
**New Economy Startups Covering Mexico**

Company	Internet Segment	Coverage
EHola	Portal	Pan-Latin and U.S.
El Sitio	Portal	Pan-Latin & U.S.
Fiera	Commerce	Pan-Latin, U.S., and Brazil
IFX	Infrastructure and Portal	Pan-Latin
Patagon	Financial Services	Pan-Latin, soon Mexico and U.S.
Quepasa	Portal	U.S., soon Latin & U.S.
Star Media	Portal & Infrastructure	Pan-Latin & U.S.
Submarino	Commerce	Large Pan-Latin & Spain
Todito	Portal & Infrastructure	Mexico & U.S.
Zona Financiera	Financial services	Pan-Latin & U.S.

As cited in presentation by Timothy Heyman at RAND conference on IT in Latin America, November 1-2, 2000.

in Latin America, by how to pay and how to deliver. Mexico is relatively penetrated by credit cards, with some eight million, but there is nothing comparable to the U.S. sales tax advantage in buying online, and delivery is less trustworthy. Overall, B2B is more promising than B2C, and there are likely to be some first mover advantages. An important “pull” factor driving IT is the just-in-time inventory needs of the *maquiladoras*.

These obstacles to the development of IT and e-commerce in Mexico are familiar across the region. The power of Telmex is predominant, but the telecom incumbents are strong elsewhere as well. So, too, the absence of strong foreign and start-up competition is the case almost everywhere, as are the problems of how to pay for a deliver e-commerce purchases, and the limited experience consumers have with it. Mexico also suffers from slow and ineffective regulatory procedures, which in part reflect the importance of local interest groups.

A final question regarding IT in Mexico is also common to the region. That is the effect of illiteracy and low education levels on productively using, let alone

innovating in, IT. In particular, can Mexico overcome the growing "digital divide"? Like the railroads, recent IT is a reminder that growth can occur without development. Yet, there are some bright spots on the horizon. First, the incoming Fox administration brings opportunity for change and growth in telecommunications. Second, there are pockets of educational excellence such as the technological institute in Monterrey, which came up again and again in the discussions as a model. It has 27 branch campuses and an innovative virtual learning program. Third, NAFTA has brought significant growth to Mexico, although the disparity between it and the United States is enormous. Foreign direct investment in the country has grown from \$4 billion annually to \$13 billion since NAFTA. Finally, the existence of the Mexican diaspora in the United States, with access to information and resources, can also be viewed as an opportunity. While the digital divide is likely to remain a fact of life in most emerging markets, Mexico is one of the countries with the best chance of eliminating it.

## **The Case of Brazil**

In Brazil, changing government policies facilitated the growth of the Internet. – beginning in 1996 when the government began privatizing the telecommunications sector. The country was divided into five IT regions, the most important of which was the city of São Paulo. Initially there was to be one company providing services in each region, with other companies allowed to enter and compete over time. In São Paulo, Telefónica, the Spanish company, began operating, and growth in telephones has been rapid. The city of 20 million had fewer than one million fixed phone lines in 1996; and on the open market a line cost \$1,000. Now, there are five million lines, and the "free market" for lines has disappeared. .

The lack of appropriate infrastructure means that interior areas of Brazil have not fared as well as São Paulo with respect to hard-line penetration, but cellular technology has increased rapidly in those areas. The privatization of the cellular industry in 1997 contributed to that growth. Until then, mobile cellular remained a monopoly in the hands of the national telecommunications giant, Telebras, plus four independent companies with local monopolies. In 1997, companies were permitted to bid for ten regional cellular licenses. Today cellular phones allow millions of Brazilians access to information technology.

Because only one tenth of economically active Brazilians have bank accounts, paying for information technology services is a challenge. In the case of cellular technology, 65 percent of users take advantage of prepaid services. It is no surprise, then, that the introduction of free Internet services sharply increased the

number of users. Free Internet access arrived in Brazil in 1999, when Universo Online (UOL), in existence since 1996, and Internet Gratuita (iG) became free. Other providers soon followed. Before it offered free access, UOL had 5 to 6 million visits a day; now the number is on the order of 30 million. Unfortunately, because these free ISPs rely on advertising to cover costs, the recent economic downturn has forced many providers to close shop. Those that have survived had partners, or were banks that offered free Internet banking to secure accounts. iG changed its name from “Internet Gratuita” to “Internet Grupo,” and no longer provides all services for free. UOL, the biggest ISP in Brazil, has yet to turn a profit after four years; its loss last quarter was \$40 million.

By law, telecoms in Brazil cannot be ISPs. They can and do invest in ISPs, but those investments are also limited. Non-Brazilian companies that sought to enter the ISP market on a regional basis have found it difficult to do so, in part because Brazilians think of themselves as apart from Spanish-speaking “Latin Americans.”

E-commerce in Brazil is in its early stages. As of yet, big retailers have not developed serious Internet strategies. One obstacle to the growth of e-commerce is the limited use of credit cards. At present, only 3 to 4 percent of Brazilians have credit cards – making online payment difficult. Banks are reluctant to open accounts for individuals earning less than \$200 per month. Another obstacle is a weak infrastructure for distribution and delivery of goods. Such obstacles may require e-commerce producers to develop payment, distribution, and delivery strategies different from those currently in use in the United States and elsewhere. One such strategy has been the development of prepaid “smart cards,” which are already used to pay for other types of goods and services.

While Brazil’s IT industry is not as developed as the United States, Canada, or western Europe, it probably has more indigenous IT technology than many other countries in the region, perhaps in part because Brazil tried so long to remain closed and develop its own technologies. Despite this advantage, the country still faces challenges in training technologists. While good programs exist, such as those at the universities of São Paulo or Campinas, they are limited in output, and some of them are expensive.

## **Bottom Lines**

The case of the Internet today is intriguingly parallel to railroad building in the last century: Both held promise of dramatic increases in national wealth but at the price of growing disparities across citizens. In 1845, investments in railroads,

like the initial public offerings (IPOs) of high-flying technology companies in recent years, equaled the GNP of Britain. Commentators talked of "railway time" and the "death of distance." Yet by 1853 the bubble burst, and the value of railroad stocks had declined by 85 percent. Competing railroads were building duplicate tracks. Later in the nineteenth century, railroad building in Mexico accounted for half of total economic growth. Then, as now with talk of the "digital divide," the growing disparities of wealth that result from railroad building was cause for concern; owned by foreigners or local oligarchs, railroad building generated growth but increased income disparities. In Mexico, the backlash against this social impact of the railroads contributed to the Revolution of 1910. Mexico has built not a single kilometer of railroad track since.

Will the Web fall prey to the same fate as railroad building, with bright promise ending in dashed hopes, even a backlash? There is a decent case that it need not do so. Both Mexico and Brazil are markets too big to ignore, and both have some "points of light" – UNAM, Monterrey Tech and Silicon Valle in Mexico, the university-based incubators and some venture capital in Brazil. Mexico also has its special connections to the United States – the "pull" of the *maquiladoras*, and the intermediary role of Mexicans living in the United States. Both, however, are hampered by corruption and by the vestiges of statist policies, for instance nationalized industries, complicated tax structures or, in Mexico, the requirement of majority domestic ownership.