Executive Summary:
Latin American Mobile Telecoms

INTRODUCTION

The Latin American mobile telecoms market is a growing market, especially in terms of GSM technology, but it is also a difficult one. Latin America is dominated by major international players; all of them feeling the effects from Argentina's and Venezuela's economic and political strife. Brazil and Chile are the economic underpinnings of South America, and Mexico provides a strong base in the north. Peru and Columbia are markets far behind their Brazilian and Chilean neighbors, but they continue to build a middle class and stabilize themselves.

MOBILE PENETRATION

At the end of 2002, the total number of mobile users in Latin America increased to 100 million. This follows explosive growth over the last 3 years: 40%, 37%, and 25% respectively from 2000 – 2002.

Penetration varies according to country, but averages only 18% today; the highest penetration is in Chile at 37% and the lowest penetration is in Cuba at only 0.1%. Total industry revenues in Latin America reached $19 billion in 2002 and are forecasted to be $20 – $21 billion in 2003.

In Chile, Mexico, Bolivia, Venezuela, Paraguay, El Salvador, Nicaragua, Guatemala, and the Dominican Republic mobile subscribers exceed the number of fixed-line subscribers, by 10% – 15%. This is mostly due to the lack of infrastructure and unreliability of fixed-line services in the region.

Country Breakdown By Mobile Subscribers

COUNTRY	SUBSCRIBERS	PENETRATION
Argentina	6,432,462	17.0%
Bolivia	1,010,000	12.0%
Brazil	32,486,140	18.5%
Chile	5,734,432	37.0%
Columbia	4,072,669	9.9%
Costa Rica	314,004	8.0%
Cuba	11,250	.1%
Dominican Republic	1,475,918	16.9%
Ecuador	1,302,722	9.7%
El Salvador	1,004,448	15.8%
Guatemala	1,216,333	9.1%
Honduras	252,770	4.0%
Jamaica	850,000	31.7%
Mexico	25,289,478	24.5%
Nicaragua	202,724	4.0%
Panama	612,669	21.3%
Paraguay	1,322,200	22.5%
Peru	2,037,240	25.3%
Puerto Rico	1,484,035	37.5%
Uruguay	490,000	14.5%
Venezuela	6,434,691	26.5%
Others	5,963,815	
TOTAL	**100,000,000**	**Avg. 18.0%**

Source: Cellular Online

REGULATORY ENVIRONMENT

All Latin American countries are depending on mobile telecommunications to move them forward in an increasingly technological world. However, it is still early days in terms of liberalization. Latin American governments continue to postpone decisions on new spectrum and licensing for 3G.

The following countries have privatized their previous state-run telecom companies:

- **Argentina:** Telecom Argentina, Telefonica de Argentina
- **Belize:** Belize Telecommunications Ltd.
- **Bolivia**: Entel
- **Chile**: CTC, Entel, Telex Chile (ChileSat)
- **Panama**: Intel (C & W)
- **Peru:** Telefonica del Peru
- **Dominican Republic**: Codetel
- **Venezuela:** CANTV

- **Guatemala**: Telgua
- **Mexico:** Telmex
- **Brazil:** (Several)

MOBILE OPERATORS

Deregulation of the Latin America market, albeit slow, has led to a large number of international players entering these markets. There are four major international operators that serve 80% of the market:

1. **America Movil**
2. **Telefonica**
3. **Bell South**
4. **TIM (Telecom Italia Movil)**

Other players in Latin America include: **Millicom International Cellular, France Telecom, Verizon Telecom, Telesystem International Wireless (TIW), Portugal Telecom, and Bell Canada International.** **Nextel** with **Tricom** is also developing a major presence in Latin America, with an investment of $300 million in the build-out of digital-trunking networks in Central America.

Note: An in-depth discussion of each company, including a breakdown of each company's holdings and partnerships in the region, is available in the expanded version of this report.

The Top Mobile Operators - By Subscribers

	COMPANY	COUNTRY	SUBSCRIBERS	ANNUAL GROWTH
1	Telemex	Mexico	19,351,000	29.2%
2	Telesp Celular	Brazil	5,775,000	22.0%
3	Telcel	Venezuela	3,010,256	-14.0%
4	Tele Sudeste	Brazil	3,330,000	15.3%
5	Tele Centro Oeste	Brazil	2,890,000	57.4%
6	Comcel	Columbia	2,577,000	60.8%
7	CANTV	Venezuela	2,520,612	21.4%
8	Iusacell	Mexico	2,176,478	25.0%
9	Entel PCS	Chile	2,160,000	22.3%
10	ATL Algar Telecom Leste	Brazil	2,000,000	9.2%

Source: Fortune 1 and Global Mobile

TECHNOLOGY

TDMA has the largest footprint in Latin America at present; and is the only technology offering nationwide service in Bolivia, Brazil, Costa Rica, Columbia, Ecuador, Nicaragua, Mexico, and Panama; the newer networks are still being rolled out. Interestingly, many of these TDMA operators are implementing GSM overlays to increase data rates, roaming capability, and prepare the stage for 3G.

In the last 3 years GSM has built a strong presence across all of Latin America – Central America, the Caribbean, and South America are all building GSM networks. At present projects are planned or underway in: Costa Rica, Nicaragua, Belize, and El Salvador. Notably, Cable & Wireless is overlaying its five Caribbean TDMA networks and its Panamanian network with GSM. As well, in 2000 and 2001 operators in Argentina and Mexico signed for GSM overlays on their existing TDMA networks; and in Brazil and Chile PCS services have been introduced via GSM1800. By the end of 2003, each country in Latin America will have at least one GSM operator.

Despite the in-roads GSM is making in the region, CDMA technology is more heavily penetrated at this time. Iusacell in Mexico and Telesp Celular in Brazil, for example, have both rolled out CDMA based services.

In terms of 3G, Latin American governments have continued to postpone new spectrum and licensing. The launch of 3G in Latin America will be delayed – likely one to two years after Europe finally gets its 3G services launched – due to the macro-economic considerations of the region. However, advanced 2G and 2.5G services are expected to sell well in Latin America.

Mobile Network Technology: 2002 and 2007

TECHNOLOGY	USERS 2002	PENETRATION 2002		FORECASTED USERS 2007	PENETRATION 2007
GSM	4,800,000	5%		89,280,000	36%
CDMA	21,000,000	21%		76,880,000	31%
TDMA	48,000,000	48%		69,440,000	28%
iDEN	2,000,000	2%		7,440,000	3%
Analogue	24,000,000	24%		4,960,000	2%

Source: Fortune1, Global Mobile, Budde Communication

GSM Networks In The Primary Latin American Markets

COUNTRY	OPERATOR	NETWORK
Argentina	Telecom Personal Unifon	GSM1900 GSM 1900
Belize	Belize Telecom	GSM 1900
Bolivia	Entel Nuevatel PCS de Bolivia	GSM1900 GSM1900
Brazil	TML PCS TIM Brazil	GSM1800 GSM1900
Chile	Entel	GSM 1900
Costa Rica	Instituto Costarricense de Electricdad (ICE)	GSM1800
Cuba	C-Com	GSM1900
Dominican Republic	Orange Dominican	GSM1900
Ecuador	Conecel	GSM800
El Salvador	CTE Telecom Personal Digicel	GSM1900 GSM1900
Mexico	Telcel GSM	GSM1900
Nicaragua	Enitel	GSM1900
Panama	Cable & Wireless Panama	GSM900
Paraguay	Hutchinson Telecom Paraguay Hola Paraguay (Vox)	GSM1900 GSM1900
Peru	TIM Peru	GSM1900
Suriname	ICMS Telesur GSM	GSM900 GSM900/1800
Venezuela	Digicel Digitel Infonet	GSM900 GSM900 GSM900

Source: Fortune1 and GSM Coverage

OUTLOOK

Latin America

Although the Latin American market is often painted in a bleak light, its inefficiencies also create great opportunities for entrepreneurial companies. The region's mobile markets are growing strong and it is a highly promising market. As an example, below is a comparison highlighting Brazil and other world markets.

Forecasted Subscriber Growth

	2005	2010	CAGR
UK	50,200,000	50,900,000	0.28%
U.S.	181,700,000	226,800,000	4.53%
Brazil	**53,900,000**	**76,700,000**	**7.31%**
Poland	18,600,000	23,500,000	4.79%
China	326,100,000	575,100,000	12.02%

Source: Fortune 1 and Baskerville's

Forecasted Revenue Growth

	2005	2010	CAGR
UK	$3.3 billion	$5.8 billion	11.94%
US	$23.5 billion	$72.8 billion	25.38%
Brazil	**$1.6 billion**	**$4.5 billion**	**22.98%**
China	$6 billion	$45.3 billion	49.83%
Poland	$1.3 billion	$3 billion	18.20%

Source: Fortune 1 and Baskerville's

Note, the above comparisons are just in terms of Brazil. In 2010, the Latin America region as a whole will have over 230 million subscribers, exceeding U.S. subscriber levels.

The build out of networks in Latin America continues – and GSM has made significant progress in just five years. In 1998 just two GSM operators existed; one in Chile and another in Venezuela. Now, by the end of 2003 there will be at least one GSM operator in each Latin American country.

As well, fixed-line incumbents in Brazil – Brazil Telecom and Telemar – have both acquired mobile spectrum licenses. This year, these companies will begin testing all-inclusive plans (regulations permitting) allowing end users to subscribe to local, long-distance, DSL, and mobile services from the same provider. This means there will be an increased need for mobile network build-out and capability. Other fixed operators set to follow suit include: CanTV, Andinatel ETB, and EPM.

Capital markets in Latin America remain extremely tight. The start of 2003 stills sees some of the major economies in financial crisis. This is particularly obvious in Argentina, Venezuela, and Uruguay. Growth in Brazil has been driven by liberalization in the telecom sector, but it too is feeling the effects of slowing world GDP growth. However, with compound annual growth rates for mobile subscribers in excess of 20% equipment vendors still have a significant sales opportunity in Latin America.

Mobile data services will continue to be the focal point of attention in developed markets, but traditional voice services will attract a large share of network infrastructure spending in developing markets. Despite a 22% decline in worldwide spending in 2002, IDC forecasts that annual spending on mobile infrastructure will grow from $38.3 billion in 2002 to nearly $49 billion in 2007. **It is estimated that Latin America, as a region, will spend an aggregate $21 billion in mobile infrastructure between 2003 and 2005.**

Worldwide
The outlook for GSM worldwide is very strong. According to figures released by the GSM Association at the end of 2002 there were 787 million GSM subscribers across 190 countries of the world. The uninterrupted growth of GSM continues with more than 160 million new GSM users added over the last 12 months; and by 2004 it is forecasted that GSM subscribers will exceed 1 billion worldwide. Also according to the GSM Association, 80% of mobile operators, who have made their 3G technology decision, have selected W-CDMA for their next generation networks.

That said, according to *Strategy Analytics* the jury is still out in terms of what technology will dominate the future of mobile telecoms. GSM has the largest and most developed installed base, however because W-CDMA requires new spectrum and does not have all the bandwidth advantages of CDMA2000, *Strategy Analytics* forecasts: *Despite GSM's overall dominance of the cellular market, [CDMA] will control 64% of the 3G market.*

The mobile standards war will obviously continue for some time. In the near to mid-term GSM is THE dominant technology in the world market, which points to a strong and still-developing market for for GSM equipment manufacturers.