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The Deloitte Telco Index

A Review Of The Global Telecommunications Industry

1st Edition, October 2003

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Foreword

Welcome to the first global edition of the Deloitte Telco Index, a comprehensive analysis of the state of the telecommunications sector worldwide.

The Index is part of an ongoing Deloitte telecommunications research and analysis program crucial to the understanding of dynamic markets that informs decision making in an increasingly complex global environment. The Index draws upon both data sources for performance metrics and expert analysis by our global team of telecom practitioners.

The fundamental metric used in the Index is market capitalization, the most comprehensive and inclusive measure of the industry's long-term value. Because it is derived from share price movements, market capitalization tends to reflect historical, current and anticipated performance, while revenue and profits freeze performance at a single point in time. Further, a stock's price is a homogenous, external metric, while various companies define revenue and profits differently.

This report is much more than a mere tracking of data over time. As the backbone of Deloitte's ongoing research into the telecommunications market, it offers both quantitative and qualitative analyses of an industry in the throes of constant change. In the pages that follow, the Deloitte Technology, Media & Telecommunications (TMT) team examines the sector in regional, economic, competitive, regulatory and technological contexts to help make sense of the Index's movements since 2000 and to provide guidance on the industry's short-term future. The result is a multi-tiered analysis: a global synopsis of this increasingly interconnected sector, regional overviews of the Americas, Europe and the Asia Pacific markets and, within those regions, commentaries on the major market players.

In the coming weeks and months, Deloitte will also publish complementary analyses on specific market themes affecting the Index's direction, from regulatory change to international expansion to the emergence of new technologies and services.

Introduction

The movement of the Index since 2000 has been marked by two distinct phases: a steep plummet through early 2002, followed by a plateau. A conventional analysis would explain the first phase as a sharp correction to the euphoria of the late 1990s and the second as an evolution from service industry to utility.

Both conclusions are open to debate. Some market observers attribute the plunge in stock prices not to a correction following an unwarranted run-up in the market, but rather to government decisions that jeopardized the industry's ability to exploit the promise of new technologies. As for the proposition that the sector is moving toward the utility model, it should be noted that the global drop in market capitalization has taken place during a period of continued growth: in almost every other respect, the telecommunications industry as a whole has gone from strength to strength. As this report goes to press, the globe is linked by more than a billion fixed telephone lines and even more mobile telephone connections. Fixed broadband subscribers will soon number 100 million, and the tally of third generation (3G) mobile subscribers already numbers in the millions. Moreover, the pace of general technological progress, which enjoys a symbiotic relationship with demand for communications, appears certain to continue unabated for at least another decade. In sum, this is not an industry evolving toward a utility model. There is a strong likelihood that the Index will continue moving up.

To a great extent, that will depend on the ability of the sector to deliver on its potential. While some exogenous factors – most importantly regional and global economies – will influence the direction of the Index, we believe that a far greater factor will be the industry's level of commitment to certain key principles:

- Mergers, acquisitions and capital investments must reap value, not feed vanity.
- Technological developments, with a focus on disruptive technologies, need to be nurtured to provide the platform for the next growth phase.
- Costs must be managed without jeopardizing future revenue.
- Treatment of customers must be neither overly generous nor callously indifferent.
- Product and service development must focus on what customers want and will pay for.
- Markets must be segmented accurately, based on an appropriate mix of products and services.
- Companies must be managed efficiently.

A Quest for Solutions

While these principles may seem obvious, it is no secret that the industry has a poor track record delivering on them. A recent in-depth Deloitte survey of senior executives of more than 100 leading telecom companies revealed a sector fully aware of its shortcomings. A fifth of these executives regarded post-merger integration as poor. A third stated that debt levels had dampened their share price. Close to 60% assessed their customer satisfaction as inadequate, and 65% categorized customer churn as a major challenge. More than half asserted the need to design and deploy new products and services, while 64% rated their service provisioning as inadequate or untimely. Better than two-thirds admitted their business intelligence processes were inadequate.

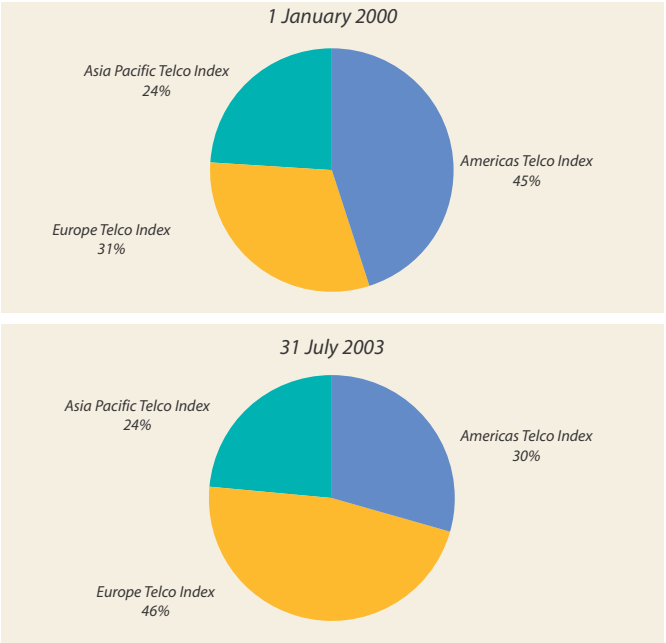
Against this background of internal disharmony, the sector has been, is and will remain one of the key drivers of disruptive change in the global economy. The ways in which we communicate in text and speech, the ways we exchange data and interact socially, the ways we buy and sell goods and services, even the ways we manufacture products and deliver medicine have been changed forever by the evolution of global communications networks.

The demand that spurred those changes will only grow. What will determine the future direction of the Deloitte Telco Index will be the global ability of the industry to deliver.

Benchmarks

The weightings of the Global Telco Index at the start and the end of the period under review were as follows:

Figure 1: Regional Weightings in the Deloitte Global Telco Index



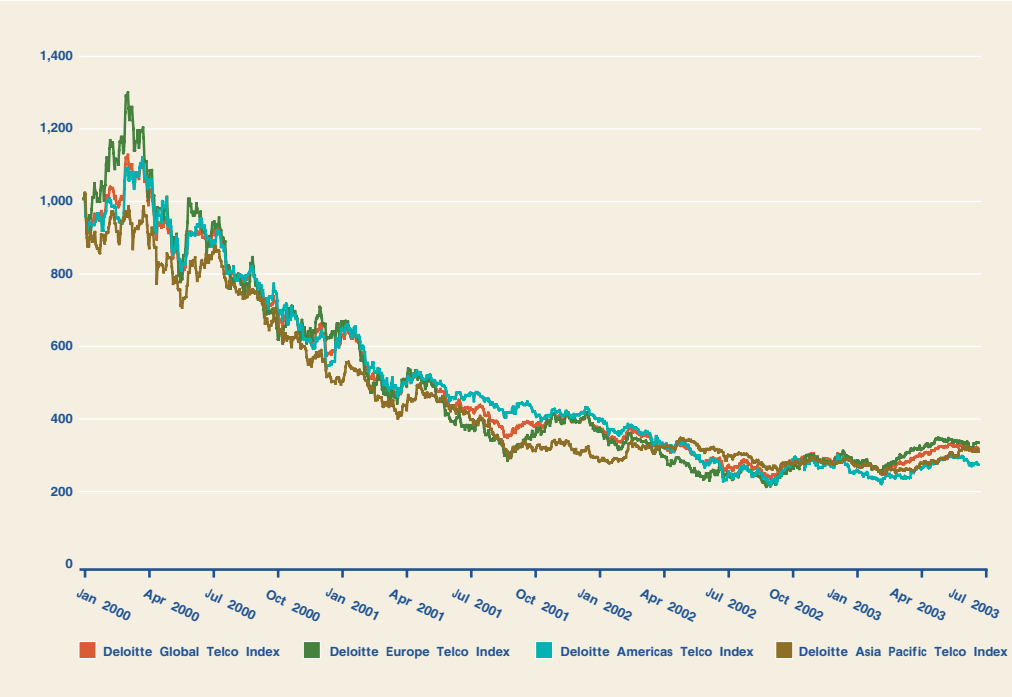
Note: All figures quoted throughout this report are in US dollars, unless otherwise stated

World Telecommunications Markets

The Global Telco Indices

Figure 2 below charts the movements in the Deloitte Global Telco Index in comparison with each of the Deloitte Regional Telco Indices, from 1 January 2000 to 31 July 2003.

Figure 2: Deloitte Telco Indices from 1 January 2000 to 31 July 2003



The overall movements in the Deloitte Global and Regional Telco Indices over the period from 1 January 2000 to 31 July 2003 were as follows:

Figure 3: Overall Movements in Deloitte Telco Indices

Index	1 January 2000	31 July 2003	Movement
Deloitte Global Telco Index	1,000.0	312.8	↓ 68.7%
Deloitte Americas Telco Index	1,000.0	268.8	↓ 73.1%
Deloitte Europe Telco Index	1,000.0	329.3	↓ 67.1%
Deloitte Asia Telco Index	1,000.0	304.8	↓ 69.5%

Executive Summary

From January 2000 to July 2003, the telecommunications industry worldwide lost 69% of its market value, and it simultaneously shifted from a US-dominated sector to a more distributed global market. But numbers alone cannot tell the story.

In many ways the fever lines in Figure 2 chart an industry in the throes of a jarring market correction. However, the last 11 months of the Index period suggest a return to equilibrium worldwide, and while the scars from the correction remain , the regional analyses presented below suggest that lessons learned in the last three years have begun to anchor the industry more firmly to reality.

The extraordinary growth and rapid contraction of stock prices in global telecom markets was one part of a larger technology boom/crash cycle brought on by the marriage of telephony and computers as the 20th century gave way to the 21st.

The upside of the cycle was fueled in large part by three key factors – the rapid introduction of the public Internet, the maturing of mobile phone technologies and, especially in Europe and the Americas, widespread regulatory reforms intended to increase competition. All three represented unknowns, and all were inextricably intertwined. Their combined impact produced a sustained period of chaos and euphoria within telecommunications markets. Incumbent operators struggled to deflect new startup competitors while simultaneously leveraging their assets to explore markets and technologies for which they had no road maps. New competitors sprang up, often touting untried business models that nevertheless frequently seduced venture capitalists, banks and investors. Equipment manufacturers financed the purchases of their own equipment by startups that often had no revenue and risky business plans. Additionally, legislative and regulatory actions created controversial policies that raised questions about the prerogatives of incumbent operators and their competitors, which in turn led to court battles that continue to this day. The resulting uncertainty contributed to second thoughts about the sector's prospects. Likewise, the collapse of technology stocks and the economic slump that hit in early 2000 reflected doubts about the viability of the "new economy" and also exposed questionable accounting practices by a small but high-profile minority of companies that had gone undetected during the party years. Investors ran for cover, and they have been slow to return.

Current and future challenges

In the three years covered by the Index, the telecommunications industry faced several threats to recovery, most of which will continue to present significant challenges in the foreseeable future. Primary among these were:

- A widespread surplus of fiber optic cable, the result of excessive network build-outs followed by the development of vastly more efficient multiplexing technologies.
- Erratic growth in competition that frequently outstripped rising demand.
- Unsettled regulatory policies that hampered both incumbents and challengers, while creating concerns among investors.
- High debt deriving from bloated acquisition costs, the capital costs of fiber and mobile network expansion, upgrades and last-mile solutions. In Europe, especially in the UK and Germany, companies also borrowed heavily to pay governments astronomical prices for 3G wireless spectrum.
- Unsecured financing of equipment that left vendors financially crippled when the collapse of dot-com euphoria wiped out thousands of new economy start-ups.
- A bandwidth pricing struggle fueled by rapidly evolving technologies, competing protocols and two ill-matched marriages – landline to wireless networks and packets to switches.
- Accounting issues that undermined investor confidence and contributed to the collapse of several high-profile giants.
- The use of cable TV networks as platforms for low-cost voice telephone service – particularly using Voice over IP (VoIP) technology.
- Substitution of wireline for wireless telephone service.

Gold rush in the East

In all three regions, individual countries can generally be categorized as mature or emerging markets. Significant differences exist, for example, between the telecommunications markets in Eastern and Western Europe or between those in North America and those in Central and South America. The Asia Pacific region is a patchwork of emerging and mature markets.

But China stands apart as the most significant story in global telecommunications during the last three years. Measured in sheer potential, it is the most tantalizing market on the globe – a consumer base of 1.3 billion people, coupled with a shift to a market economy and an expanding consumer culture that shows no signs of abating. Early in 2003, it surpassed the United States in number of telecom customers, making it the world's largest telco market, with 250 million subscribers. Yet its potential has barely been tapped. Consider, for example, that it surpassed the United States in market size despite the fact that its penetration rates are a miniscule 3% for fixed-line services. And despite a three-year cumulative annual growth rate (CAGR) of 53% for mobile operators, its wireless penetration is just 16%.

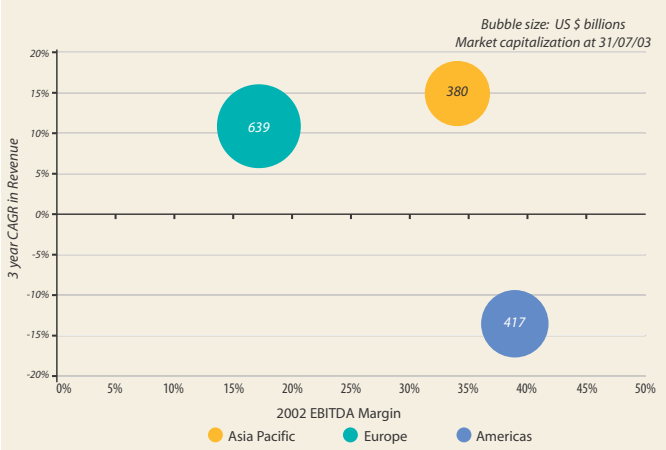
With telco competition already intensifying and with expectations of a more open regulatory environment as the country enters the World Trade Organization, China promises to be the telecommunications gold rush of the next decade.

Regional Financial Performance

While none of the three regions could avoid all the obstacles along the road to recovery, different geographies faced different challenges. All three regions trended downward at relatively similar rates of decline. Yet the actual causes varied, depending on factors such as the relative maturity and openness of regional markets, the extent and quality of existing infrastructures, the level of government ownership and regulation, the stability, dominance and culture of incumbent telcos and the economic importance of equipment manufacturing to the region. Detailed commentary regarding the impact of all these variables on the regional Deloitte Indices is provided in the following sections of this report.

The aggregate market capitalization of the companies in each of the Deloitte Regional Indices is summarized below:

Figure 4: Comparative Regional Performance



Performance in the US-dominated Americas region was notable for two things: the biggest drop of any region in market capitalization during the Index period and the highest margin of earnings before interest, taxes, depreciation and amortization (EBITDA) – about 39% – despite a three-year CAGR of -13%. The declining CAGR reflects the effect of greater competition in all telecom sectors in the Americas, while the higher levels of EBITDA reflect the dominance of the incumbents on the Americas Index.

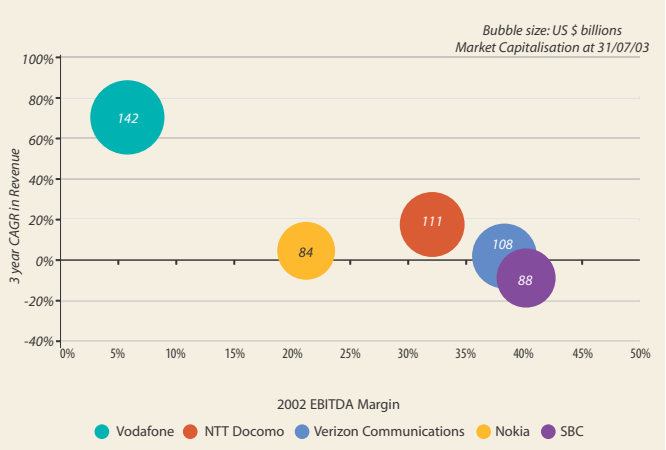
Europe, despite a three-year revenue CAGR of 12% inflated by interconnection revenue, reported the lowest aggregate EBITDA margin of the three regions. The focus among the market-dominating incumbent carriers has shifted to increasing cash flows and paying down debt.

Asia Pacific, dominated by the Japanese telecommunications companies that represent approximately 43% of its Index, has achieved a three-year revenue CAGR of 15%. This growth has been driven by a three-year CAGR in mobile subscriptions of 35% in the Asia Pacific region. The EBITDA margins across the Asia Pacific region have been solid due to lower pricing pressures and faster adoption of high-value revenue sources such as data and broadband.

Nowhere is the global telecommunication sector's shift in fortunes more apparent than in the realignment of companies within the Index, both by type of business and by geography, as shown in Figure 5. A grouping that would have been dominated by American equipment manufacturers in 2000 is today dominated by carriers, and the only equipment manufacturer to make the cut was the European wireless giant Nokia. Also notable is the fact that the globe's leading telco, Vodafone, is the only European operator to make the list. This is worthy of note because European markets in general are dominated by incumbent carriers, but Vodafone is a pure wireless play that lacks both the advantages and encumbrances of incumbency.

Figure 5, below, compares the earnings of the five largest global telecommunications companies.

Figure 5: Comparative Performance of Top 5 Global Companies



Vodafone achieved the highest three-year CAGR of any operator in the Global Index, in large part as a result of growing its subscriber base through acquisition. Its low 37% EBITDA margin is the result of non-recurring outlays. The fact that the other four companies all clustered between three-year CAGR's of between –10% and 18% yet achieved relatively higher EBITDA margins is primarily due to cost cutting and downsizing.

The Americas

Executive Summary

The Americas Index, dominated by North American enterprises, experienced a substantial decline during the period as telcos saw markets erode, financial capital evaporate and accounting scandals dominate news headlines. There was a clear "flight to quality" as investors discounted future revenue gains in favor of immediate cash flow. The total Index decline of 73.1% could be interpreted as a failure of the Telecommunications Act of 1996 (TA 96), yet consumer prices and choice, two fundamental targets of TA 96, have dropped and risen respectively. One challenge for today's telco executive is sorting through the rubble and preparing for the next up cycle as enterprises are motivated to drive improvements in productivity via advanced communication technology. Another is coping with the threat to consumer voice service revenue posed by wireless and Internet-based alternatives.

The late '90s run-up

The sudden and largely unanticipated rise of the Internet, followed by a precipitous decline, played a critical role in run-up and subsequent downturn in the Index. TA 96 was supposed to promote a long era of exciting growth in the U.S. telecommunications business. By the beginning of the period covered by the Index, implementation of the law's provisions was gaining momentum. Bell companies, long distance carriers, cable TV operators, and newly-formed CLECs were expected to engage in a free-for-all in which incumbents faced new competitive incursions but also had the opportunity to offset their losses with new business – including revenue flowing from services enabled by advances involving the Internet, broadband communications, and mobile telephony. For a time investors backed a tremendous spate of infrastructure deployment, mergers and acquisitions, start-ups, and international ventures. CLECs sprouted like mushrooms, along with a bewildering assortment of companies embodying technology-based business models, such as ISPs, ASPs, and Web Hosters, not to mention dot-coms serving both consumers and businesses. Backbone networks and switches proliferated in anticipation of astronomical increases in telecommunications traffic. The price of tech stocks soared, and some of the highest flyers were telecommunications companies.

Tech stocks plunge

The exact reasons why all this evaporated are still being debated, but in any event the good times didn't last. Dot-com stocks began to lose value in early 2000 and the rest of the tech sector collapsed as the year went on. The perception spread that little of the traffic needed to justify the vast expansion of telecom capacity would in fact materialize. Some observers blame speculative investment, while others contend government is at fault for implementing excessive and/or poorly designed regulatory policies. Suddenly nobody believed that consumers or businesses would switch their purchasing to the Internet, or that people would rush out to buy next-generation cell phones with all sorts of sophisticated features, or that streaming video would absorb huge amounts of bandwidth. The implosion spread from dot-coms to information technology companies, and from there to telecommunications.

As the sector's leading economic indicator, equipment makers were the first to go into freefall in the Americas, setting off a domino effect that dragged down the entire industry. At the time TA 96 was signed into law, equipment makers were selling better than 90% of their hardware products to traditional long distance and local operators. Despite the fact that these same carriers remained the only operators that could actually afford such equipment throughout the late 1990s, their share of manufacturers' total sales had dropped to approximately 60% by 2000. The remaining 40% consisted of sales to new economy companies, financed by the manufacturers themselves. As the new economy stumbled and fell, companies like Nortel, Lucent and Alcatel saw their sales channels evaporate and were left holding crippling levels of uncollectible debt.

Next to fall were the long distance companies, which were already caught in a competitive price squeeze when TA 96 introduced the threat of future competition from the incumbent local exchange carriers (ILECs). Faced with the prospect of further price deterioration and seeing the Internet and new economy fertilise new markets, the incumbents invested in massive construction of fiber optic networks and data switching services. When the new economy began to collapse, the long distance companies were left with staggering levels of debt incurred for non-producing assets. The combination of all this debt with the erosion of long distance market share to wireless companies and the prospect of big new losses to Bell companies triggered a collapse in market prices.

CLECs, a category of competitor that arose as a result of TA 96, were the next to suffer. Throughout the late 90's, CLECs aggressively pursued as many markets as possible, often with a "land grab" mentality. Fueled by a belief in first-mover advantage in the market, CLECs, like the long distance companies, took on vast amounts of debt, grossly underestimating the time and money it would take to pry customers away from incumbent operators. Although CLECs attracted more than 10% of access lines in the United States, many depended heavily on ISPs as customers, which left them exposed when the dot-coms collapsed. Ultimately, virtually all significant CLECs sought bankruptcy protection under Chapter 11. The survivors have begun to rationalize their operations to focus on markets that produce operating cash.

The one seemingly bright spot in the Index are the ILECs, whose shares dropped less precipitously than those of other telco businesses. In our opinion, this is less a clear endorsement of the ILEC model than a result of investors seeking safety during periods of high uncertainty. Even so, the carriers have little cause to celebrate, since they now dominate a pie that has collapsed to a mere quarter of its former size. Attracted by the ILECs' cash, their incumbent market positions and their most crucial asset, the customer, investors have shifted the preponderance of telecom dollars to these traditional carriers. They have done so despite the fact that the ILECs' core voice markets are declining at a rate of 6% to 10% per year with no turnaround in sight.

The last sector to be caught in the downturn was wireless. Flushed with growth of 40% to 50% a year through the late 1990s, wireless operators leveraged themselves against the expectation of an eventual 70% penetration rate in the United States — an unlikely scenario that would have required a cell phone being purchased by every person between the ages of 14 and 65. As growth began to slow, carriers looked to the credit challenged, prepaid customer segment for expansion, but to date, no US carrier has successfully launched a prepaid model. Slowing subscriber growth has been partially offset by stabilizing average revenue per user. However, the US market is still bedeviled by multiple wireless standards, disagreements about how data services will be deployed and concerns about what effect mobile number portability will have on customer retention. With all this uncertainty, the wireless sector has remained stalled.

Convergence: Do investors care?

Convergence is hard to define and harder to achieve. Some big names, including AT&T, BCE, AOL Time Warner, and Vivendi, have adopted convergence strategies to ignite growth and shareholder wealth, only to experience difficulties, reversals and defeat. The one convergence strategy that has enjoyed commercial success is selling bundles of services, such as long-distance and local voice service, mobile service and Internet access. In the US, Bell companies have introduced packages of this sort to answer AT&T's "Unlimited" and MCI's "Neighborhood" plans.

Cable TV operators are pursuing a convergence strategy by delivering Internet access and, increasingly, voice services over their video entertainment networks. The cable industry's success with broadband services could set the stage for a more aggressive push with respect to voice services, potentially via VoIP technology. Underscoring the danger for telcos is the fact that cable cost structures are much leaner than those of the Bells and other ILECs. Needing a video component to compete with cable, SBC and Qwest have entered into deals with DirecTV and EchoStar that allow them to include satellite-based video services in their portfolio of consumer products. For cable, though, the lack of strength in wireless could be significant as mobile communications become more important to consumers.

In all likelihood, telcos will strive to deploy last-mile fiber connections that would enable a full range of communications and video services over the same platform. Cable companies, which already have broadband infrastructures, are likely to intensify expansion into the voice market while coping with threats from satellite carriers, personal video recorders and fixed-wireless technologies.

As is often the case in the telecom business, regulatory policy could shape competitive strategies. For example, regulators' treatment of bundles that combine regulated and unregulated services will influence ILECs' pricing. Convergence strategies by ILECs and others could be affected by how heavily or lightly government regulates Internet access, VoIP and wireless services.

Ethics and value

The last two years have revealed an apparent erosion of business ethics in portions of the US telecom sector. Sensational news reports about accounting irregularities at WorldCom, Qwest and Global Crossing have contributed to the 75% slide in the Americas Telco Index. Although it is impossible to quantify the damage they have wrought on market caps, the scandals have clearly clouded understanding of stock prices. For example, when we asked some telecom executives at a recent conference what was driving their stock price, a frequent response was "rumors."

A Look at Latin America

The Americas Telecom Index includes a number of Latin American companies, two of which, Telmex and America Movil, account for 5% and 2%, respectively, of the 31 July 2003 Index weightings. Virtually all the Latin America telecom markets would be categorized as "emerging markets" with substantial growth potential but significant capital required to build out the network. Although each market is unique, they all share three elements that challenge investors:

- *Recent privatization and evolving regulatory frameworks* – Virtually all Latin American markets lack an established regulatory framework. Formal regulatory bodies exist, but their policies are unsophisticated and unpredictable. For sustained growth, regulators need to be more consistent in establishing long-term goals. This will be central to attracting any meaningful levels of new foreign investment.
- *Low teledensity and the need for universal service* – These markets are characterized by relatively extreme disparity in economic classes, which has prompted regulators to aggressively mandate universal coverage. Although well intentioned, it is seldom economically feasible.
- *Promoting competition* – Most emerging telephone markets look to established markets, primarily the US and the UK, for regulatory models. One concept that has been adopted in most markets is promoting competition. Again, this is an admirable endeavor but one that is often inconsistent with the need to establish universal service. The problem can best be illustrated by Brazil's regulatory agency, ANATEL, which has been very aggressive in requiring incumbent telcos to provide universal service. As a result, by some carriers' computations, only 35% of customers actually provide the company with a profit. When competition is introduced, especially non-facility-based competition, it is these 35% of customers whom the competitors pursue, leaving the facility-based telco with a customer base that is unsustainable. Accordingly, we would argue that in emerging markets, universal service should be attempted in a monopoly or duopoly environment; competition should be introduced only when teledensity is sufficiently high to support reduced investment by the incumbent.

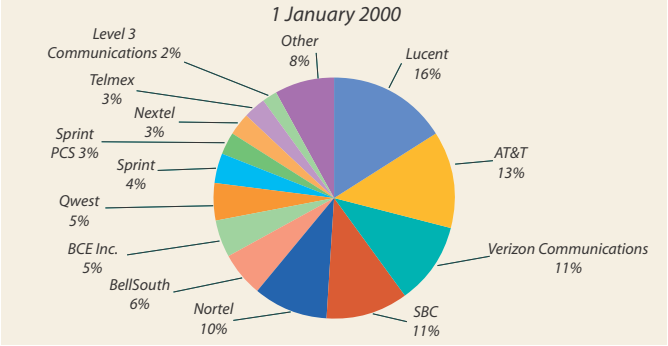
The Americas Telco Index: Movements and Analysis

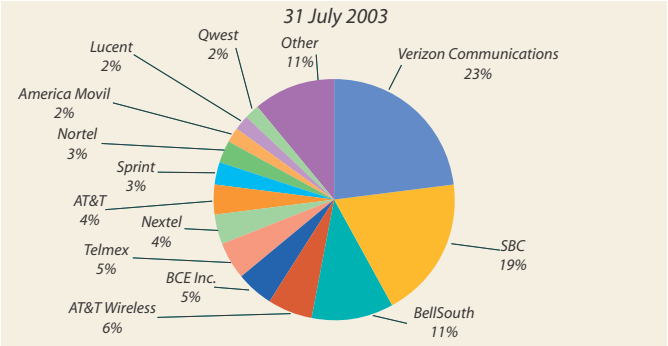
Index Composition

The Deloitte Americas Telco Index charts the progress of major publicly traded telecommunications companies in the region. During the period under review, the Index was represented by the entities as shown in Figure 6.

It comes as no surprise that the Americas Telco Index fell during the measurement period, since 1 January 2000 approximated the pinnacle of the tech stock run-up. Equity values, fueled by what turned out to be unrealistic revenue expectations during the previous few years, were poised for a painful correction. Once this correction began, we experienced a significant rebalancing of the Index's composition. For example, at 1 January 2000, the Index was dominated by equipment manufacturers, long distance companies and local exchange companies, which accounted for more than 80% of its value. The market caps of equipment and long distance companies reflected expected growth in data traffic and the need to enhance network capacity to accommodate the Internet economy, while the local exchange companies were valued for their sheer size and their position as the customer's interface with the network.

Figure 6: Deloitte Americas Telco Composition





When tech stocks fell, investors shifted from future revenue to core earnings and cash flow, which resulted in dramatic realignments in the Index. Most notably, Lucent plummeted from a 16% weighting on 1 January 2000 to 2% on 31 July 2003. The decrease can be attributed to overall slowdown in the telecommunications industry as well as to the collapse dot-coms on which Lucent was more reliant than other equipment makers for revenue. Similarly, Nortel's weighting dropped from 10% to 3%.

Across the board, Bell companies in the US fared best throughout the period. The combined Index weighting of Verizon, SBC and BellSouth rose from 28% at 1 January 2000 to 53% at 31 July 2003. The increase in the group's Index weighting is largely tied to more stable sources of revenue from fixed-line services and to carriers' ability to generate substantial earnings from their core operations. The rise in the influence of ILECs has helped to stabilize the Americas Telco Index during the last year.

AT&T declined sharply from 13% on 1 January 2000 to 4% on 31 July 2003, due in part to erosion in the long distance market as ILECs and wireless providers offered customers more attractive pricing options. AT&T also divested its cable and wireless operations, which subsequently outperformed the long distance segment. AT&T Wireless, in fact, outweighed its former parent company 6% to 4% at the end of the Index period.

Canadian telecom leader BCE Inc. maintained its 5% Index weighting at both the start and finish of the Index period while the weighting of Telmex, the Mexican ILEC, increased from 3% to 5%.

Index Movements

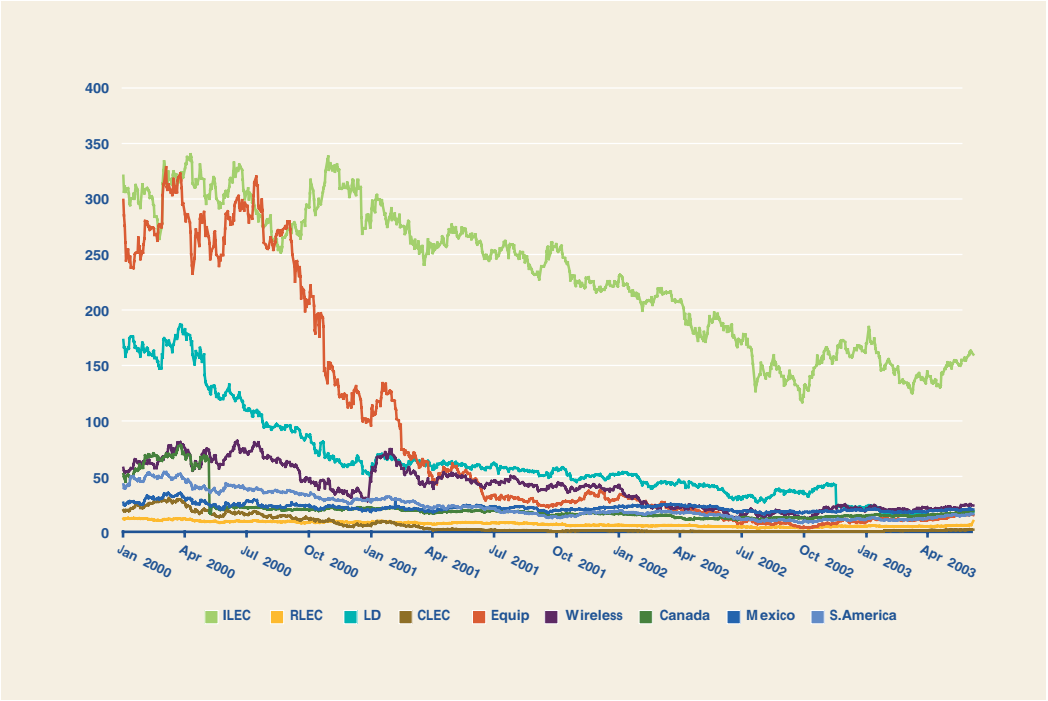
Figure 7 below compares the Deloitte Americas Telco Index with the Deloitte Global Telco Index and the S&P 500. The Americas Index fell 73.1%, from 1000 points on 1 January 2000 to 268.8 points on 31 July 2003. As illustrated earlier in this document, it has trended in line with other regions in the Deloitte Global Index.

Figure 7: Deloitte Americas Telco Index, 1 January 2000 to 31 July 2003

Americas: Market Segment Indices

Figure 8 below compares the various segments within the Americas telecommunications markets and discusses the different forces driving their respective market value.

Figure 8: Deloitte Americas Telco Index: Segment Performance



Comparative Company Performance

Figure 9 below provides a comparison of the historical earnings performance of the ten largest companies in the Deloitte Americas Index, as determined by market capitalization. As of 1 January 2000, the aggregate market cap of these ten companies was $1.5 trillion, approximately 85% of the Americas Index. By 31 July 2003, their aggregate market capitalization had fallen to $403.5 billion, a drop that highlights the impact of competition, regulatory uncertainty and the end of Internet euphoria on the profitability of America's major telcos.

In the US, the so-called Baby Bells – the incumbent local carriers Verizon, SBC and BellSouth – maintained the largest market capitalization. As Figure 10, opposite, demonstrates, these ILECs were the only companies to outperform the Index average. It should be noted, however, that not a single company achieved a gain in market capitalization from 2000 to the present; over-performers merely lost less than the average of 73%. One positive in the ILEC sector has been the ability of incumbents to cut costs and maintain EBITDA margins in a period of stagnant or declining sales. Although this is not a sustainable long-term way to maintain margins, it has enabled the Bells to begin streamlining their businesses and thus to compete more efficiently. However, the Bells face daunting challenges ahead and must continue to reinvent themselves as their core voice business comes under increasing pressure from not only CLECs but cable TV operators and wireless carriers as well.

Since 2000, the percentage of US residents with cell phones increased from 38% to nearly 60%, enabling wireless operators such as Sprint PCS, Nextel and AT&T Wireless to achieve the highest revenue growth. EBITDA for the group was in line with the Index average. From a wireless perspective, the Americas Telco Index is handicapped by the fact that two of the largest wireless operators, Verizon Wireless and Cingular, do not have separately traded stocks.

Figure 9: Comparative Performance of Top 10 Telcos in Americas

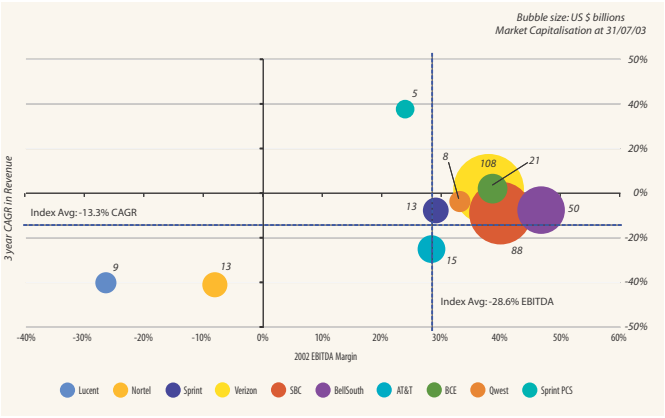


Figure 10: Top 10 Company performance relative to the Deloitte Americas Telco Index

Figures 10, above, and 11, below, demonstrate that equipment manufacturers such as Lucent and Nortel were among the hardest hit, losing 97% and 92% of their 1 January 2000 market capitalization respectively. The drastic size of these losses is attributable to a higher revenue reliance by these two equipment manufacturers on new operators and to a drop in purchases of telecommunications services and equipment as the market absorbed excess capacity. The equipment makers will have to pick their technology bets carefully as carriers and business customers resume telecom purchases.

Figure 11: Financial Performance of Top 10 Telcos in Americas

Company	2002 Operating Revenue (US$m)	2002 EBITDA (US$m)	2002 EBITDA Margin %	2002 Net Profit (US$m)	2002 CAPEX as % of Revenue	2002 ROCE (ROIC) %	2002 Debt to Market Cap
AT&T	37,827	10,686	28%	849	10%	(44%)	1.48
BCE Inc.	12,561	4,864	39%	1,573	19%	9%	0.48
Bell South	22,440	10,545	47%	1,423	17%	8%	0.35
Lucent	12,321	(3,257)	(26%)	(11,753)	4%	–	0.37
Nortel	10,560	(841)	(8%)	(3,585)	3%	(46%)	0.32
Qwest	19,965	7,353	37%	(4,023)	43%	(3%)	2.95
SBC	43,138	17,171	40%	7,473	17%	15%	0.25
Sprint	15,182	4,488	30%	1,208	14%	15%	0.30
Sprint PCS	12,074	2,880	24%	(578)	22%	(4%)	2.97
Verizon	67,625	25,673	38%	5,854	19%	8%	0.46

* Qwest data is for FY 2001

AT&T

AT&T's Index weighting decreased significantly, from 13% on 1 January 2000 to 4% on 31 July 2003.

The 92% drop in AT&T's market capitalization, from $201 billion to $17 billion, reflected a decline in its share price from $266.8 to $18.12. As a result, AT&T underperformed the Index average by 20%.

AT&T's asset base also declined significantly during the

Index period. In 2001, the company sold off its cable assets, AT&T Broadband, to cable giant Comcast for $47 billion in stock and $25 billion in assumed debt. That deal closed in 2002,a year that also saw AT&T spin off Liberty Media.

The company is now focused on business and consumer telecom services. Its biggest revenue generator is its business services unit, which offers a full range of voice and data services.

AT&T, ranked No. 22 in the Fortune 500, remains the leading provider of long distance telephone services in the US. However, competition has driven rates to all-time lows, and customers are being lured to the unlimited long distance plans that nearly all wireless providers offer. Additionally, analysts believe the company did not act aggressively enough to capitalize on MCI (formerly WorldCom)'s old customers. MCI, the No. 2 long distance company, is set to re-emerge soon from bankruptcy reorganization. Because the new company will be relatively free of debt, AT&T could be hurt if MCI decides to undercut established rates.

BCE Inc.

BCE's Index weighting remained constant at 5% at both 1 January 2000 and 31 July 2003.

Compared with the Index, BCE slightly outperformed the average three-year return. While its market value dropped 72%, its 39% EBITDA margin is much stronger than others in the Index, and it achieved a lower debt level with a 0.48 debt-to-market capitalization.

Canada's largest telecom company, BCE owns Bell Canada in the local and long distance segments, Bell Mobility in wireless and smaller companies that provide Internet access and satellite communications. Among these is Bell ExpressVu, which has more than 1.3 million satellite TV subscribers. BCE took full ownership of Internet portal Sympatico in 2002, acquiring the 29% formerly held by Lycos.

Although the company recorded an 8% drop in revenue from 2001 to 2002, it increased net income for the same period by 378%, to $1.6 billion.

BellSouth

BellSouth's Index weighting increased from 6% on 1 January 2000 to 11% on 31 July 2003. Although its market value dropped by 46% from $87 billion to $47 billion, reflecting a share price decrease from $46.25 to $25.47, BellSouth ended the period outperforming the Americas Index average by about 28%.

As measured by customers, BellSouth is the third largest ILEC in the US, with 25 million local access lines in the Southeast region. The company also operates in 14 other countries. However, these include wireless holdings in Latin America and investments in Europe and Israel that it intends to sell.

In 2001, BellSouth stopped operating its pay phones, which had drawn less traffic as mobile phone use increased. It expanded its DSL services and teamed up with Dell Computer to offer DSL-equipped PCs. That year, it also reduced its non-management workforce by 1,200 jobs and began consolidating its retail and wholesale domestic operations.

In 2002, BellSouth traded its stake in German mobile carrier E-Plus to Royal KPN of the Netherlands for a 9% stake in the Dutch operator. It later sold its KPN stake and announced plans to divest its other European holdings. That year the company also entered into a four-year, $350 million wholesale services agreement with Qwest and announced plans to further reduce its workforce by 4,000 to 5,000 employees.

In 2003, BellSouth discontinued its Web hosting business and agreed to team up with IBM to offer business services, primarily in its incumbent operating region.

Lucent

By most measures, Lucent was the hardest hit of any company in the Americas Telco Index. Yet, while its Index weighting dropped from 16% on 1 January 2000 to 2% on 31 July 2003, the company remains a global leader in telecommunications equipment as measured in revenue.

In actual dollars, Lucent's market capitalization decreased 97%, from $261 billion to $7 billion, reflecting a drop in share price from $77.13 to $1.76. As a result, it underperformed the Index average by almost 30%.

Once the equipment manufacturing division of AT&T, Lucent has undergone a massive restructuring since 2000 that included laying off tens of thousands of employees and spinning off many non-core businesses to raise cash. The company, led by 20-year Lucent veteran and former Eastman Kodak COO Patricia Russo, now primarily markets to only the largest global communications providers.

Lucent's debt-to-market capitalization was at 0.37 at the end of 2002, reflecting the company's efforts to sharply reduce debt. In 2001, it spun off part of Agere ($5 billion in revenue) to the public and sold many other assets to raise cash. Lucent also divested its power systems unit (Celiant) and spun off both its enterprise network business (Avaya) and part of its microelectronics unit (Agere Systems) to the public. Later that year, the company sold its fiber optic cable business to Furukawa Electric. In all, layoffs, divestitures and early retirement shrank Lucent by about 39,000 employees during the Index period.

In 2002, Lucent recorded a net loss of more than $11.7 billion and an EBITDA margin of -26%

Nortel

Nortel's Index weighting decreased from 10% on 1 January 2000 to 3% on 31 July 2003.

Similar to its main competitor, Lucent, Nortel saw its market capitalization dropped by 92%, from $156 billion to $13 billion, reflecting a decrease in share price from $50.47 to $2.95.

In 2000, Nortel increased its purchasing pace to boost fiber optics and software holdings, acquiring optical equipment startups Qtera, CoreTek and Xros as well as a maker of communication service activation software, Architel Systems. Later that year Nortel acquired Web switch maker Alteon WebSystems and Internet access equipment maker Sonoma Systems.

In 2001 the company announced, then postponed plans to take its fiber-optic components business public. Instead, amid an economic downturn, Nortel laid off 30,000 employees and scaled back its digital subscriber line operations. Frank Carlucci stepped down that year after only one year as chairman.

In 2002, Nortel decided to cut an additional 20,000 jobs and sell its Clarify customer service software business (originally purchased for $2.1 billion) to Amdocs for $200 million. It also restructured its fiber optic business, cutting jobs and selling some of its optical components assets (advanced tunable lasers, transmitters, receivers and amplifiers) to Bookham Technology.

Qwest

Qwest's financial results for 2002 were unavailable for our Index analysis because the company's accounting practices were being investigated by the Securities and Exchange Commission. The company was formerly audited by Arthur Andersen, but has since switched to KPMG. As of April 2003, Qwest reported substantial progress in restating its financial statements for 2000 and 2001 but said it would be unable to complete its annual 10-K filing on time. For that reason, Figures 10 and 11 use 2001 financials.

Using those figures, Qwest winds up in a similar position to other US incumbents, with a net loss in income. However, its debt-to-market capitalization level was higher than other ILECs.

Overall, Qwest is the fourth largest ILEC, with 25 million local access lines in 14 states in the Midwest. In 2001, the company decided to halt some network expansion plans and to reduce its workforce by more than 25%.

SBC

SBC's Index weighting increased from 11% on 1 January 2000 to 19% on 31 July 2003. While its share price decreased from $47 to $23.36, its overall market value outperformed the Index average by 23%.

Compared with Verizon, SBC's wireless operation – Cingular, which it co-owns with BellSouth – has been less successful in generating subscriber growth. Consequently, SBC is now testing a service in Texas, one of its regional bases, that enables customers to choose a service plan that shares allotted minutes between SBC landline and Cingular wireless services. This represents a risky experiment in which the carrier appears to be eliminating the advantage of a mobility price premium.

SBC has been the most successful ILEC in the DSL market. At the end of 2002, it had 2.5 million subscribers, up nearly 70% from one year earlier. The company has also shown interest in acquiring a video service to strike back at Comcast cable which now has 1.8 million telephony subscribers, most of which it acquired with AT&T's cable system. SBC entered the bidding process for DirecTV but ultimately dropped out due to the bidding power of Rupert Murdoch's NewsCorp.

Sprint

Sprint's Index weighting remained fairly level, decreasing slightly from 4% on 1 January 2000 to 3% on 31 July 2003. It slightly under-performed the Index average, decreasing in market value by 78% as its share price dropped from $65.94 to $14.12.

As noted elsewhere (see Verizon), Sprint is increasingly facing competition in the long distance market from the Bells. But not all customers are equally profitable, and although it dropped from third to fourth in total number of households served, it still maintains a higher number of heavy business users than Verizon has.

Since 1991, Sprint has cut more than 17,000 jobs. In early 2003, in a move to pay down its $21 billion debt, the company sold its directory publishing unit to R.H. Donnelley for $2.1 billion. Sprint has also announced plans to exit the Web hosting business, which will cut about 500 jobs.

Sprint PCS

The Index weighting of Sprint PCS, Sprint's separately traded wireless division, decreased from 3% on 1 January 2000 to 1% on 31 July 2003. It is the fourth largest wireless provider in the US, behind Verizon, Cingular and AT&T Wireless.

The company achieved a three-year CAGR of 38% (see Figure 9), one of the highest rates of revenue growth in the Index, due to healthy growth of US wireless customers. In 2000, the average monthly minutes used by customers was 200; by 2002, that mark had doubled to more than 400 minutes per month. At the same time, competition resulted in cheaper rates and free unlimited long distance calling.

Sprint's EBITDA is in line with other major telecom companies, although its market capitalization during the period fell 88% and it under-performed the Index average by about 17%.

Sprint PCS, which operates throughout the US and in Puerto Rico and the US Virgin Islands, announced plans in 2002 to cut 4,000 jobs and close five call centers to reduce costs. The company also sold much of the assets of its Paranet computer network services unit to the Texas-based technology consulting firm Vivare.

Verizon

Verizon's Index weighting increased from 11% on 1 January 2000 to 23% on 31 July 2003, pushing it to the top of the Index. Now the largest ILEC in the US market as measured by operating revenue, Verizon also has a 55% ownership stake in Verizon Wireless, the nation's largest mobile carrier. Together, these factors have made it a dominant force in the US telecom industry

Even so, its market cap fell 42%, from $165 billion to $96 billion, reflecting a drop in share price from $59.94 to $34.86.

Verizon has been the most successful of the Bell companies in getting the approval of the US Federal Communications Commission (FCC) to expand into long distance services on a state-by-state basis. It was the first ILEC to offer long distance when it entered the New York State market in December 1999, and earlier this year, it became the first to offer nationwide service. Recently, Verizon surpassed Sprint, a long distance pure play, to move up to third among the nation's largest long distance providers, boasting 10.4 million customers to Sprint's 9 million.

Verizon launched an ambitious DSL pricing strategy to build upon its base of 1.8 million broadband subscribers, lowering its monthly price from $50 to $35. Industry analysts believe the price cut will enable it to compete more effectively with cable modem services, which dominate the US high-speed access market with 68% of all broadband subscribers.

Verizon has also been aggressive in the incipient market for 802.11b wireless Internet access. In May 2003, the company announced the first major launch of a WiFi hot-spot service. It has already equipped 150 of its 1,000 phone booths in Manhattan with WiFi transmitters and has announced plans to hook up the remainder by year's end. The service, available at up to 300 feet from a transmitter, is being offered as a free add-on to its DSL customers.

Europe

Executive Summary

Three factors have differentiated the fortunes of Europe's telecommunications companies in recent years and will continue to do so for the foreseeable future. Whether the company in question is fixed-line or wireless, incumbent or competitor, service provider or equipment maker, its fate is tied to the vicissitudes of scale, debt and regulation.

The advantage of scale is such that incumbent operators, the original fixed-line state providers, dominate markets throughout European in both wireless and fixed-line markets. Despite an increasingly open regulatory climate driven by the European Union, the incumbents have, without exception, largely retained their customer base and market share. But in each case they bear battle scars in the form of often staggering debt loads.

Ambition and Turmoil

With European Union member states having liberalized their fixed-line telecom markets in 1998, operators of all sorts were competing for customers — incumbent fixed-line operators, alternative network operators and cable companies. Incumbent operators looked outside their domestic markets to compensate for anticipated losses in domestic market share. Alternative network operators such as KPN Qwest and Viatel crisscrossed the continent with an excess of fiber that could take a generation to light. Cable companies upgraded their networks to merge voice, data and Internet broadband services.

The auctioning of 3G wireless licences also provided the opportunity for mobile operators to establish a foothold in foreign markets. With penetration seemingly reaching saturation in most areas, mobile operators looked to 3G as a solution to reverse declining average revenue per user (ARPU) and to address capacity constraints. For operators and the financial community, the perceived risks of leaving empty handed were far greater than the risks associated with incurring debt to pay for a 3G license. The UK government raised $41.2 billion through an auction process, far beyond anyone's expectations. Based on this showing, other governments realized that 3G license fees could be valuable and tried to maximize their revenue, touching off a feeding frenzy for 3G spectrum. The outcome was disappointing for most governments, as the UK, German and Italian governments captured 85% of the total income from licences across Europe.

Top-line revenue in the industry as a whole was artificially inflated by interconnection fees created by the liberalization of fixed-line markets and the boom in mobile penetration. Interconnection revenue received by one operator was offset by equal costs incurred by another, resulting in zero cash flow for the industry. For example, in the UK 16% of total industry revenue was from interconnect in 1998; by 2002 this had risen to 25%, equivalent to the mobile share of industry revenue. So, while the industry reported double-digit revenue growth over this period, zero-sum interconnect fees represented more than 40% of this growth.

Moreover, the top-line growth attracted high-risk investors and roiled the markets. The incumbents and leading competitors reacted by taking on massive amounts of debt, both to purchase spectrum and to finance a wave of acquisitions.

An Industry on Pause

The current industry trend in Europe is restructuring — selling off minority stakes and non-core assets, closing sub-scale businesses and re-assessing strategy. BT, for example, restructured itself into four units and spun off its mobile arm. Cable & Wireless announced plans to refocus on its national telcos and drive their performance, and many companies, including Telefonica, Deutsche Telekom, and France Telecom wrote down their assets.

The industry as a whole is focusing on debt reduction and cash generation. As telcos have pulled back from their international ambitions, incumbents have faced less of a threat from new entrants. Declining competitive pressures, in turn, are reducing aggregate levels of capital expenditure, which will improve free cash-flow levels. Moving away from EBITDA and toward free cash flow as a measure of financial performance, the incumbents are using their dominant market position to generate huge amounts of cash with which to buy down debt and finance growth.

Mobile operators have all delayed the rollout of 3G networks. (The exception is "3," a 3G pure play that has no 2G facilities.) Given the short-term failure of equipment makers to deliver cheap, technically sustainable 3G handsets on a large scale, operators are content for now to sit on their vast investments in spectrum until the availability and technology of dual-mode 3G-GSM handsets generates the critical mass to justify network upgrades. Still, a strong faith in 3G remains, and while widespread

rollout is expected to be delayed by two to three years, the consensus is that it will take place. At a time when the voice market is relatively flat, operators are experiencing healthy growth in mobile data, primarily driven by the highly profitable short messaging services (SMS), suggesting that the far richer data capabilities of 3G promise continued growth.

While the pause has allowed operators to strengthen their balance sheets, turning off the tap on 3G rollouts has had a devastating impact on equipment manufacturers such as Ericsson, a supplier of network infrastructure. Handset makers, with the exception of Nokia, are struggling in a market surviving largely on replacement units. Five years from now, we expect the operators will have spent as much money on network rollouts as they would have spent if development had not been delayed, but the change in timing could have a long-term negative impact on equipment makers.

Playing by the Same Rules

In both the mobile and fixed-line markets, regulation ranks among the top three strategic issues faced by operators, but particularly by dominant players. For the top 10 companies in our European Index, regulation will fundamentally determine the competitive landscape. In the wireless space in particular it will dictate mobile termination rates. In the fixed-line space, incumbent operators will be faced with wholesale price controls, allowing competitors to achieve sustainable gross margins, with competition driving retail prices.

Major differences in rates and access from country to country would result in chaos were it not for the European Union's far-reaching telecommunication directives, which have been, or are, in the process of being adopted by the member states. Moreover, countries that are not EU members are typically adopting the directives as de facto standards.

Looking Forward

Incumbents will see stable levels of competition as restructuring becomes the theme. Combined with decreased interconnect rates and optimized operational models, we expect to see falling sales growth and high or stable margins. This will encourage free cash flow, which in turn can be used to pay down debt and help finance growth.

Developing plans for growth will be the key for the incumbents as fragmented, niche competitors are consolidated into viable alternative carriers and competition intensifies. Restructured alternative network operators will be supported by regulatory authorities focused on promoting sustainable competition. Further, as cable companies' financial positions stabilize, providing the wherewithal to invest in voice products, the risk of further loss in market share by incumbents rises.

The requirement to own network infrastructure may no longer be a prerequisite. Virgin Mobile has already shown that profitability does not require a network. Vanco is making a case to win corporate business by providing Internet protocol virtual private network (IPVPN) services through agreements with a number of operators. "White labeling" will grow as companies like supermarket giants Tesco and Sainsbury and banks like Lloyds TSB leverage their respective brands to enter the telecommunications arena.

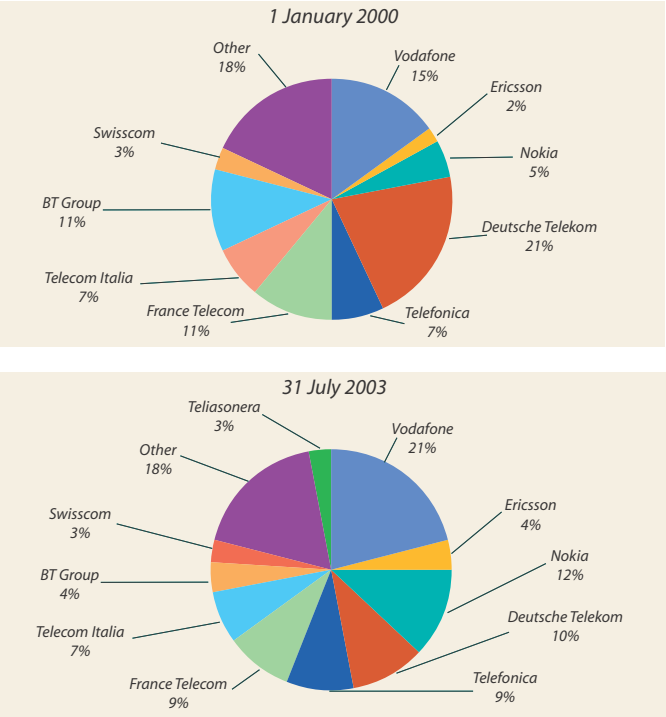
In the end, although incumbency is of supreme value now, significant challenges lie ahead as regulation promotes sustainable competition.

The European Telco Index: Movements and Analysis

Index Composition

The Deloitte European Telco Index charts the progress of major listed telecommunications companies in the European Region. The market capitalization fell 67% per figure 3, from $1.02 trillion to $630 billion, over the period, 1 January 2000 to 31 July 2003. The major entities within this Index are represented in Figure 12.

Figure 12: European Telco Index Composition



The major winners were Vodafone (up 6%) and Nokia (up 7%), with the incumbents, including Deutsche Telekom, France Telecom and BT, performing less well. It is also important to note that the market capitalization of all top 10 companies except Nokia and Ericsson decreased over the period.

Figure 13 below compares the Deloitte European Telco Index with the Deloitte Global Telco Index and the FTSE 100. The European Index fell from 1,000 to 329 over the period 1 January 2000 to 31 July 2003, with a peak of 1293 and a low of 208.

Figure 13: European Telco Index

Sector Analysis

European incumbents have performed in line with the sector overall, mainly due to their heavy weighting in the mobile Index. However, their relatively large dip in market performance in mid to late 2000 reflected the view on the part of investors that the huge sums these companies had paid for 3G licenses had increased debt to unsustainable levels. Performances by companies after that period have largely depended on how well each has managed its financial and strategic restructuring.

Mobile players have outperformed the other sectors in the Index, largely due to Vodafone's high weighting. Vodafone has produced solid performance over the Index period, and in general the wireless industry has seen relatively good revenue growth with respectable margins. In addition, the majority of Vodafone's acquisitions were shares-based and therefore did not create the large debt levels of the incumbents.

For cable companies, the Index reflects positive sentiment across the industry in early 2000, followed by a fall from grace when their high levels of investment returned very low revenue as compared with incumbents, making debt levels unmanageable. Many are undergoing debt-for-

equity swaps in response to high debt repayment costs. Some cable companies, such as is in Germany, were not able to stay the course. Alternate network carriers (AltNets) also underperformed as excess capacity caused retail prices to drop faster than interconnection costs declined, forcing many to restructure or go out of business.

Equipment makers have performed below average overall due to the slowdown in network infrastructure purchases by operators and the bankruptcy of cable and AltNet companies. This slowdown was most pronounced in early 2001 when bankruptcies took their toll on orders.

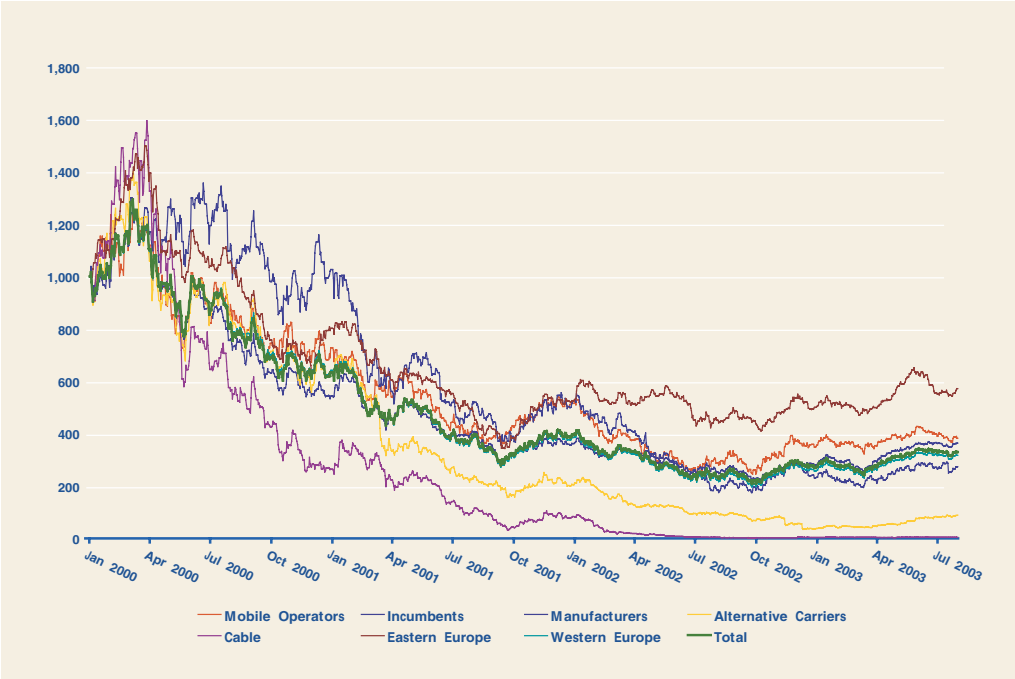
Geographic Analysis

The chart below reveals two geographic trends: The overall Index's domination by Western Europe and Eastern Europe's significant out-performance of the Index as a whole.

Eastern Europe performed comparatively well due to the privatization of incumbent companies and the lessons learned from Western Europe's 3G license auctions, which enabled carriers to avoid huge debt levels. In addition, the impact of mobile substitution for fixed-line services was not as great, since the incumbent invariably has a majority stake in mobile operations and can therefore mitigate the risks. Finally, Western European companies, perceiving Eastern Europe's low levels of penetration and competition as conducive to growth, made direct investments that further improved performance.

Figure 14 below details the major sector and geographic constituents of the overall Index.

Figure 14: European Telco Sector Performance



Comparative Company Performance

Figure 16 below illustrates the relative performance of industry leaders within the European Index.

Figure 15: Comparative performance of Top 10 Telcos in Europe

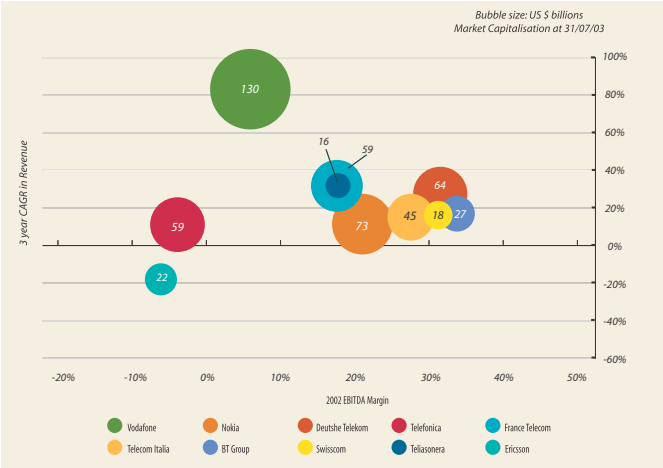


Figure 16: Top 10 Company performance relative to the Deloitte European Telco Index

Nokia performed well due to its focus on operational efficiency, and it benefited from continued growth in the global handset market. In contrast, Ericsson, whose business largely depends on the market for network infrastructures, saw revenue decrease.

The three companies that fell below the Index average were all incumbents — France Telecom, which undertook huge asset write-downs over the period, Germany's Deutsche Telekom and the UK's BT Group, which also de-merged its entire mobile operation, O2. Indeed, only in recent quarters of 2003 are these large incumbents beginning to turn profits.

Vodafone outperformed the incumbents due to its higher revenue growth and the expansion of its customer base through stock-financed acquisitions. The resulting lower debt levels, compared with the sector as a whole, improved its market capitalization and balance sheet considerably. In the past year Vodafone has made a concerted effort to maximize its stakes in mobile operators within its portfolio in order to maximize control.

Figure 17 below provides a comparison of the historic earnings performance of the ten largest companies in the European Index as determined by market capitalization.

The aggregate market capitalization of these 10 companies — $516 billion at 31 July 2003 — constitutes approximately 82% of the European Index.

Figure 17: Financial Performance of Top 10 Telco in Europe

Company	2002 Operating Revenue (US$m)	2002 EBITDA (US$m)	2002 EBITDA Margin %	2002 Net Profit (US$m)	2002 Debt to Market Cap
BT Group	33,098	11,160	34%	1,639	1.11
Deutsche Telekom	56,338	17,721	31%	(25,502)	1.11
Ericsson	16,730	(996)	(6%)	(2,143)	0.29
France Telecom	48,930	8,525	17%	(21,937)	1.41
Nokia	31,497	6,600	21%	3,602	0.01
Swisscom	10,506	3,255	31%	817	0.13
Telecom Italia	31,900	8,683	27%	311	0.45
Telefonica	29,813	(1,126)	(4%)	(11,933)	1.52
Teliasonera	6,827	1,192	17%	(918)	0.22
Vodafone	36,778	2,106	6%	(25,242)	0.16

British Telecom (BT)

BT Group's Index weighting fell from 11% on 1 January 2000 to 4% on 31 July 2003.

Revenue of $33.1 billion in 2002, a decline of almost 4% over the previous year, show a clear slowdown in growth. In contrast, BT's revenue grew by nearly 15% from 2000 to 2001.

By restructuring its business into four units, BT was able to ensure that it would not lose out in the transit business backhauling traffic. A major element of its restructuring was the sale of wholly owned mobile operator BT Cellnet. EBITDA of $9.6 billion from continuing operations represented a margin of 7%, a decrease of just over 5%, compared with 2001. The primary cause of the decline was interconnect costs that favored mobile carriers in the UK and increasing substitution of mobile phones for fixed-line service. Were it not for these factors, BT would have one of Europe's highest EBITDA margins. The UK regulator has mandated that interconnect payments for mobile-originated calls terminated on the fixed network should fall; the first decline took place in July 2003.

Capital expenditures of $4.4 billion equaled 13% of sales, down from $5.6 billion in 2001. The focus of current capital expenses is to drive down operating expenses. BT's investment in a new network is expected to save $1.6 billion per year by 2008

Overall, BT is perceived by some market analysts as evolving into a utility business. Its core voice business declined 1% last year. Its so-called 'new wave' business was up 19%, for a growth of 2% overall. BT faces several future cash flow risks, including market share loss to cable companies, white labeling by Tesco, Carphone Warehouse, OneTel and other operators, and the substitution of mobile for fixed-line services. Mobile currently accounts for only 28% of total voice minutes in the UK, despite the fact that mobile connections outnumber fixed lines. Pricing competition in retail and the shift of regulatory focus from retail to wholesale pose great risks for the incumbent.

There are also some positives to consider. The highest growth is expected via BT Ignite, the group's international solutions and broadband business. Another positive is that DSL penetration targets have been exceeded, with more than 1 million subscribers by June 2003, and regulatory changes to the UK's mobile interconnect structure should improve BT's EBITDA margins. In July 2003, BT announced it would re-enter the mobile market offering bundled fixed and mobile service, the latter based on T-Mobile's UK network.

Deutsche Telekom

Deutsche Telekom's Index weighting dropped from 21% on 1 January 2000 to 10% on 31 July 2003.

Revenue of $56.3 billion in 2002, with a three-year CAGR of 15%, was the largest in the peer group, reflecting a growth rate achieved through gains in the UK and US markets that offset the depressed German market. The company's debt still overshadows revenue, with $56 billion debt remaining as of Q1 2003.

A solid EBITDA margin of 31%, with a three-year CAGR of 6%, was achieved by consolidating assets and cutting costs. Yet growth has been low due to its exposure to Germany's weak economy (73% of total revenue) and high expenditures for marketing.

Capital expenditures of $8.01 billion, were 14% of sales, but this will decline as Deutsche Telekom seeks to ease debt levels and increase cash flow by restructuring its balance sheet.

Ericsson

Ericsson's market capitalization declined from $20.7 billion on 1 January 2000 to $15.6 billion on 31 July 2003.

Revenue of $16.7 billion in 2002 resulted in a three-year CAGR of -12%, primarily due to declining equipment purchases by the telecommunications sector. However, its joint venture with Sony (Sony Ericsson) is improving top-line revenue through the production of some popular handsets such as the T68i.

Ericsson had a negative EBITDA margin -6% in 2002, but that result was an improvement over the previous year. Efforts are under way to reduce costs and restructure effectively for the near term, until stability returns and growth in systems expenditures resumes.

Research suggests the next five years will see a 6% growth in mobile infrastructure outlays by the large operators, which should benefit Ericsson more than its peers.

France Telecom

France Telecom's Index weighting decreased from 11% on 1 January 2000 to 9% on 31 July 2003.

Group revenue of $48.9 billion in 2002 represented an 8% increase over the $45.1 billion reported in 2001. Revenue growth achieved by Orange and international operations,

including Equant, plus returns on international telecom investments, were offset by declines in domestic voice and data fixed-line services. A solid EBITDA of $8.5 billion, or 17%, remained stable largely due to the success of Orange.

Orange has given guidance that it will fully leverage its existing 2.5G networks and delay 3G build-outs in areas where regulation permits and where there are no strategic implications.

The ratio of capital expenses to sales was approximately 16%. However, the company has announced plans to hold the ratio to under 13%, on average, through 2005. The new CEO's strategy, set out in late 2002, focuses on improved cash flow, state-backed credit availability and preparing for a capital increase through disposal of assets, improved operational efficiencies in all operating areas, cutting the dividend and reducing employees.

Nokia

Nokia's Index weighting increased from 5% on 1 January 2000 to 12% on 31 July 2003.

Revenue of $31.5 billion in 2002, with a three-year CAGR of 15%, can be attributed to Nokia's dominance in the handset market, to its first-mover advantage in phone technology and to the good performance and coverage of its networks.

Nokia achieved an EBITDA margin of 21% in 2002 as the company managed a 14% reduction in the cost of sale per phone. These economies were realized despite its relatively high research and development expenditures, which add value to the company, and marketing expenses, which are an investment in brand strength and market position.

Capital expenditure of $453 million in 2002 equaled 1.5% of sales. That was down by more than $630 million over 2001 as result of cost cutting.

Nokia's exposure to the US/EU exchange rate and price pressure from increased competition represents a risk to EBITDA. However, by focusing on reducing the cost of sales for mobile phones and maintaining its market position through research and development and marketing, Nokia is well positioned in the still-growing worldwide handset market

Swisscom

Swisscom's Index weighting remained unchanged from 1 January 2000 to 31 July 2003, at 3%.

Net revenue of $10.5 billion in 2002 equaled a year-over-year decline of almost 3%. However this masks the under-performance of core business revenue, which was down more than 9%, and the flat revenue performance of the mobile division.

National fixed-line traffic was down by 21% year over year (artificially inflated due to the recent introduction of automatic carrier pre-selection), while access revenue rose almost 7% as DSL subscribers quadrupled. Flat mobile revenue can be attributed to a better than 80% mobile penetration in Switzerland.

EBITDA in 2002 was $3.3 billion, a margin of 31% based on net revenue and a small increase over 2001. In view of Swisscom's declining revenue over the period, stable EBITDA results were impressive, mainly due to the strong performance of the mobile division's margins.

Capital expenses reached $846 million, about 8% of net revenue, although capital spending in the broadband division went up by 8% due to the large increase in DSL subscribers.

Going forward, it will be more difficult for Swisscom to rely entirely on the mobile division for growth, and ever increasing margins are likely to attract the attention of regulators. Other key risks include increased competitive pressure from Cablecom and the announced reduction of the government's stake from 65% to 51% which could dilute share value unless it leads to a stock buyback by the company at levels below market prices.

Telecom Italia

Telecom Italia's Index weighting remained unchanged at 7% from 1 January 2000 to 31 July 2003.

Revenue of $31.9 billion in 2002 represented a 1.4% decline over 2001 due to negative growth in domestic fixed-line services, which account for 51% of revenue, and a near-saturated domestic mobile market.

With Telecom Italia having fixed-line market share in excess of 94% and its mobile unit Telecom Italia Mobile the market leader, the company as a whole is well positioned in its domestic market. It reported EBITDA of $8.7 billion, a better than 27% margin, due to high margins in the mobile division coupled with a resilient fixed-line business (relative to other European incumbents) and operational efficiencies.

Capital expenditure was $5 billion, equaling 16% of sales. While relatively high, that ratio is sustainable due to solid

revenue and the EBITDA margin. Average net debt was $19 billion in 2002, set to decrease to $11.9 billion by 2005 as cash earnings increase and non-core assets are divested.

Although Telecom Italia is already one of the strongest cash flow generators among its peers, cash flow should increase even further due to proposed changes in the Italian tax laws. It is also expected that once the merger with Olivetti is complete, there should be 40% fewer shares in the market and 47% less market capitalization. The company has a stable revenue base in its core domestic market due to low competition, low regulatory risk, improved efficiency through cost cutting and improved cash flow through disciplined capital expenditures. Allied to this are the mobile division's high margins and growth opportunities in Greece and South America.

Telefonica

Telefonica's Index weighting increased from 7% on 1 January 2000 to 9% on 31 July 2003.

Revenue fell almost 9% last year to $29.8 billion, with a below-average three-year CAGR of 7%, due largely to its high exposure to Latin American exchange rates. While the slowing growth is also due to the maturity of the Spanish market and increased competition, Telefonica is well positioned for growth opportunities in South America. A pre-exceptional EBITDA margin of 4% remained flat last year due to a good performance in domestic wireless and fixed-line services, offset by the depreciation of Latin American currencies, particularly those of Argentina and Brazil.

Capital expenditures of $4.1 billion were 14% of sales.

Telefonica anticipates improved performance next year thanks to more robust fixed-line margins and more stable currencies in Latin America, though the latter remains the company's biggest risk. In addition, the restructuring of

non-core assets in 2002 will improve cash flow and enable further acquisitions to improve top-line growth

Teliasonera

TeliaSonera had no Index weighting on 1 January 2000 because the merged company was not publicly traded. It ranked at 3% on 31 July 2003

Pro forma revenue of $6.8 billion per figure 17 in 2002 with a three-year CAGR of 5% represented low growth due to the maturity of the Nordic market and to the company's comparatively low level of acquisitions. However, a solid pro forma EBITDA margin of 41% per figure 17 was an improvement over its 27% margin the previous year. This was due in large part to the increased efficiency in Swedish fixed network operations and increased profitability in all Nordic mobile markets.

Capital expenditures of $1.26 billion represented 14% of sales.

TeliaSonera's immediate focus is on achieving synergies from the merger of Telia and Sonera, while winning back domestic market share (Sweden provides 75% of total revenue) through increased marketing, improved restructuring of under-performing operations and reducing costs through job cuts. Synergies from the merger were estimated to reach $59.7 million in 2003; as of July 2003 TeliaSonera reported it was hitting synergy targets faster than planned.

Vodafone

Vodafone's Index weighting increased from 15% on 1 January 2000 to 21% on 31 July 2003.

The wireless carrier achieved revenue of $36.8 billion in 2002 and a three-year CAGR of 70%, the highest in the peer group. This growth rate can be attributed to large increases in the company's subscriber base, facilitated by several key acquisitions. As of March 2003, Vodafone had approximately 120 million customers. A small but significant number of these — two million by July 2003 — had signed up for Vodafone's cross-country multimedia platform, Vodafone Live.

A series of acquisitions and divestments of other mobile communications companies provided economies of scale and operational efficiencies, giving the company an above-average pre-exceptional EBITDA margin of 37% per figure 17.

Capital expenditures of $8.8 billion equaled 24% of sales, though management has said it is working to cut this to 10% by 2008, Vodafone's relatively high capital-expenditure-to-sales ratio supports a competitive strategy of exploiting its balance sheet. If it cuts prices or increases handset subsidies, rivals could easily follow suit. However, competitors would find it far more difficult to increase their capital expenditures. High capital expenditures have also enabled Vodafone to provide superior network quality and more advanced services, which in turn have resulted in lower churn.

Because Western European markets are highly penetrated, Vodafone is now looking at growing revenue from data services, with a target of data comprising 20% of overall revenue by 2004.

Asia Pacific

Executive Summary

Due to its size, geographic spread and regulatory and cultural differences, the Asia Pacific region is a patchwork of markets compared with the relative homogeneity of the Americas and Europe. This diversity ranges from the mature, technologically advanced markets of Japan and Taiwan to the relatively infant and less developed markets of the Pacific Island nations and Southeast Asian countries.

In line with the trends experienced in the Americas and Europe, the Deloitte Asia Pacific Telco Index, which is dominated by Japanese companies, suffered a substantial decline of 70%. Clearly the Asian telco sector is not immune from the negative sentiment and turmoil experienced in the global telco market, particularly from the implosion of the technology markets and high profile corporate collapses. Telco enterprises within Asia Pacific must now strategically place themselves to take advantage of growth prospects throughout the region.

As a result of Japan's continued deregulation of the sector, local telco companies have experienced significantly lower margins than their regional peers, while incumbents in countries that face little competition have been able to maintain a high degree of profitability. Despite the growth achieved in the region, the fall in the Deloitte Asia Pacific Telco Index suggests that unrealistic growth expectations – such as the predicted "data explosion", which has yet to materialize – had over-inflated share prices prior to 2000.

China: Growth Engine

Growth prospects, fueled by continued deregulation and low mobile penetration rates in many countries within Asia, will provide a platform for recovery within the Asia Pacific region. In China and India, relatively low penetration rates, combined with continued deregulation, rising wealth per capita and huge populations, present attractive opportunities for telco businesses.

With a mobile penetration rate of just 16%, China's subscriber base is currently growing at about 4 million new subscribers per month.

China has been a rare source of demand for global, regional and domestic equipment vendors, spurring every major vendor to establish a manufacturing presence there. As a result, the handset market in China is fiercely competitive, with dozens of foreign and domestic handset manufacturers currently supplying both CDMA and GSM handsets to the market. Nokia and Motorola each now supply approximately one quarter of the market, while Siemens and Samsung each have an 8% market share.

Regulatory goals: Market Liberalization

The recovery of the telecommunications sector in the Asia Pacific region is being bolstered by governmental commitments to a more liberalized environment for telcos while protecting domestic operators from the entry of foreign carriers. For example, the Chinese government's "staggered" investment strategy, which initially limited foreign carriers to 25% ownership of joint ventures, will now allow them to increase their investment up to 49% over a three-year period.

In general, telecom regulation throughout the region has leaned toward encouraging competition, which has resulted in world-class infrastructures in many developing countries, some of which have had the benefit of skipping older generations of technology. In general, the growth of telecom infrastructure in these countries has far outpaced other infrastructure development.

In Japan, the telecommunications industry is currently undergoing significant regulatory and legislative change aimed at promoting competition. The MYLINE system, introduced in May 2001, allowed users to select their preferred carrier for fixed-line services. This system canceled existing customer relationships and created fierce price competition, contributing to an erosion of margins. The Index period has seen numerous joint ventures and alliances forged among carriers, both domestically and abroad, in an attempt to promote global business development.

The Market Rewards Nontraditional Models

Companies with mobile and data components in their business model have outperformed their peers in the Deloitte Asia Pacific Telco Index. Conversely, companies that derive a high portion of their revenue from traditional services have seen their market capitalizations decline faster than the regional average, reflecting competitive pressures in fixed-line markets.

Mobile voice and basic data services such as short messaging service (SMS) have been the main drivers of Asia's revenue growth. While the number of mobile subscribers has increased by 35% in the past three years, mobile penetration remains a relatively low 14%, meaning that densely populated countries such as China, India, Indonesia and the Philippines represent enormous growth potential.

Pricing pressures in the fixed-line market, in contrast, have produced stagnant revenue growth, partly offsetting the growth in mobile and data services. Abundant international capacity in submarine cables, satellite and fiber optic channels has also contributed to pricing pressures within the region.

In the data services market, a good example of the region's potential is South Korea, where revenue growth has been driven mainly by data and Internet services. South Korea has the world's highest broadband penetration, about 58% of all households.

To 3G or not to 3G?

Having closely observed the European auction processes, Asia has been more cautious in its 3G licensing. The few auctions that have taken place have not commanded the same prices they attracted elsewhere, and in several countries the process has not yet begun. Moreover, countries where licenses have been assigned have generally delayed rollouts due to a perceived lack of consumer demand.

Advancement of 3G within the region has been led by Japan (FOMA, based on W-CDMA) and Korea (cdma2000). While the licensing of 3G spectrum has been slower than in Western Europe, the deployment is relatively advanced. Both markets have an unusually high penetration of data content and advanced services beyond basic SMS.

Australia's auction of 3G spectrum in 2001 went to Telstra, Optus, Vodafone and Hutchison. In all, the licenses cost about $352 million, with half of that paid by the incumbent, Telstra. So far, Hutchison is the only company that has rolled out a 3G network, and it is too early to tell whether this first deployment was a bold move or a costly experiment.

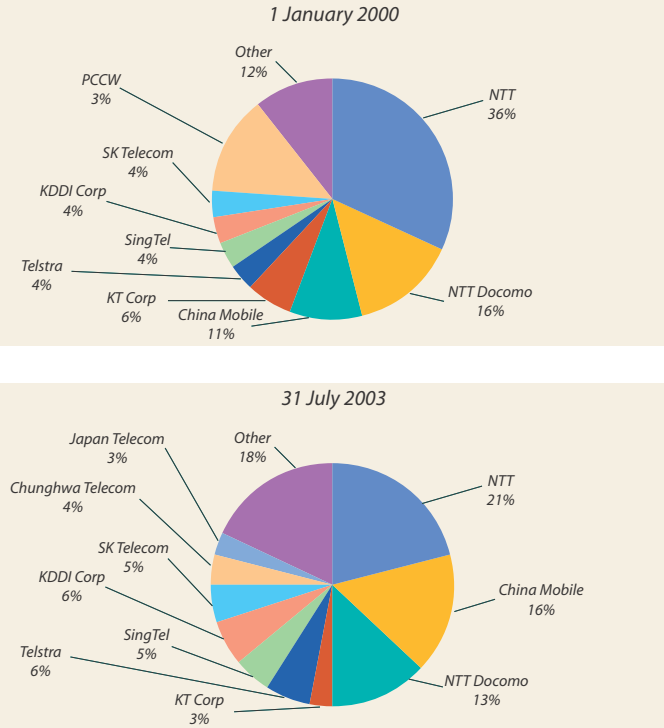
While regulation in China remains somewhat opaque, the market anticipates that 3G licenses will be issued sometime in 2004 and that fixed-line companies will be awarded spectrum to enable them to compete with the country's two core mobile operators, China Mobile and China Unicom.

The Asia Pacific Telco Index: Movements and Analysis

Index Composition

The Deloitte Asia Pacific Telco Index charts the progress of major listed telecommunications companies in the Asia Pacific Region. During the period under review the Index was represented by the following major entities:

Figure 18: Deloitte Asia Pacific Telco Index Weightings



The weighting of NTT decreased significantly, from 36% on 1 January 2000 to 21% on 31 July 2003. This can be attributed to new Index constituents, listed in Figure 19 below, coupled with the lackluster performance of NTT's share price, possibly due to its losing market share to other Japanese telco players.

In contrast, China Mobile's Index weighting rose from 11% as of 1 January 2000 to 16% on 31 July 2003. The company has taken full advantage of the phenomenal expansion under way in the Chinese telecommunications market to produce strong revenue growth on a relatively low cost base. The result has been the highest operating margin in the region.

The increase in the Index weighting of SingTel, from 4% to 5%, is largely due to its acquisition of the Australian telco Optus.

PCCW's Index weighting declined from 3% as of 1 January 2000 to 1% on 31 July 2003, due largely to negative earnings in 2000 and 2002 and to the company's heavy debt load. PCCW's share of the fixed-line market, its core business, has declined significantly over the period.

Chunghwa Telecom listed in 2001. It and the other new entrants are illustrated below in Figure 19.

Figure 19: New Entrants to the Deloitte Asia Pacific Telco Index

Company	Country	Date of entry	Market capitalization at entry date (US$b)	Market capitalization at 31 July 2003 (US$b)
China Unicom	China	July 2000	26.65	8.61
Chunghwa Telecom	Taiwan	Jan 2001	21.87	13.37
LG Telecom	South Korea	Jan 2001	0.53	0.93
Taiwan Cellular	Taiwan	Jan 2001	4.21	3.40
Time Dotcom	Malaysia	July 2001	1.33	0.71
Far Eastone Telecom	Taiwan	Jan 2002	2.15	1.72
China Telecom	China	Jan 2003	1.41	2.16
Maxis Communications	Malaysia	Jan 2003	3.48	3.87
MobileOne	Singapore	Jan 2003	0.74	0.88

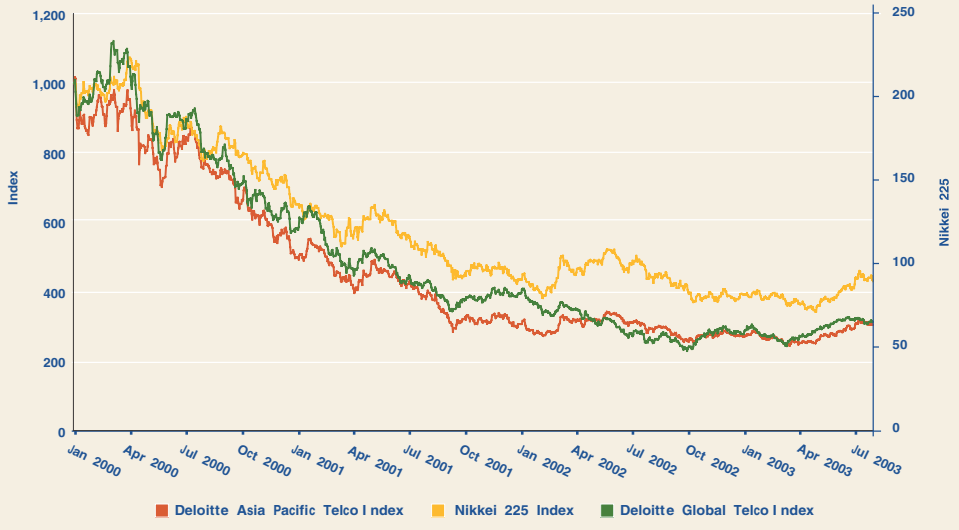
During the three-year Index period there were nine new entrants to the Deloitte Asian Pacific Telco Index, with a combined market capitalization of $62 billion as at July. But of the nine, China Unicom (China) and Chunghwa Telecom (Taiwan) were by far the largest, accounting for 78% of the new entrants' total initial market capitalization.

Chunghwa Telecom is an integrated telco, formerly owned by the Taiwanese government. China Unicom and the majority of the other seven newly listed companies are primarily mobile service providers.

The trend suggested in Figure 19 is that the focus of the new entrants is on nontraditional markets, especially mobile and Internet/data services. LG Telecom, Taiwan Cellular, Far Eastone Telecom, MobileOne and Maxis Communications do not offer fixed-line services. In the cases of the other new entrants, fixed-line operations represent only a segment of each company's respective market, such as international calls.

Of the nine new entrants, five are in the mature markets of Taiwan and South Korea, and four are in the emerging markets of China and Malaysia.

Figure 20: Deloitte Asia Pacific Telco Index 1 January 2000 to 31 July 2003



Index Movements

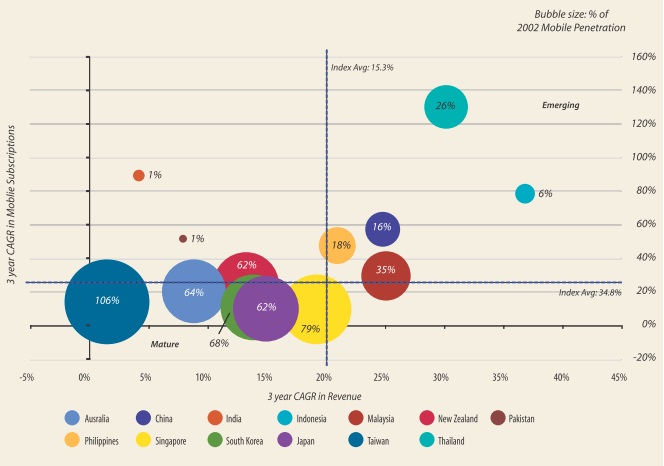
Figure 20 above compares the Deloitte Asia Pacific Telco Index with the Deloitte Global Telco Index and the Nikkei 225 Index.

The Deloitte Asia Pacific Telco Index fell 70%, from 1000 points as of 1 January 2000 to 304.8 points on 31 July 2003. The trend of the Deloitte Asia Pacific Telecommunications Index has been relatively similar to the movement of the Nikkei, in part reflecting the prominence of Japanese telcos in the Nikkei. The Asia Pacific Index also closely paralleled the movement in the Deloitte Global Index.

Asia Pacific Market Analysis

Figure 21 below compares the telecommunications markets in various Asia Pacific countries and indicates the maturity of the markets.

Figure 21: Asia Pacific Markets



With the exception of Taiwan, the Asian telco sector recorded strong revenue growth over the review period. However, the region is one of extreme demographic and economic diversity, a fact reflected in the vast differences in mobile subscriber penetration and revenue from country to country.

For example, the average penetration rate in Asia is approximately 14%, but individual rates range from 1% in India and Pakistan to 106% in Taiwan. Countries with lower penetration rates recorded stronger revenue growth than the mature markets of Taiwan, Australia, New Zealand, South Korea, Japan and Singapore.

Australia's revenue growth has lagged marginally behind Singapore, New Zealand, Japan and South Korea, in part because it was slower than some of its regional counterparts to roll out data services and broadband.

Emerging Markets: China

China recently surpassed the United States as the world's largest telco market, it also remains the world's largest emerging market. All indications suggest that the greatest leaps in growth are yet to come. Even after experiencing a three-year mobile subscription CAGR of 53%, China's mobile penetration is still only 16%.

Moreover, China's continued rapid economic expansion has fed strong demand for telecommunications products, with the market growing at approximately four million new subscribers per month. During 2002, competition in the industry intensified and market demand further diversified. Even so, by the end of the year, the market saw the first signs of slowing subscriber growth while low-end, prepaid users, the main source of revenue growth, were driving down ARPU. Chinese consumers are expected to spend 4% of per-capita disposable income on mobile communication services in 2005.

On the fixed-line side of the equation, the Chinese telecom sector is becoming increasingly utility-like, with low returns as competition has increased. The government last year broke up the China Telecom fixed-line incumbent into a northern operator (China Netcom Corp.) and a southern operator (China Telecom). The government's regulation of the telecommunications industry is expected to become more transparent following China's entry into the World Trade Organization (WTO). As the market opens further, competition will become more intense, driving down margins.

None of the publicly listed carriers in China (China Mobile, China Unicom and China Telecom) are capital constrained, which may allow for more capacity to be built in the next few years. China Netcom is likely to be listed in the next 12 months.

Other Infant and Emerging Markets

India, Indonesia, Malaysia, Pakistan, the Philippines and Thailand generally are dominated by government-owned incumbents, but liberalization is beginning to take place, with privatization opening doors to foreign investment. This should bring invaluable experience into these regions and accelerate development of the markets.

India, for instance, has a population of more than one billion, yet the telco market is growing at a fraction of the rate of the Chinese market. Despite recent attempts to liberalize the telco sector in India, with new mobile licenses being issued in recent years, two of the three dominant telcos – Bharat Sanchar Nigam and Mahanagar Telephone Nigam – are still state-owned.

Mature Markets

The Japanese market has a mobile penetration of 62% and a three-year mobile subscription CAGR of 9%. Subscriber growth has flattened only recently after several years of vigorous expansion. The slowdown coincides with a period of major changes in the sector, characterized by numerous joint ventures and alliances between carriers, both domestically and abroad, in an attempt to promote global business development.

Japan's regulatory framework is undergoing significant changes, including reform laws aimed at promoting competition. The introduction of the MYLINE system in May 2001 allowed users to select a preferred carrier for fixed-line telephone services, creating fierce competition for subscribers. At the same time, generally sluggish economic conditions throughout Japan have slowed the Japanese IT market.

Other mature markets within the Asia Pacific region include Australia, New Zealand, Singapore, South Korea and Taiwan, each generally characterized by a mobile penetration of approximately 60%. Taiwan is the obvious standout with a mobile penetration rate in excess of 100%. These markets have had to expand wireless and data services in search of growth, creating a substantial level of domestic and cross-border rationalization throughout the region.

Comparative Company Performance

Figure 22 below compares the historical earnings performance of the 10 largest companies in the Deloitte Asia Pacific Telco Index as measured by market capitalization.

The aggregate market capitalization of the top 10 companies was $706 billion on 1 January 2000, approximately 91% of the Asia Pacific Index.

Figure 22: Comparative Performance of Top 10 Asia Pacific Companies

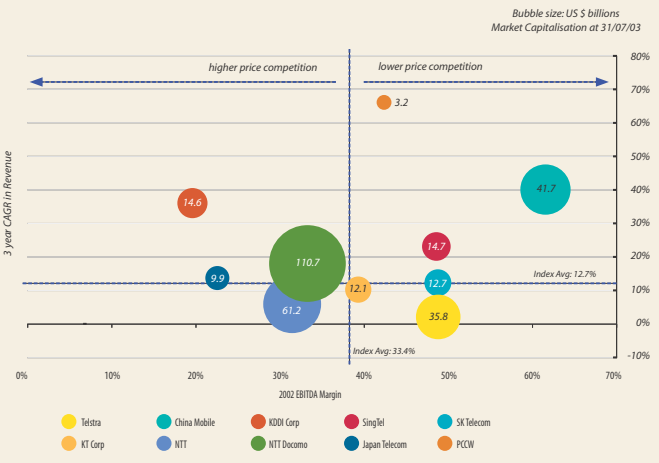


Figure 22 above highlights the impact of competition on the profitability of Asia's major telcos, while Figure 23 provides further fundamental information about these companies. Several key phenomena should be noted.

- Competition in the Japanese telco market increased significantly over the review period following deregulation. This competition, combined with high subscriber acquisition costs, contributed to lower profitability among Japan's major players relative to their regional counterparts.
- In some cases, lower competitive pressures enabled incumbents and companies operating in more regulated countries, such as Telstra in Australia, to preserve margins.
- China Mobile exceeded the performance of its regional peers in terms of both revenue growth and profitability. The relative infancy of the Chinese mobile sector, coupled with a high proportion of revenue derived from mobile services (which command a higher ARPU and lower costs), have been major drivers of financial performance. The emergence of CT2 type services, which offer limited mobility for outbound calls, has attracted some 20 million subscribers.

Figure 23: Financial Performance of Top 10 Asia Pacific Companies

Company	2002 Operate revenue (US$m)	2002 EBITDA (US$m)	2002 EBITDA Margin %	2002 Net profit (US$m)	CAPEX as % revenue 2002	2002 ROCE %	2002 Debt to market cap
China Mobile	15,540	9,147	59%	3,958	32%	23%	0.16
Japan Telecom	14,825	3,180	21%	(574)	29%	(12%)	0.81
KDDI Corp	24,654	4,613	19%	113	9%	2%	1.18
KT Corp	13,443	5,031	37%	1,596	20%	20%	1.09
NTT	101,630	30,412	30%	(7,066)	16%	(13%)	0.80
NTT Docomo	44,992	14,297	32%	7	16%	–	0.08
PCCW	2,431	982	40%	(938)	8%	(22%)	1.45
SingTel	4,151	1,931	47%	923	41%	14%	0.42
SK Telecom	7,646	3,560	47%	1,219	22%	27%	0.26
Telstra	11,398	5,308	47%	2,066	15%	27%	0.23

Figure 24, below, shows the market performance of each company within the Deloitte Asia Pacific Telco Index, relative to the performance of the Index as a whole.

Figure 24: Asia Pacific Relative Performance

Following the merger of DDI Corporation, KDD Corporation and IDO Corporation in October 2000 the share price of Japan's KDDI Corp has been more resilient to the downturn in the regional telco sector relative to its peers. KDDI Corp's share price increased in mid 2003 on the back of industry rumors regarding the company's negotiations with Kyocera to sell its PHS business for an estimated ¥170 billion.

Australia's Telstra was one of the best-performing companies in the region, in part because Telstra's share price did not get as caught up as its peers in the tech stock run-up of late 1999 and thus had less distance to fall. Also Telstra's dominance in the Australian market, combined with a focus on cost reduction in the last few years, had a positive impact on its performance and thus on its share price.

China's PCCW, Japan's NTT and South Korea's KT Corp under-performed the Index average. All of these companies are characterised by having little or no exposure to growth segments of the telco industry, primarily mobile and data services.

China Mobile

China Mobile, the leading mobile services provider in the world's largest mobile telecommunications market, is China's only exclusively wireless operator. With the world's largest mobile subscriber base — 117.7 million as of 31 December 2002 — and with a market share of approximately 67%, China Mobile's Index weighting increased from 11% as of 1 January 2000 to 16% on 31 July 2003.

The company's three-year CAGR of 41% can be attributed to large increases in its subscriber base, the result of both acquisitions and the booming Chinese market. An above average EBITDA margin of 59% was achieved through acquisitions of Anhui Mobile and seven other mobile providers, which produced economies of scale and operational efficiencies. The average ARPU of mobile users is higher than the ARPU of fixed-line and data, also contributing to the superior EBITDA margin.

China Mobile's capital expenditure represented 32% of revenue in 2002. While that percentage is higher than its global peers, it is driven by the need to support both expanding traffic volume and subscriber growth. As competition from China Unicom and other players is expected to increase, the company is under pressure to maintain margins and revenue. At the same time, China Mobile's marketing and subscriber acquisition costs are expected to increase while ARPU continues to decline, with the majority of new subscribers being low-end, prepaid users.

In October 2000, China Mobile and Vodafone Group Plc. entered into a strategic agreement whereby Vodafone agreed to acquire a 2.5% stake in China Mobile for $2.5 billion.

Nippon Telegraph & Telephone Corporation ("NTT")

NTT provides telephone and data communications services in Japan. Its major sources of revenue are mobile and local fixed-line services, but as demand for fixed-line has dropped, NTT has increasingly focused on broadband and IP services.

In 1999, NTT reorganized its operations into a holding company structure, dividing its businesses among three new, wholly owned subsidiaries – NTT East, NTT West and NTT Communications.

The company's EBITDA margin is 30%, and it has a debt-to-market-capitalization ratio of 0.80. It initiated structural reform in 2002 to reduce costs and improve margins. Revenue growth has been flat in recent years, mainly as a result of pricing pressures in the Japanese market. However, revenue contributions from its NTT DoCoMo subsidiary have contributed to an increase.

As with many other telecommunications companies in mature markets, revenue from mobile services and Internet and data communication has increased as fixed-line revenue has fallen. Unlike many other companies in this sector, however, capital investment has declined in every year since 1999. In 2000 NTT invested in the US telecommunications operator Verio.

NTT Docomo

NTT DoCoMo, which is 64% owned by NTT, is the largest provider of cellular services in Japan, with a subscriber base of 41 million as of March 2002 — approximately 59% of the cellular market.

Almost all revenue is derived from wireless services. It's three-year revenue CAGR of 18% is a result of both the 13% growth of its subscriber base and an increase in mobile phone traffic. The mature Japanese communications market has slowed considerably as penetration rates have increased, and ARPU has declined as the proportion of lower-end users has increased.

NTT DoCoMo's earnings in 2002 of $7 million were affected by a $5 billion write-down in overseas investments.

Management has announced plans to undertake a share buy-back and to increase dividends by 2004, and recent trading performance has been boosted by the company's launch – and the subsequent success – of its i-mode mobile communications product in 1999.

The company has invested in a number of overseas telecommunications operators, including KPN Mobile, Hutchison 3G UK and KG Telecom in 2001 and AT&T Wireless in 2002. Its domestic strategy is to take advantage of the current "data shift" in the Japanese market though the expansion of 3G services.

Telstra

As Australia's incumbent telecommunications provider, Telstra has preserved its domestic market share at approximately 60%, although its share of the mobile market is somewhat lower. Reflecting its market position and financial strength, Telstra was recently recognized as the 88th most valuable company in the world in Business Week's "Global 1000" list for 2003.

The Australian Federal Government currently owns 50.1% of Telstra. The much-anticipated third and final sell-off of the government's share continues to be the subject of much speculation. The sale has been delayed by poor market conditions and unsettled political issues, and it remains to be seen if the government will actually divest one of its remaining "jewels."

Telstra's revenue base is diverse, with no product or service accounting for more than 17% of total income. In recent years, its single-digit revenue growth has been driven by strong growth in its mobile and directories businesses as traditional services continue to face increased competition and thinning margins. In line with its larger global counterparts, a greater share of Telstra's revenue is now derived from nontraditional revenue streams, primarily mobile, data and broadband.

With limited prospects for significant organic revenue growth in the short term, Telstra has cut costs to improve profitability, achieving a 13% decrease in operating expenses during 2002. The company recently announced an aggressive plan to further reduce costs, primarily within its IT operations.

With the softening of growth in Australia's mobile market, increasing domestic competition and diminishing cost rationalization opportunities, one of the most pertinent issues facing Telstra is how it will create long-term growth. Keen to discard its historical image as a utility, Telstra's stated objective is to be the premier telco in Asia. But that goal has been hamstrung by the performance of one its existing Asian investments and limited acquisition opportunities in line with its strategy. The challenge for Telstra is to further consolidate its position in the global telco sector while the Australian Federal Government remains in the background.

Index Methodology

Companies meeting the following criteria were considered for inclusion in the Deloitte Telco Indices:

- The company's main activity is the provision of telecommunications services or the manufacturer of telecommunications equipment.
- The company is capitalized on a stock exchange at more than $1 billion during the Index period.
- For the Americas, companies included in the Index were compared with other indices, including Bank America Securities Telecom Index and the Dow Jones Telecom Index, to ensure completeness of sectors covered and the accuracy of the Index study.
- The company is resident in one of the following countries:

GLOBAL		
AMERICAS	ASIA PACIFIC	EUROPE
Argentina Brazil Canada Chile Mexico United States Venezuela	Australia China Hongkong India Indonesia Japan Malaysia New Zealand Pakistan Philippines Singapore South Korea Taiwan Thailand	Belgium Czech Republic Denmark Finland France Germany Greece Hungary Italy Netherlands Norway Poland Portugal Russian Federation Spain Sweden Switzerland United Kingdom

Where a company in an Index has a significant ownership interest in another member of the Index the shares held by that company are excluded for the purposes of Index calculation. Further, where a company has a significant interest held by a state or national government that interest is also excluded.

Index calculation

The standard formula for the Deloitte Telco Index, both global and regional, is:

$$\sum_{i=1}^{n} \frac{P_{it} Q_{i0} C_{it}}{P_{i0} Q_{i0} C_{i0}} \times K_t \times 1{,}000$$

where:

n = Number of companies in the Index

P_{it} = Last price of share i on date t in USD

Q_{i0} = Number of shares in company i on the base date

C_{it} = Adjustment factor for company i at date t

P_{i0} = Last price of share i on the base date USD

C_{i0} = Adjustment factor for company i on the base date

K_t = Chaining factor at date t

The Index is re-weighted based on market capitalization every six months, with Q0, P0 and C0 reset on the date of re-weighting

Glossary of terms and abbreviations

ARPU – Average revenue per unit.

ASP – Application Service Provider. An Internet service whose servers host applications that can be executed online.

CAGR – Cumulative annual growth rate.

CDMA – Code-Division Multiple Access. A digital cellular technology that uses spread-spectrum techniques. Unlike competing systems, such as GSM, CDMA does not assign a specific frequency to each user. Instead, every channel uses the full available spectrum. Individual conversations are encoded with a pseudo-random digital sequence.

cdma2000 – One of two competing 3G standards (see W-CDMA below). Like W-CDMA, cdma2000 can use a wider spectrum than CDMA and therefore can transmit Internet data, video, and CD-quality music in addition to voice. The strength of cdma2000 and its many variants is that they can use current spectrum.

CLEC – Competitive Local Exchange Carrier. A US term for a provider of local phone service that competes with an ILEC. Some CLECs started up after passage of TA 96 but others are established companies such as long distance carriers (AT&T, MCI) and cable TV operators.

EBITDA – Earnings before interest, taxes, depreciation and amortization. This method of stating earnings is a commonly used measure of a company's business performance for a particular period.

FOMA – Freedom of Mobile Multimedia Access. Japanese telco giant NTT DoCoMo's brand name for its 3G services. FOMA is based on the W-CDMA format.

GSM – Global System for Mobile Communications. The leading digital cellular system, GSM has become the de facto standard in Europe and Asia. Unlike CDMA (see above), it allows eight simultaneous calls on the same radio frequency.

ILEC – Incumbent Local Exchange Carrier. US term for traditional telco, of which Bell companies are an example. ILECs other than Bell companies are much smaller entities serving smaller urban markets and rural areas.

IPVPN – Internet protocol virtual private network. A secure connection that enables companies to conduct sensitive private business over the public Internet.

ISP – Internet Service Provider

SME – Small and medium enterprise. A category of market for products and services.

SMS – Short Message Service. A technology for sending short text messages to mobile phones.

TA 96 – Telecommunications Act of 1996. This US law contained the first major amendments to federal-level communications policy in 60 years. Among other things it prescribed the opening of local telecommunications markets to competition and established criteria for allowing the Bell companies into the long distance business. The law remains controversial because many of its provisions are interpreted differently by different industry and governmental entities, and because it does not deal explicitly with the policy implications of the Internet..

Web hosting company – A service that rents disk space, Internet servers, Web and e-mail applications and broadband access to companies and individuals that operate World Wide Web sites.

W-CDMA – Wider Code-Division Multiple Access. One of two 3G standards (see CDMA2000, above). Co-developed by Japanese telco giant NTT DoCoMo, it is being backed by most European mobile operators.

White labeling – An agreement between a telco and a non-telco, typically a retailer, that permits the non-telco to brand and sell telco services as its own products.

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