

# Is Telecom Disconnected or Just on Hold?

If there were industries that avoided the widespread unraveling of the U.S. economy before the Sept. 11 terrorist attacks, telecommunications was not among them. September 2001 found much of the industry already in a bad way. The attacks merely landed another blow by shrouding the outlook in uncertainty and paralyzing decision-making.

Telecom has taken a wild ride in recent years. Deep deregulation—starting with the breakup of Ma Bell in 1984 and followed by the Telecommunications Act of 1996—made the industry ripe for growth. Forecasts of boundless demand and quixotic hopes of high margins in the late '90s spawned a deluge of new service providers, unprecedented debt issuance and capacity expansion.

Sales didn't come in as expected, though, and the bubble burst, forcing firms to revise earnings forecasts downward and adjust investment plans. When telecom purchases stalled, manufacturers slashed jobs, sold divisions and liquidated assets. Additionally, deregulation didn't go far enough to open local networks, which hurt new entrants' ability to turn a profit. Now the industry suffers from glutted capacity and burdensome debt loads, which have spurred widespread corporate credit rating downgrades and bankruptcies.

Given Texas' high concentration of telecom firms, the industry downturn has negatively affected business conditions in the state. Telecom is a global market, and activity in Texas is tied closely to worldwide demand. Although some believe telecom may have bottomed out during the second half of 2001, the industry seems likely to languish for some quarters before improving markedly. Recovery will probably lag an upturn in the overall U.S. economy due to the industry's oversupply and investor reticence.

## Telecom Down Well Before September

Few sectors have been as hard-hit as telecommunications. From its high in March 2000 to September 2001, the Stan-

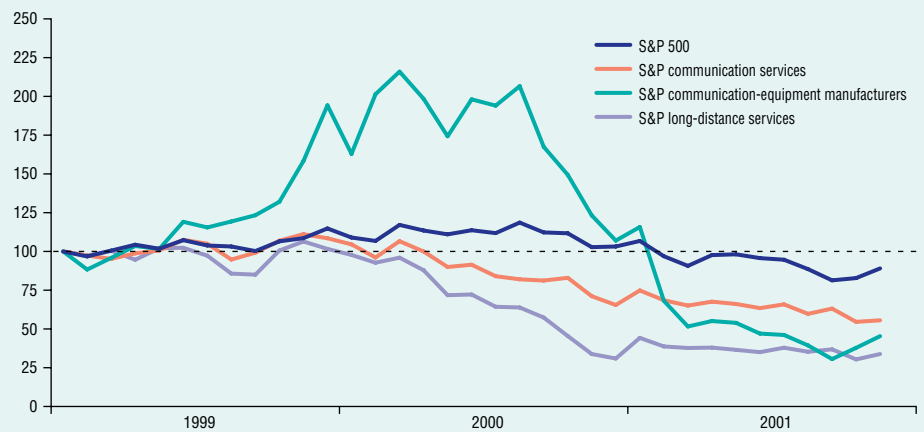
dard & Poor's (S&P) communication-equipment manufacturers index fell 86 percent, wiping out \$793 billion in shareholder equity. The S&P long-distance services index fell 65 percent and the S&P communication services index fell 43 percent over roughly the same period, erasing \$113 billion and \$150 billion, respectively, in equity (*Chart 1*). Among service providers, the Baby Bells were the least scathed.

Before the terrorist attacks, the industry had been spiraling downward for more than a year, due to an unprecedented supply-demand mismatch. Fed by the dot.com frenzy, investors anticipated robust growth in demand for telecom services for years to come. But a frenetic rush to meet the expected demand by expanding long-haul infrastructure was overkill and neglected improvements needed at the local level.

Chart 1

### Telecom Stock Indexes Down From Highs...

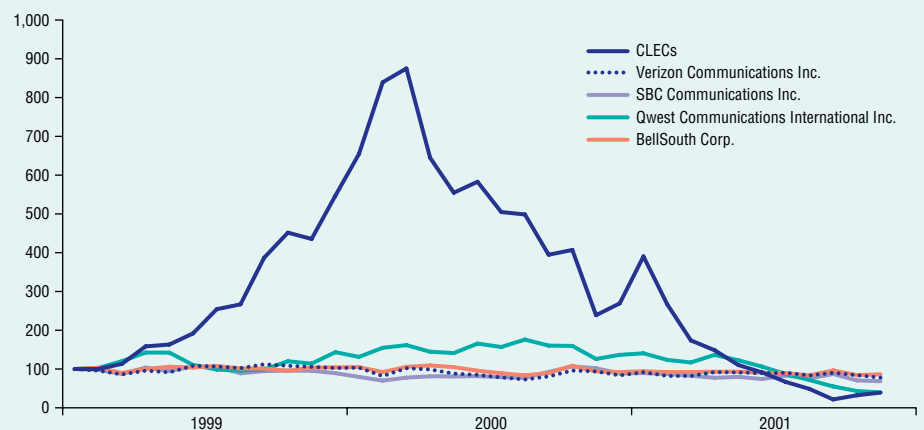
S&P indexes, January 1999 = 100



SOURCE: Bloomberg LP.

### ...But Baby Bells Relatively Stable

Index, January 1999 = 100



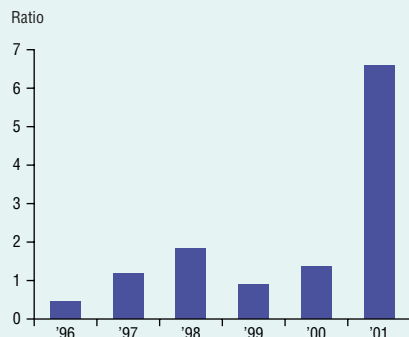
NOTES: Competitive local exchange carrier (CLEC) index includes the following firms: Allegiance Telecom Inc., US LEC Corp., Focal Communications Corp., McLeodUSA Inc., Network Plus Corp., NTELOS Inc., Time Warner Telecom Inc., Williams Communications LLC and XO Communications Inc.

SOURCE: Bloomberg LP.

*Market expectations soared in the '90s, fueled by visions of insatiable demand for bandwidth-guzzling “killer apps,” such as TV over the Internet, music downloads and live videostreaming.*

Chart 2

### Ratio of Credit Downgrades to Upgrades Among Global Telecom Firms



NOTES: Ratios are based on Moody's credit ratings on long-term debt of telecommunications companies worldwide.  
SOURCE: Bloomberg LP.

Market expectations soared in the '90s, fueled by visions of insatiable demand for bandwidth-guzzling “killer apps,” such as TV over the Internet, music downloads and live videostreaming. Telecom firms raced to respond by laying \$90 billion worth of fiber-optic cable between 1997 and 2001. Long-haul space became a free-for-all, and oversupply resulted. In all, about 39 million miles of fiber-optic cable was laid—enough to go from Los Angeles to New York and back more than 7,000 times.<sup>1</sup> Telecom companies focused on the simple part of building the network, and once the digs were in motion, it was difficult to cut back. New technologies like dense wavelength division multiplexers also emerged and exacerbated the glut by enabling more data to run over the same fiber.

While billions were spent to expand the nation's intermetro networks, little was done to upgrade the “last mile” infrastructure running into homes and businesses. Regulatory obstacles prevented such improvements, and would-be competitors could not get access to the coveted “hole in the wall.” Since the bottleneck was at the local level, little of the long-haul capital investment went to meet demand for broadband services. Furthermore, demand never came in at forecasted levels, which intensified the imbalance. The copious fiber supply combined with this underrealized demand to drive usage of the long-distance backbone below 3 percent in April 2001, down from 15 percent in 1988.<sup>2</sup>

The downturn left telecom firms with massive debt loads and few means of paying creditors. Sources that once furnished easy money for anything with “telecom” in the name dried up. Given the industry's capital-intensive structure, this left many firms in a precarious position. Revenue streams weakened, hampering firms' ability to make debt payments and damaging credit ratings (*Chart 2*). By one estimate, the telephone industry registered an S&P-equivalent CCC+ rating in September, suggesting the strong possibility of industrywide loan defaults.<sup>3</sup>

Debt service problems coincided with a dramatic increase in telecom bankruptcies. In recent years, the telecom pie did not grow nearly as fast as the number of firms trying to claim a piece of it. No matter the packaging, telecom services are a relatively nondifferentiable commodity and have limited ability to produce profits. In the absence of profits and with cash burn rates outstripping funding availability, many telecom firms had to fold or restructure (*Chart 3*).

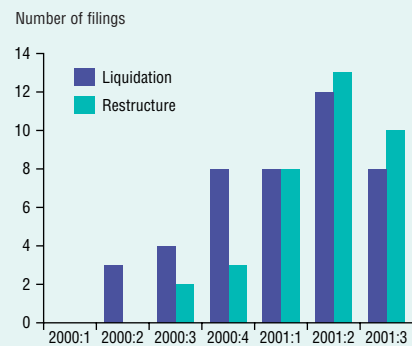
As companies scrambled to cut costs, human capital was one of the first things out the door. Corporations shrank payrolls as they became alerted to decreased business activity. Telecom layoffs were already widespread before September and continued throughout 2001 (*Table 1*).

### Sept. 11 a Short-Term Negative

The terrorist attacks dealt the telecom sector an undeniable short-term blow, but much of the fallout was simply an

Chart 3

### Telecom Bankruptcies



SOURCES: PricewaterhouseCoopers analysis and calculations; Bloomberg LP.

expunging of excesses still in the system. The attacks gave firms a window to make additional cutbacks while the competition was doing it.

The events of Sept. 11 focused attention on several facets of the telecom industry. First, the situation gave new life to the claim that centralized networks are bad, reminding markets of vulnerabilities customers face when given limited choice for local phone service. The sentiment against centralized networks gives alternative carriers a better case for increased access to local customers.

Second, the attacks did not negatively affect wireless telecom activity and probably boosted it. Wireless sales were strong in the third quarter, while other telecom activity languished. There is still room for growth in the industry because domestic cellular subscription rates are relatively low.<sup>4</sup> When landlines in parts of New York remained a tangle of frayed wires after the attacks, many of the city's firms turned exclusively to mobile communications to conduct business. Satellite telecommunications and other systems not as susceptible to terrestrial disruptions may attract more interest in the future.

In addition, the attacks showed the advantages of Internet-based telecommunications. The Internet—originally conceived to withstand nuclear assault—exploits a data packaging technology that breaks voice communication into small

data packets, ships them off over the Internet by the most efficient path and then rearranges them in a recognizable form upon arrival. Such catastrophe-averting technology could make gains in local-access markets since switches are not needed to route traffic.

Finally, telecommuting and videoconferencing have gained more attention since the attacks. There are already 23.6 million teleworkers in the United States, and that number is expected to continue growing at 10 percent a year.<sup>5</sup> If telecommuting growth continues, it could boost demand for residential broadband access and Internet telephony.

### Deregulation Benefits Slow in Coming

Unfortunately, the telecom downturn has only delayed the consumer benefits promised with deregulation. While deregulation generally increases market efficiency and consumer welfare, the resulting forces can produce drastic short-term economic fallout among competing firms. Alternative carriers were hardest hit, and many have failed in trying to penetrate retail markets. This trend has not boded well for consumer choice. Although in 2000 at least one competitive local exchange carrier (CLEC) was serving customers in 56 percent of the nation's ZIP codes (home to 88 percent of U.S. households), only 4.6 per-

*The terrorist attacks dealt the telecom sector an undeniable short-term blow, but much of the fallout was simply an expunging of excesses still in the system.*

Table 1

#### Announced Layoffs for Selected Telecom Firms with U.S. Operations

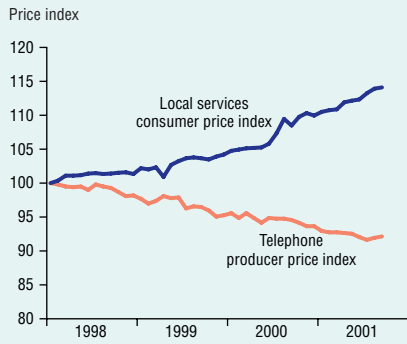
	Worldwide employment January 2001	Worldwide layoffs announced in 2001	Layoffs as a percentage of year-beginning level
Nortel Networks	94,500	49,000	51.9
Lucent Technologies	113,400	44,910	39.6
Solectron	54,000	20,700	38.3
Corning	40,300	12,000	29.8
Motorola	147,500	39,000	26.4
Alcatel	131,598	33,000	25.1
Ericsson	92,949	22,000	23.7
Cisco Systems	38,000	8,500	22.4
Qwest Communications International	67,000	11,000	16.4
Marconi	56,000	7,000	12.5
Siemens	448,000	17,000	3.8
Verizon Communications	260,000	7,500	2.9
Nokia	60,173	1,250	2.1

NOTE: Layoffs are those announced between Jan. 1 and Nov. 22, 2001.

SOURCES: *Financial Times*; Yahoo! Finance.

Chart 4

### Telephone Service Prices



NOTES: CPI data are for local telephone service charges. PPI data are for telephone communications, except radiotelephone.

SOURCE: Bureau of Labor Statistics.

comprises equipment makers—firms that produce telephone, mobile phone, satellite, fiber-optic, microwave and switching equipment—and service providers—firms that provide local, long-distance, and cable and satellite telecom services.<sup>8</sup>

Service providers employ the vast majority of telecom workers in Texas. In 2000, 80 percent of the state’s 168,688 telecom employees fell into this category, whereas equipment makers employed only 20 percent.<sup>9</sup> When it comes to telecom operations, the split between service and manufacturing is even more pronounced. Ninety-six percent of telecom establishments in Texas are service providers; the remaining 4 percent have

equipment making as their core focus (*Chart 5*). (See the box titled “Decoding the Jargon” for a description of the various types of service providers.)

In 2000, Texas was second only to California in service-provider jobs and third after the Golden State and Illinois in equipment-making jobs (*Table 2*). Texas telecom employment accounts for 10 percent of the U.S. total, and the state’s telecom employment as a percentage of total private employment is larger than in either California or Illinois.

North Texas is the uncontested state leader in telecom business activity. What began with Texas Instruments and Collins Radio more than 50 years ago steadily

cent of residential and small business customers used CLEC services.<sup>6</sup>

Though CLECs are gaining ground, they still account for a relatively small share of total market revenue. At the same time, prices consumers pay for telecom services have not decreased; they have risen 14 percent since 1998 (*Chart 4*).

Additionally, superior technology and high-bandwidth services are still slow coming to the marketplace. The expansion in long-haul networks did little to relieve demand pressures for broadband services like DSL, as the technology is still unavailable in some areas. When DSL does arrive, it is often plagued by glitches and poor customer service.

Market and regulatory mishaps have beset the telecom industry. Growth prospects for some subsectors will not sustain the number of companies now trying to make market inroads, leaving the least competitive firms to seek protection from creditors or fail altogether. Such trends strengthen incumbents’ position and reduce consumer leverage.

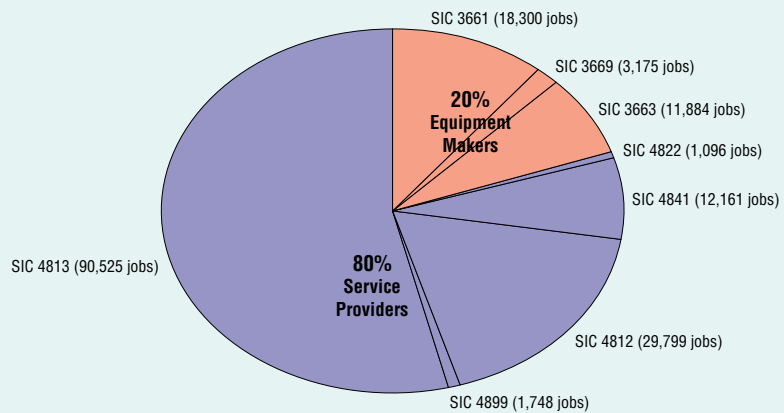
### Telecom in Texas

Texas is a national leader in telecommunications. Communications firms have more than 13,000 establishments in the state.<sup>7</sup> These include equipment makers and service providers as well as the myriad retailers, wholesalers, consultants and construction firms that serve the industry. Only 36 percent (4,686) are primarily engaged in telecommunications activity, however. The telecommunications sector

Chart 5

### Telecom Employment in Texas by Standard Industry Classification

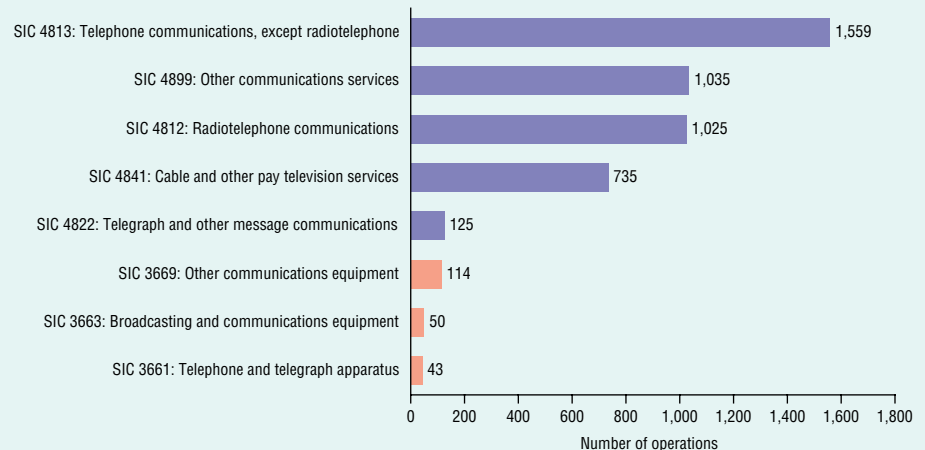
(Total: 168,688 jobs)



SOURCE: Bureau of Labor Statistics, 2000 annual averages.

### Telecom Operations in Texas by Standard Industry Classification

(Total: 4,686 operations)



SOURCE: Reference USA, October 2001.

Table 2

## Nationwide Telecom Employment

Area	Total private employment	Telecom services	Telecom equipment	Total telecom	Telecom as percentage of employment	Telecom as percentage of U.S. telecom
United States	110,064,902	1,404,702	274,941	1,679,643	1.53	100.00
California	12,652,956	158,842	42,572	201,414	1.59	11.99
Texas	7,744,693	135,329	33,359	168,688	2.18	10.04
Florida	6,086,414	84,554	20,296	104,850	1.72	6.24
New York	7,077,434	93,510	10,666	104,176	1.47	6.20
Illinois	5,138,884	51,462	34,131	85,593	1.67	5.10
Georgia	3,305,221	72,858	5,432	78,290	2.37	4.66
New Jersey	3,321,543	65,805	5,425	71,230	2.14	4.24
Colorado	1,867,568	55,948	5,261	61,209	3.28	3.64

SOURCE: Bureau of Labor Statistics, 2000 data.

evolved until telecom-related employment in the Dallas/Fort Worth metroplex exceeded 90,000 jobs in 2000—the majority of them in Richardson's Telecom Corridor. The Dallas primary metropolitan statistical area (PMSA) leads the state with 75,875 jobs, followed by the Houston PMSA, Fort Worth PMSA, San Antonio metropolitan statistical area (MSA) and Austin MSA (*Chart 6*).<sup>10</sup> Telecom contributes more to the economy of the Dallas PMSA than to any other Texas metro area. It accounts for 4.3 percent of total private employment in Dallas, almost double the state rate of nearly 2.2 percent.

While telecom layoffs have been pronounced throughout the nation, telecom downsizing has been slow to show up in Texas employment data. The pace of growth moderated in 2001, but telecom manufacturing jobs in Texas still rose an annualized 0.3 percent through October. Telecom manufacturing employment at the national level, on the other hand, dropped an annualized 17.8 percent between January and October (*Chart 7*). Texas service-provider employment increased an annualized 1.2 percent between January and November, while the comparable national figure fell 0.3 percent through October.<sup>11</sup> Clearly, Texas employment fared better than the nation's during the downturn in telecom over the past year. Corporate consolidation to Texas' amenable business environment in the wake of the downturn may be part of the reason state employment outperformed the nation's.

Telecom real estate markets in Texas took a big hit, however. Subleasing ran

rampant in 2001 as lessors competed against even their own tenants to fill vacated office space. Most of Texas' major metro areas gave up space in 2001. Richardson/Plano was the hardest hit of telecom areas, with a vacancy rate that rose 9.4 percentage points from the third quarter of 2000 to the third quarter of 2001. The oversupply of office space is exerting downward pressure on rents and discouraging investment in real estate.

*Texas employment fared better than the nation's during the downturn in telecom over the past year.*

## Decoding the Jargon

**CLEC (Competitive local exchange carrier):** Telephone service company authorized by the Telecom Act of 1996. CLECs can deliver dial tone and other services using an incumbent carrier's equipment but generally provide their own networking and switching. They account for 8.5 percent of local telephone lines in service. Some well-known CLECs are Allegiance Telecom Inc., McLeodUSA Inc. and Time Warner Telecom Inc.

**ILEC (Incumbent local exchange carrier):** Telephone company that was already providing local service when the Telecom Act of 1996 went into effect.

**ISP (Internet service provider):** A service provider that connects users to the Internet.

**Long-Distance Carrier:** Telecom company that primarily provides domestic and international long-distance service. Large players include AT&T Corp., WorldCom Inc., Sprint Corp. and Level 3 Communications Inc. ILECs can also provide long-distance service but must first meet FCC standards of opening their networks to competition.

**RBOC (Regional Bell operating company) or Baby Bell:** Telephone company that resulted from the breakup of the Bell System in 1984. RBOCs are the highest-visibility ILECs and the dominant providers of local service because they control most last-mile connections of the nation's telecommunications networks. The seven original RBOCs have since consolidated into four: Verizon Communications Inc., SBC Communications Inc., BellSouth Corp. and Qwest Communications International Inc.

**RLEC (Rural local exchange carrier):** ILEC that is not an RBOC. RLECs are smaller ILECs that provide local service for small to medium-sized towns and other areas of low population density. Some RLECs are AllTel Corp., Citizen Communications Co. and CenturyTel Inc.

**Wireless Service Provider:** Company that provides wireless communication products and services, including cellular, paging, wireless data and messaging services, and other mobile and wireless telecom services. Most RBOCs, ILECs, CLECs and RLECs provide wireless services.

SOURCES: Federal Communications Commission; searchNetworking.com; clecplanet.com; whatis?com; Hoover's Online.



## Outlook

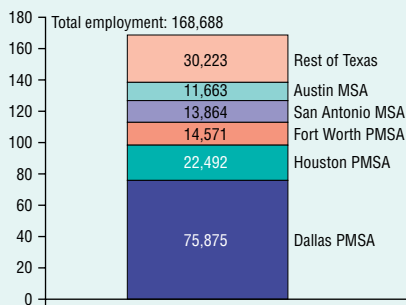
Slumping economic conditions continue to dampen prospects for a quick rebound in demand. Through November, telecom firms were still reporting 20 to 30 percent declines in month-over-month demand. Retirement incentives, executive pay cuts and canceled bonuses were still common in December. Despite the declines, long-term prospects for the telecommunications industry remain good. Worldwide telecommunications revenue in 2001 increased roughly 8 percent over 2000 and is projected to grow 7 percent in 2002.<sup>12</sup>

The late '90s were filled with claims about how killer apps would transform the telecommunications industry. A stumbling economy and consumer practicality have kept such changes at bay so far, however. Pedestrian applications like always-on connectivity, small-business telecom

Chart 6

### Texas Telecom Employment by Area

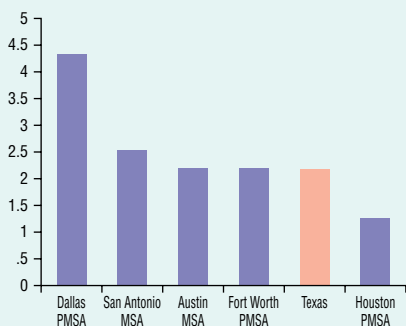
Thousands of jobs



SOURCE: Bureau of Labor Statistics, 2000 data.

### Telecom Employment as a Percentage of Total Private Employment

Percent

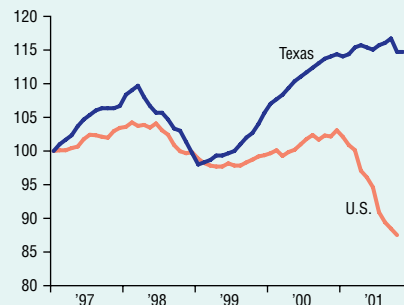


SOURCE: Bureau of Labor Statistics, 2000 annual averages.

Chart 7

### Telecom Manufacturing Employment Faring Better in Texas Than in the Nation

Employment index, 1997 = 100



SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

services, improvements in wireless service and multimedia transmission are likely to drive telecom demand going forward. Consumers and businesses will continue to buy into technologies that provide real and long-term improvements in utility.

Telecommunications will still have an essential role in the economy, if not in the way investors once thought. Demand for voice and data communication, while substantially lower than projected, has not completely evaporated. Rebuilding from Sept. 11 spurred short-term demand for equipment and services and renewed calls for decentralized networks. Even though many firms will be churned out of the market as the downturn runs its course, this dynamic will help whittle down the burden of too much network supply.

Texas is still poised to remain a world leader in telecommunications. The state's favorable business environment, supply of talented workers and infrastructure will help sustain the Texas telecom industry through the flux. Consumers stand to gain if regulators open closely held local markets to competition and allow market forces to flush out firms with weak business plans. The situation is still tenuous, but Texas is well positioned to recover when national telecom activity returns.

—John Thompson

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## Notes

The author thanks Donald Hicks and Stan Kroder for their time and insights, Ken Robinson for his assistance and Monica Reeves for valuable editorial help. Due to the nature of the telecom industry and its rapid pace of change, some content in this article may be outdated by the time this publication reaches readers. For example, certain telecom companies mentioned were restructuring or on the verge of bankruptcy at press time.

<sup>1</sup> *Wall Street Journal*, June 18, 2001.

<sup>2</sup> "Optical Dead Zone Part 2," Merrill Lynch & Co. industry update, April 5, 2001. The figure does not account for peak-load usage and geographic considerations.

<sup>3</sup> "Already High Credit Risk Spikes in Wake of Terrorist Attack—Steps You Must Take Now to Protect Your Company," *Credit Today*, Oct. 1, 2001, [www.credittoday.net](http://www.credittoday.net). The article reported an expected default frequency of 7.69 (produced by KMV LLC) for the telephone group for the six-month period ending in September 2001. This figure is comparable to the S&P CCC+ rating.

<sup>4</sup> The domestic cellular subscription rate was 31.2 subscribers per 100 inhabitants in 1999 (latest data available), up from 2.1 subscribers per 100 in 1990. *Year Book of Statistics, Telecommunication Services, 1990–1999*, International Telecommunications Union, Geneva, Switzerland, 2001.

<sup>5</sup> International Telework Association and Council.

<sup>6</sup> Federal Communications Commission, press release, May 21, 2001.

<sup>7</sup> Data were collected in September using the Reference USA database.

<sup>8</sup> For the purposes of this article, the telecommunications industry consists of the following Standard Industry Classifications: 3661, telephone and telegraph apparatus; 3663, radio and TV broadcasting and communications equipment; 3669, other communications equipment; 4812, radiotelephone communications; 4813, telephone communications, except radiotelephone; 4822, telegraph and other message communications; 4841, cable and other pay television services; 4899, communications services not elsewhere classified.

<sup>9</sup> The most recent employment data at this level of industry detail are for 2000.

<sup>10</sup> Metro telecom employment is understated due to Bureau of Labor Statistics disclosure standards. Some data are not disclosable—that is, the data do not meet BLS or state agency disclosure standards. As such, metro level data are understated and "rest of Texas" data are overstated.

<sup>11</sup> Employment data are from the Bureau of Labor Statistics and are the most recent available.

<sup>12</sup> Gartner Inc., press release, Dec. 27, 2001.