
Economic Impact of the Attack on the Information Technology and Telecommunications Sector

This report on the information technology (I/T) and telecommunications (telecom) sector of New York City's economy is based on research and analysis by Booz-Allen & Hamilton.

SUMMARY

The September 11th terrorist attack had a modest economic impact on the information technology (I/T) and telecommunications (telecom) sector in New York City.

Interviews with companies indicate that the reversal of this year's slowing revenue growth trends, which was expected to begin mid-2002, is now unlikely to occur before the end of 2002, or midway through 2003. This delay reflects a reduction in spending by sectors directly affected by the events of September 11th, such as financial services and media and entertainment, which historically serve as strong customers of the I/T and telecom sector. At the same time, data and security systems, as well as infrastructure rebuilding and repair, will provide modest growth opportunities for companies within the sector.

The capital losses in Lower Manhattan for I/T and telecom companies are estimated to be \$2 billion. While most of companies that make up the I/T and telecommunications sector are not based downtown, many of their clients in financial services were and continue to be. As a result, there will be an indirect impact on this sector.

Analysis of available data and a thorough study of the sector lead to four recommendations:

- ❖ rebuild a world class infrastructure
- ❖ improve New York City's climate for small businesses
- ❖ nurture innovation while fostering competition.

The short-term effects of the September 11th attack on the I/T and telecommunications sector are modest. As the providers of a critical piece of business infrastructure for New York, the telecommunications and I/T companies will be in a position to help the economy recover.

In the near term, the products and services provided by the technology sector companies can address the business-operations issues that have become more important in the aftermath of the attack. Three of those are the creation of systems and networks that are parallel, secure and resilient. Unfortunately, small businesses often lack the size and scale to make these investments.

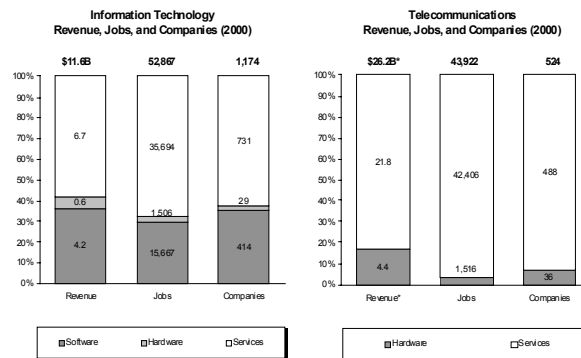
The long-term impact of the attack may extend well beyond the immediate industry. Investors seem to be reluctant to fund high-risk ventures within the I/T and telecom sector, potentially limiting future growth and employment prospects. In light of September 11th, some customers may be reluctant to spend heavily on new technologies thus focusing available funds on technology that protect core operations.

In addition, customers may choose to do business only with familiar names, limiting opportunities for small businesses or startups. The net result is limited outside funding of new technologies and new business models, decreasing competition in the I/T and telecommunications sector. This financial landscape threatens the ability of I/T and telecommunications companies to fund new technology research and the next generation infrastructure improvements required to meet the needs of New York business.

ECONOMIC CONDITIONS PRIOR TO SEPTEMBER 11TH

Prior to the September 11th attack, growth had slowed within the I/T and telecommunications sector, reflecting the slowdown of the national economy. The sector's 1,700 companies in New York City generated \$37.8 billion in annual revenue, and employed nearly 97,000 people in the year 2000. Reduced corporate I/T spending and a general economic downturn drove a decrease in I/T and telecommunications sector hardware sales. Additionally, many of the Competitive Local Exchange Carriers (CLECs), which provide local voice and data services to corporate customers, and Internet-based businesses were experiencing financial difficulties. Companies across the telecommunications and I/T sector began reducing their workforces, in light of the declining business conditions. For most subsectors, a return to growth or stabilization was not expected until early to mid-2002.

Prior to September 11th, the I/T and Telecom Sector Generated \$37.8 Billion* and Employed Nearly 97,000 People Throughout New York City



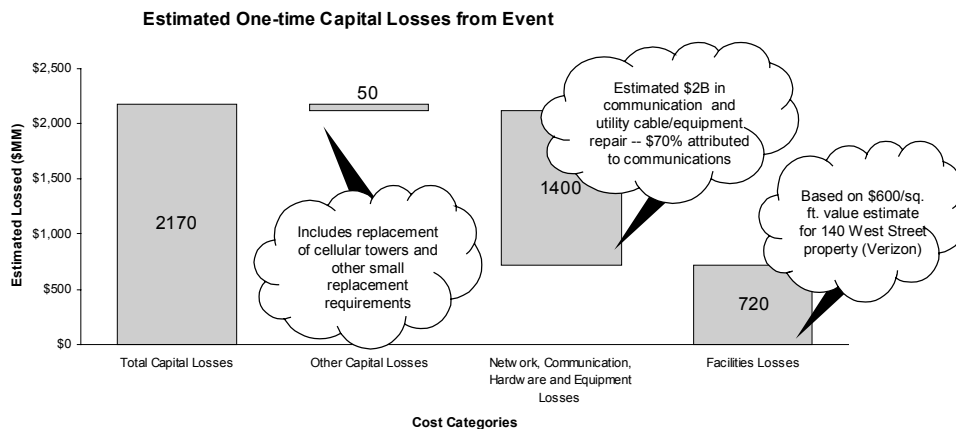
Source: Dunn & Bradstreet, BAH Analysis.

*Note: Only includes revenues generated in New York City. Verizon generates an additional \$61 billion outside of New York City.

Economic Impact of the September 11th Attack

The September 11th attack caused major damage to the technology infrastructure within Lower Manhattan, and has slowed the expected industry growth turnaround by six to twelve months. Capital losses within the sector totaled approximately \$2 billion for companies in the sector, including Verizon, AT&T and AOL Time Warner. Cellular carriers incurred \$50 million in losses, mainly from damaged or destroyed cell sites in Lower Manhattan. Cable providers, local exchange carriers, and backbone and long-haul providers collectively incurred \$1.7 billion in losses. Estimates indicate Verizon alone, the incumbent local exchange carrier, sustained over \$1.2 billion in damage to a switching facility that served the World Trade Center and Lower Manhattan.

The Immediate Capital Loss From September 11th is Estimated at ~\$2 Billion Comprised Primarily of Facilities & Equipment



... Other sectors lost ~\$10 billion of technology infrastructure

Source: Morgan Stanley estimates, [NYC Comptroller Report](#), news articles, BAH Analysis.

The increase in spending required to restore basic services, and address other emergency needs, will delay planned I/T and telecommunications sector spending by six to twelve months. The same delay is expected for the industry's growth turnaround. Many chief information officers (CIOs) are being pressured to reduce or delay expenditures for I/T and telecommunications sector equipment. Additionally, companies are altering their priorities because of financial constraints. These companies are delaying traditional "big ticket" purchases such as customer relationship management (CRM) and enterprise resource planning (ERP) initiatives, in favor of security and infrastructure initiatives.

POTENTIAL IMPLICATIONS

The outlook for the I/T and telecommunications sector is a slower turnaround than forecasted before September 11th, with the newly intensive focus on security, infrastructure integrity and secure communication fostering some growth by the fourth quarter of 2002. As a result of the attack, companies have grown more cognizant of security issues and are apt to bolster spending for enhanced system and data security. Additionally, capabilities such as secure video conferencing and remote access to the office for employees have grown in importance. The attack affected the various I/T and telecommunications subsectors in distinctly different ways, though some common themes have emerged. All of the subsectors are likely to benefit from the business created by companies purchasing equipment and services for disaster recovery, security, and the creation of parallel systems.

The I/T hardware subsector expects to begin to recover next year. The PC market is saturated, with PC makers dependent on the increasing demands of software packages and peripherals to drive growth. This trend is cyclical and part of overall economic trends. Storage system sales will remain stable as Internet expansion continues to drive spending on network-related storage products. Server companies are likely to rebound quickly, sparked by the need to build better alternative systems.

In the I/T software sector, double-digit growth will continue over the long term, driven by an increased interest of corporations in security systems, including firewalls and log-in security systems. In addition, such enterprise applications as ERP and CRM will continue to drive growth. In the short term, New York City-based software manufacturers are apt to see a drop in growth, as New York City based clients spend less on software. Recovery in the software industry is closely tied to the banking sector. Many of the small firms that make up the core of New York City's software industry develop specialized applications for all aspects of the financial services industry.

Demand for I/T services will grow, but at a slower pace than the double-digit growth rates of the 1990s. Pent-up demand for I/T projects, such as systems integration, CRM and supply chain services, is expected to drive double-digit growth of about 10.5% next year. Long-term outsourcing contracts will provide a steady revenue stream. In the near term, revenue from existing multi-year contracts will help New York City-based I/T services firms to avoid an immediate crisis, as a result of the terrorist attack. Looking forward, service companies will find opportunity in all economic environments.

Rebuilding initiatives in Lower Manhattan will require significant amounts of high-end telecom equipment, aiding the recovery in the hardware subsector. Sustained revenue growth will be delayed, because of limited availability of funding for expansions and other business building activities. The overall effect on New York City will be negligible, since no major manufacturers run significant operations here. Voice operations were largely unaffected by the attack. Operators may incur losses if customer migration—that is, the

significant departure of such telecom-intensive industries as banking, real estate, and wholesale—occurs.

Growth in wireless operations is limited by high levels of penetration. Double-digit annual revenue increases are expected, reflecting increased ARPU (average revenue per user), hybrid cellular services, third-generation (3G) applications and adoption of fixed wireless.

For local and long-distance voice telephony, a continued revenue decline is expected, as long-distance price competition erodes revenue streams and as businesses and consumers continue to adopt wireless, pagers, and e-mail as substitutes for telephone calls.

Broadband and other telecom data systems can expect continued high growth rates, with 2005 growth forecasted at 15% to 20%. Most growth will be captured by incumbents, as CLECs providing Digital Subscriber Line (DSL) and Integrated Services Digital Network (ISDN) services continue to suffer from business model issues.

RECOMMENDATIONS

The following measures should be feasible and effective:

- **Reimburse and finance efforts** to allow the installation of modern, up-to-date technology rather than the straight replacement of equipment installed prior to September 11th.
- **Establish consortia** for suppliers of communications services and equipment to address key infrastructure requirements.
- **Establish consortia** of customer groups to help address specific communications and technology needs (e.g., small business "co-ops", build on financial services' Securities Industry Automation Corporation model).
- **Establish new business development region** with advanced technology infrastructure.
- **Channel investments to technologies** critical to established New York City industries such as trading systems for financial services.

Other Initiatives Under Consideration:

- **Help companies with capacity find customers with needs** -- support customer access to key providers/subcontractors for short-term requirements.
- **Establish New York City as a center of technology R&D** by fostering a climate for new technology venturing, specifically in the financial services and media sectors.