

## The Future of the Tech Savvy City

### How New York and Other Cities Can Continue to Grow Into High-Tech Hubs

The attacks on the World Trade Center represented not only an assault on New York, but on all American cities. The devastation of the nation's most densely populated urban region, and indications that many firms are planning to permanently leave Manhattan for suburban locales, punctured the optimism that had lately characterized that city and others around the country.

That optimism was created, in part, by the fact that the digital revolution of the late 1990s took place largely in urban areas like Manhattan—not just in the suburbs—and because cities were again seen as attractive locations for high-tech entrepreneurs and small tech-related firms.

It would be naive to think the World Trade Center catastrophe will not have a profound impact on the urban future. The world has indeed been altered and the immediate prospect for cities has certainly changed. The sense of security that so underpinned the urban renaissance—not only in New York but in many major cities—has certainly been undermined. Yet despite the current concerns after the events of September 11, urban areas, and particularly New York, retain an essential social, cultural and economic dynamism that suggest they can still play a pivotal, vital role in the emerging digital economy.

This report is an attempt to both look back at the recent success that New York and other cities had in developing vibrant tech districts and to look forward at the future of the tech savvy city. In doing so, it is important to note that urban areas successfully overcame numerous obstacles—not to mention skepticism—to get to where they were prior to September 11th.

In the mid-1970s, academics were predicting the "death of cities." At that time a different kind of terror—that of crime and social disorder—was the cause. The rapid increase in murder and theft starting in the 1960s drove millions of middle class residents and businesses out from the central core. Some center cities, such as Detroit and St. Louis, have never really recovered.

At the same time, however, a technological revolution was under way, principally occurring not in urban areas, but in sprawling suburban "nerdistans"—places like Silicon Valley and Irvine, California, and Raleigh-Durham, North Carolina. High-tech firms were leaving the urban core at an even higher rate than companies in other industries, lured to the suburbs by lower crime and tax rates, and, most critically, the availability of needed employees.

In the late 1990s, cities saw a reduction in crime rates, and an upsurge in immigrant and childless adult populations. Certain elements of the information revolution, such as new media, the arts and high-end business services, again flocked to the densely populated urban core, and most particularly

to New York. Similar phenomena, albeit on a somewhat less spectacular scale, occurred in cities as diverse as Chicago, Houston, Boston, Charlotte and Philadelphia.

Neighborhoods such as lower Manhattan, which seemed doomed to technological obsolescence, experienced an almost miraculous turnaround, while sections of other cities, including Los Angeles, Chicago, Boston, Washington, D.C., Seattle and San Francisco, enjoyed similar revivals. Surprisingly, one of the most important reasons for the resurgence of these cities has been the rise of the digital economy.

Unlike the earlier high-tech revolution, which involved the development and production of fiber optics and computer chips, the next wave in the digital era was shaped by a creative dynamic: the development of the Internet, and an accompanying demand for entertainment and other creative content.

This shift was made to order for urban areas. In fact, the first cities to see the full benefit of this transformation were those that traditionally held the strongest appeal for artists and other creative people. The steady increase in the migration of such well-educated, often young, frequently single people to selected urban centers, creating a "gene pool" of entrepreneurs and potential employees, has made the recent urban renaissance possible.

By 2001 New York and several other cities boasted burgeoning information age-oriented

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is a policy institute dedicated to aggressively pursuing solutions to the most critical problems facing cities.

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districts in which large tracts of largely empty second-class office buildings and formerly desolate warehouse and manufacturing space have been transformed into highly desirable, post-industrial hubs. As rents for both work and living spaces increased markedly in central business and residential districts, both firms and workers have moved into adjacent, formerly depressed areas, bringing large, moribund sections of the urban core back to life.

While the precipitous decline of the "dot-com" sectors in New York, San Francisco and other major cities has dampened enthusiasm for the information economy, the digital age is here to stay, and it will continue to be a driving force for entrepreneurship and business expansion in urban areas.

Yet not all cities will benefit to the same extent from the ongoing digital revolution. Leading tech centers will continue to compete with one another to retain and attract skilled knowledge workers—a commodity that has been in short supply over the past few years. Some cities will thrive while others gradually fall behind.

Just as many old economy businesses have transformed themselves in order to participate in the new economy, city governments will have to alter their economic development policies to address the particular needs of high-tech firms. Instead of simply focusing on traditional programs designed to retain and attract large companies, cities must begin to focus more on retaining and attracting skilled employees. Those cities that maintain a high quality of life and encourage networking between digital-age entrepreneurs and other sectors of the economy are likely to do best in the post-industrial order.

Another important task of city governments, in the aftermath of the World Trade Center disaster and the mounting fear of future terrorist attacks will be to restore a sense of safety.

The attack is already prompting some companies to decentralize their operations in different locations. It is not the first time that this has happened. Many firms cited the damage from the 1994 Northridge earthquake as reason to shift some facilities away from the California fault lines. After a respectable silence, industrial recruiters from Nevada, Arizona and Texas

swooped into Southern California, using precisely these arguments. Several firms relocated some or all of their operations to "safer" geologic zones.

At a time when high-profile targets—from office towers to large airports and, conceivably, even movie studios—provide irresistible temptation for terrorists, location in the vast, unremarkable anonymity of the hinterlands could be seen as more attractive. Today, firms like Merrill Lynch, which maintained large offices both at the Trade Center and in more bucolic Princeton, New Jersey, are probably glad that they did not leave all of their key employees in Manhattan.

With their Manhattan centers destroyed, other companies and individuals—including tech firms and in-demand tech workers—may see dispersing as critical to their security. The past decade's advances in telecommunications technology make decentralization far more workable than even a decade ago.

Fearful of being made targets, companies are now likely to seek safety in obscure locations. "If you're looking for a new Chicago location, I don't think you'd like to think about the hundredth floor of the Sears Tower," suggests Matt Walton, President of E-Team, a provider of Net-based security and disaster services.

New York and other cities can overcome this by making sure businesses and individuals feel secure, by embracing the concept of decentralized business districts throughout the five boroughs and by investing in things that strengthen the grassroots economy.

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# Why High-Tech Matters to the Future of Cities

Will the information technology industry continue to be a driving force for cities like New York in the future? After all, even before the World Trade Center attacks, tech stocks were in free fall, and many Internet-related firms that were the darlings of both investors and the media had gone belly-up.

We have already seen a massive, highly public, reaction against the very concept of the "new economy," and among some there is a growing belief that this new digital economy and the Internet constitute nothing more than a passing fad.

The truth is that tech is now a major economic engine. Every year since 1997, according to Bianco Research and Deutsche Asset Management, the tech-driven part of the economy has grown faster—as much as 25 percent faster—than the rest of the economy. In 2000, as tech growth slowed, the rest of the economy slowed more; in fact, the differential between the two segments actually grew.

Indeed, in 2000, all the key indices of the Internet-based economy—the number of people online, the amount of consumer and business-to-business Web commerce, the total number of hours spent on the Net—jumped dramatically. For example, between 1998 and 2000, the penetration of households by the Internet soared from 31 percent to 44 percent. Today it is estimated that more than half the households in the nation are "wired"—more than triple the percentage back in 1996. That number is projected to include over two-thirds of the population by 2005.

Even e-commerce has shown surprising strength for a supposedly sick industry. Online spending by consumers, the most derided part of the online marketplace, doubled in 2000, and is almost four times what it was in 1999. Meanwhile, retail sales overall barely increased. Business-to-business commerce, which is now roughly four times larger than retail, grew by 119 percent over the same period.

More importantly, the Internet has become more and more a normal part of our business, personal and cultural lives. Despite talk of "digital overload," users increased their time online in 2000 from 12 to 19 hours a month—more than

twice as much time as they logged in 1998. The process of the Internet cannibalizing other media—particularly print—also continues apace. Within a generation, the Internet will likely become the primary focus for information content and intellectual debate in the nation, particularly as broadband and wireless technologies improve transmission capability.

The Net and the information economy not only have grown more integral to American lives, but they have also begun to become truly global phenomena. Each day, roughly 400 million people worldwide use the Internet; approximately two-thirds of those people are logging on from outside North America. By 2005, that number will double, and about three in four Web surfers will live on another continent. At that point, Asia will have more people on the Net than the United States.

In the booms of the early industrial revolution—involving railroads, electricity, automobiles and airlines—many of the earliest participants failed in their first efforts to make these new technologies profitable. Yet, over time, all these technologies transformed our economy, our communities, and the very way in which we live our lives. To see the collapse of certain new economy firms, or temporary reductions in rents or occupancies in certain "hot" districts, as symbolic of a return to the old economy, represents the height of historical blindness and folly. It would be like reacting to the bankruptcies of automotive start-ups in 1908 by giving up on the internal combustion engine and investing one's fortune in horse futures.

Given this broader, historical perspective, what we witnessed in the first years of the 21st century should not be seen as the end of the new economy, but a predictable, even inevitable, shakeout in its evolution.

# The Urban Technopolis

In the emerging post-industrial economy, companies and people can now locate not where they must, but where they will. Yet, despite the growth of cyberspace and the freedom it affords, people still live in brick-and-mortar communities, and the new technology has not eliminated the importance of geography. In fact, the truth is quite the opposite: place matters now more than ever before.

What has changed, and profoundly, is what makes places successful and unsuccessful. As old economy requirements—such as ready access to materials, or convenience to the marketplace—have become increasingly tangential, other factors have begun to receive more attention. Surveys of high-technology firms find quality of life and access to educated workers far more important than any of the traditional factors, such as taxes, regulation or land costs.

In addition, the individuals who have a stake in the new high-tech economy—investors, engineers, systems analysts, scientists and creative workers—are increasingly, as one analyst put it, "very sophisticated consumers of place." To them, the world is essentially a vast smorgasbord, with various locales competing for their attention. As a result, factors such as safety, high-quality affordable housing, and cultural and recreational amenities have become increasingly important to an area's success.

Initially, these factors predominately benefited not cities, but their sprawling peripheries. The rise of "nerdistans"—places like Silicon Valley and

Irvine, California, and Raleigh-Durham, North Carolina—suggested that suburbia, not the urban core, would harvest most of the benefits of technological growth. For much of the past quarter-century, high-tech firms left the urban core for suburbia at an even higher rate than other companies, for reasons including the relative lack of distractions, less crime, lower tax rates and, most importantly, the availability of needed employees. In 1974, core cities accounted for over half the computer industry's employment; by 1992, that number had dropped to barely one-third.

By century's end, roughly 90 percent of all new office construction was taking place in suburban areas. The suburbs now house 57 percent of all office stock, compared to just 25 percent as recently as 1975. Between 1988 and 1998, the amount of office space in suburbia grew by 120 percent, compared to a mere 15 percent in the inner city. During that time, roughly 80 percent of all demand for office space and new jobs occurred in the suburbs.

High Tech Employment in Selected First Tier Metro Areas

	1980	1990	1999	Growth Rate 1990-1999	% Total Employment
New York	169.6	161.8	180.5	11.6	4.3 %
Boston	274	323.7	323.3	-0.1	16.3 %
San Francisco	53.4	60.8	96.2	58.2	9.2 %
Los Angeles	433	460	388.6	-15.5	9.7 %
Seattle	119.1	178.1	211.7	18.9	15.3 %

(Source: Milken Institute)

This change led some observers, such as conservative thinkers George Gilder and Irving Kristol, to predict the "death of cities." America, noted Kristol in the mid-1970s, seemed to be bent on constructing "an urban civilization without cities." Yet, in the 1990s, particularly with the rise of the Internet and digital imaging, a second wave of the technological revolution shifted more attention to urban regions. As the digital economy expanded in the late 1990s, cities were suddenly back in the game.

The most recent changes in the technology landscape stem largely from changes within the digital economy itself. The new information economy has turned out to possess two faces—one built largely around hard science and mathematics, and a second that focuses on the content that flows through the expanding information pipelines. This has created a split in the geography of the digital economy. The "hard" side, which includes the development and production of fiber optics and chips, has very much concentrated in the nerdistan of the periphery. But the "soft" side, which comprises such creative fields as media, fashion, advertising and design, has taken on a decidedly more urban cast.

As in the case of the nerdistan, cities have benefited from the latest phase in the digital revolution less because of what businesses need than because of what workers want. Compared to most middle-class

## Major metropolitan areas, once seemingly doomed by the telecommuting paradigm, are now positioned to be major beneficiaries of the digital revolution.

Americans, particularly those with families, many young technology and creative workers hold far more positive views of city life. For the most part, they are city-dwellers by choice, who tend to like the pace and cultural offerings of cities.

During the 1990s, for example, New York City lost many middle-class families, but they were largely replaced by younger, better-educated people, many of who considered the proliferation of cultural institutions to be one of the key reasons for settling in the city. The decade-long reduction in crime rates in

Demographics of Those Moving Into and Out of New York City			
	In-Migration	Out-Migration	
Age	Under 35	82 %	47 %
	Over 65	1 %	10 %
Education/Economic Status			
	College	84 %	60 %
	Currently Working	81 %	56 %
	Income over \$35,000	40 %	47 %
	Retired	2 %	20 %
Marital Status			
	Married	57 %	57 %
	with Children	10 %	32 %

(Source: Louis Harris)

many favored cities, notably New York, Los Angeles and Chicago, may also have accelerated this trend.

"You can put a chip firm in Boise, Idaho, but you'll never have a major media play operating there," noted Tom Lipscomb, founder of Infosafe, a New York-based multimedia software firm. "You can't get the kind of creative people you need to move to Plano, Texas. They want to be somewhere they sense there's action."

In short, the urban landscape suits the new wave of technology workers—and those workers are in turn assets to the communities in which they settle. The most recent wave of urban colonists—even in hardscrabble, blue-collar kinds of places such as Williamsburg and Greenpoint in New York City—tended to be young, affluent and well-educated. Cities that continue to attract individuals in this demographic will likely do well in the future.

## Knowledge Value Neighborhoods

The economic resurgence during the late 1990s in cities such as New York, Chicago, San Francisco and Boston must be seen in a different light than the previous gentrification wave that occurred in the 1980s. In that era, as in the current one, younger people flocked to urban centers. But they generally worked in central business districts and "settled," usually temporarily, in suburban areas convenient to their places of employment.

In contrast, the latest settlement pattern reveals a critical shift: the movement of employment and wealth-generation to urban neighborhoods outside of central business districts.

The phenomenon is related to a rise in entrepreneurship among younger people: Fully 10 percent of people aged 18 to 34 already own their own business, and most surveys show them to be far more entrepreneurial than preceding generations. In New York City, 99.7 percent of all businesses have fewer than 500 employees, and 95.8 percent have fewer than 50.

Rather than concentrate in a traditional location such as Midtown or Wall Street, many of these small businesses are creating their own communities in neighborhoods that can be retrofitted for both work and living. These tend to be older, often long-distressed neighborhoods made up largely of aging industrial buildings. And in the wake of the World Trade Center disaster, and a likely reaction against an over-concentration of personnel in large, high-rise dominated districts, these areas may well take on an increased importance in the city's next economic resurgence.

In many ways this change represents a return to

some of the dynamics of urban life that had been under assault since the rise of mass industrialism in the mid-20th century. The current entrepreneurial activity in dynamic outlying urban neighborhoods recalls the kind of intricate "street ballet"—the activities of meat-packers, warehouse workers, printers and the assorted families living in these areas—celebrated in the writings of urbanist Jane Jacobs.

Of course, this burgeoning activity in non-central business districts differs markedly from that of the past, both in terms of the type of business conducted and by whom. As blue-collar artisans and workers have exited, black-clad artists, video producers, hip advertising executives and designers have replaced them.

The new information age outposts also differ greatly from the nerdistans in composition. In New York, in particular, the growth has rarely been high-tech in a traditional sense—there is relatively little silicon in Silicon Alley—but instead consists largely of a broad array of information, fashion and media companies. The "hip" appeal of these areas has also lured other businesses—design houses

such as Kenneth Cole and Diane von Furstenberg, as well as numerous ad agencies—out of Midtown Manhattan. One old industrial building on the western edge of Chelsea, the Starrett-Lehigh Building, now houses Martha Stewart Living and Hugo Boss Fashions, as well as Internet companies such as Screaming Media.

These areas—places like downtown and the Flatiron district in Manhattan, DUMBO in Brooklyn, Deep Ellum in Dallas, Camden in Baltimore, Wicker Park and Bucktown in Chicago, and South of Market in San Francisco—have been transformed into what may be best described as "knowledge value" neighborhoods.

Developed by Japanese economist Taichi Sakaiya, the idea of knowledge value is not about the creation and use of superior technology. Instead, Sakaiya predicted future economic growth would accrue to those nations, regions, industries or companies adept at incorporating cultural "knowledge," design distinctiveness and fashionability into products or services.

The entrepreneurial activity in dynamic urban areas today recalls the intricate "street ballet"—the activities of meat packers, warehouse workers, printers and the assorted families living there—celebrated by Jane Jacobs.

Although a thoroughly modern concept, knowledge value, and the emergence of districts that thrive on specialized, art-based production, recalls the urban economy before the advent of mass industrialism. Cities, by their nature, have always thrived by passing on cultural and technical knowledge, while at the same time continually blending in elements from the outside. This blending helped to create the innovative cultures that produced new styles, art forms and fashions which, over time, spread to the more peripheral areas.

The economy's increasing reliance on the knowledge-value paradigm has changed the face of urban development. Old industrial sites—class B and C spaces—have become the sites of choice for post-industrial work. At the same time, high-rise construction—the epitome of the mass corporate paradigm of the late 20th century—has slowed down significantly despite a robust economy.

Typical of this phenomenon has been the resurgence of lower Manhattan, most particularly along the West Side stretching from Wall Street to Chelsea. Up until the 1950s, the area boasted one of the nation's most vibrant collections of small industrial firms. This assemblage of small firms helped establish New York as the nation's leading manufacturing center, a thriving place that grew even as mass-industrial centers such as Detroit fell into prolonged decline.

By the 1970s, however, there were clear signs of distress. Rising taxes, regulation, declining public services, crime and general indifference to smaller businesses were slowly undermining the artisanal base. Historian Fernand Braudel described the process as "the decline one after the other of little firms, sometimes employing less than 30 people, which made up [the area's] commercial and industrial substance."

Downtown Manhattan continued to experience a slow, seemingly inexorable deterioration, but with the arrival of digital-age firms and entrepreneurs, it has been totally reborn and revitalized. Once a declining area with vacancy rates of more than 20 percent, lower Manhattan by 2000 was virtually 95 percent filled, with rents for class B properties going for over \$40 a square foot. In some industrial areas, rents increased as much as fivefold in recent years, as Internet and other communications firms moved into once desolate industrial and warehouse districts.



(Source: Reis.com)

Change in Class B & C Vacancies In Selected Cities' CBDs			
Commercial Business District	Vacancy Rate 12/31/95	Vacancy Rate 12/31/99	Change
Downtown Manhattan	27.6 %	11.6 %	-16.0 %
Houston	42.8 %	27.5 %	-15.3 %
Baltimore	24.1 %	12.5 %	-11.6 %
San Francisco	14.7 %	3.2 %	-11.5 %
Seattle	9.2 %	3.3 %	-5.9 %
US Aggregate	19.9 %	11.4 %	-8.5 %

## Driving Out Old Economy Businesses and Longtime Residents

Despite the positive changes that the digital era has brought to cities, the transformation has also created a number of problems. One is the growing concern in these cities that high rents are driving out working and even middle-class residents, as well as the industries that employ them. Between 1978 and 1997, the nation's large city centers lost nearly two out of every five of their manufacturing positions, while this sector grew slightly in the rest of the nation. And in some neighborhoods, such as Lincoln Park and Bucktown in Chicago, housing prices soared by as much as 40 percent annually in the late 1990s.

The current post-industrial revitalization of cities threatens to accelerate these trends. Until the digital revolution, for example, New York's Varick Street, in lower Manhattan, was a beehive of manufacturing activity, much of it associated with Manhattan's nearly \$2 billion printing industry. Yet the printers on Varick Street began to fear that this

model industrial neighborhood would be driven out of existence. As rents in the surrounding areas rose, scores of printers were forced to find new homes farther away from their client base among Manhattan's media, arts, advertising, business service and financial firms. Some moved to New Jersey or the outer boroughs, while some have relocated

# Knowledge value neighborhoods suffer from among the most severe shortages of affordable housing, even for middle income residents.

entirely out of the region. Garment, furniture and other specialty manufacturing firms have made similar complaints.

This trend will only be magnified now that millions of square feet of office space in Manhattan was destroyed. Owners of loft buildings in the Garment Center, Chinatown, Long Island City and other industrial areas of New York will probably look to replace manufacturers with higher paying office tenants, many of whom are scrambling for space.

Such dilemmas reflect some of the difficulties associated with preserving a modicum of economic diversity in increasingly post-industrial first-tier cities. With office, commercial and housing space severely limited, San Francisco rapidly became one of the nation's most expensive and successful cities. Yet, at the same time, this shift has had a negative impact on the city's economic diversity, as trade has shifted to Oakland and San Jose, which now export four times as much as San Francisco. Other blue-collar industries, such as apparel, have also lost ground, and scores of smaller manufacturing outfits have departed for other locales or simply closed up shop, particularly in the once-flourishing garment industry.

The result has been an urban economy that has precious little room not only for the working

class, but for the middle-income resident as well. And losing the middle class, in particular, means losing a lot of the people who make the city run.

Says Art Cimento, who runs the McKinsey and Company consulting firm's San Francisco office: "The biggest concern I have is a divide between the investment banker who's making \$1 million a year and the person who can't stay here making \$60,000. You need people to run the dry cleaners and work in the restaurants, but they can't afford to be here."

Today the primary exemplars of the knowledge value neighborhood suffer from among the most severe shortages of affordable housing, even for middle-income residents. These problems have sparked a growing political reaction in many primary information age communities. In cities such as New York, San Francisco, Seattle, Chicago and Santa Monica, the growth of knowledge-value communities is increasingly regarded in some circles—particularly those concerned with the preservation of working-class industries and jobs—as essentially undermining the existence of whole neighborhoods.

For many of these areas, the shift from the industrial to the information age has been largely positive. Many older structures are being refurbished, bringing in a younger, more affluent consumer base. But perhaps more important in the long term are growing concerns of neighborhoods such as Pilsen in Chicago—a former Czech area now solidly Latino—that rising land prices and a decline in local manufacturing could push out large numbers of minority, working-class residents. The development of a small artists' colony in the area is seen not as urban renewal but as a harbinger of bad things to come.

Similar concerns are being expressed in other cities, where concerns about over-rapid growth and lack of affordability could build political resistance to inner-city recoveries. Nowhere is this more evident than in San Francisco, where the rise of what scholar Richard DeLeon has called "post-materialist populism" can be seen in the growing resentment toward—and resistance to—Internet and other related information businesses.

# Competition from Second Tier Cities

Knowledge value workers and entrepreneurs have indicated that they are willing to pay a premium to live and work in urban areas like New York and San Francisco. But there is a limit. Even the most desirable cities must continue to be attractive and relatively affordable to retain and attract the people that now drive the high-tech economy.

Retaining and recruiting high-skilled workers has already been one of the biggest challenges for New Economy companies. High-tech companies in major cities may only find this to be more difficult as savvy second tier cities begin to make themselves more attractive. In addition, the collapse of the IPO and venture capital markets has made digital firms more sensitive to basic concerns such as rent and affordability of housing for employees

Houston-based entrepreneur Andrew Segal, for instance, has made a considerable fortune investing in older business districts in unheralded cities such as Baltimore, Houston, Tulsa, Kansas City and Hartford, often filling aging class B office buildings with information-industry firms looking for lower rents.

Some entrepreneurs in Segal's buildings had originally considered locating in first-tier cities, but were put off by the price. Salvagesale.com's Charlie Wilson, for example, originally sought to start his

business in San Francisco, but instead opted to move into new offices in Houston, where rents are less than a third of those he would have paid in the Bay Area. The expansion to these alternative markets can now be seen in a series of cities across the country. Some of these places share some of the essentials found in the first-tier cities—architecturally interesting older buildings, thriving arts districts and an existing base of potential clients for new companies. As the information revolution spreads, and with it the work culture developed in the first-tier cities, the prospects are excellent that similar phenomena may take place in a whole host of other locales.

Under conditions of intensified competition, and with many firms dispersing key personnel in order to avoid exposure to a World Trade Center-like disaster, this process could drain much of the information age growth out of major cities that do not improve their appeal and provide a strengthened sense of security.

## Conclusion: Can Leading Cities Meet the New Challenges?

The new technological model offers much promise for cities, but also many dangers. Indeed, the new digital economy, with its promise of easy communications across vast distances, could further accelerate these trends. When air travel was last threatened, and terrorism widely feared, during the Gulf War, the Internet, teleconferencing and other new telecommunications technologies were in their infancy. Today many companies can function "virtually" from multiple locations, and more are likely to do so in the future.

Telecommunications companies, badly battered in the stock market over the past two years, may have gained anew lease on life, suggests Rich Nespola, President of TMNG, Inc., a 700-person telecommunications consulting firm based in Kansas City.

Nespola believes the growing risk of travel, particularly around major airports, and a reluctance to locate in high-profile buildings, will lead more firms to follow the more dispersed model of corporate organization that has been emerging slowly over the past decade.

## Instead of spending tax dollars on stadiums or subsidizing large firms, cities should strengthen the grass-roots economy and make the area more attractive to creative and tech workers.

Yet even in dispersion, there will always be creative people—the young, singles, childless couples, lovers of the arts—who will want to be in a city like New York. Here lies the key to the next urban renaissance: building cities not by forcing people to cluster in high-rise towers, but on the basis of luring that often talented and highly motivated minority that craves the edginess and personal contact that only great agglomerations can provide.

In this respect, then, the rebuilding of lower Manhattan—and the continuing process of renewing urban America in the digital age—is not about reconstructing the steel and glass behemoths of a bygone epoch, but about finding ways to introduce light and greenery, and to remold cities on a more human scale. In New York, it could mean the revival of many long distressed areas in Brooklyn and Queens, and embracing the more flexible live-work districts that have sprung up throughout Manhattan. Information age trends that developed well after the construction of the towers will now be accelerated, and, in the face of tragedy, ultimately accelerate the creation of a successful 21st century city.

But to continue to thrive in the future, and to fend off challenges from second tier cities, major urban centers like New York must address those factors that have the potential to appeal to a broad

range of small firms and the skilled professionals essential to them. History shows that great cities have a way of regenerating themselves by re-creating themselves as more attractive, but often quite different places. After the Second World War, London was largely a ruin, as was Tokyo. Yet each of these cities rebuilt themselves and achieved notable success in the last decades of the 20th century. More recently, Los Angeles—wracked by riots and then a devastating earthquake—in less than five years rebounded from its nadir to a new era of metropolitan growth and self-confidence.

This scenario of recovery and change will be played out in New York as well. Once stronger security measures are in place, the city's very dynamism—its concentrations of intelligence, arts, culture and diverse populations—will provide an irresistible spur to renewal. But there will also be significant change. The very shape of the city will shift, with less emphasis on the extreme concentrations that characterized late 20th century New York.

What really matters—as can be seen in the late 1990s revival of urban America—are those things that lead individuals to move into an urban area. This fundamentally does not mean making cities more like the suburbs, which is, after all, usually the place these individuals are consciously rejecting. And it does not mean "Disneyfying" commercial districts, largely to appeal to what now seems destined to be a diminishing tourist market. Rather, it means preserving a city's historic character, retail diversity and sense of uniqueness.

This is far different than saying that the city needs to be kept in disrepair in order to be authentic. As Oakland Mayor Jerry Brown has pointed out, a slum is not an "icon" of an urban area. Instead, city leaders need to make sure that the basic conditions of a decent environment—clean air, affordable housing, low rates of crime, well-maintained streets—are in place.

Moreover, even in a virtualized world, cities remain, as Jane Jacobs noted, "thoroughly physical places." They must provide a sense of community and well-being for the bulk of their residents—if they wish to prosper in the new environment. The digital revolution may offer a chance for cities to reverse decades of decline, but in the long run this will only work if the new technology can be made to work for a broader spectrum of urban residents.

In the future, the most pressing challenge for cities lies in building and cultivating the skills and energies of their own people, both as entrepreneurs and workers. Successful cities in their primes—Florence in the 15th century, Amsterdam in the 16th, London in the 19th or New York for much of the 20th—have often been driven by grasping "new men" from the countryside, from abroad or even from their own slums. Writing about New York in the 1950s, Jacobs observed: "A metropolitan economy, if it is working well, is constantly transforming many poor people into middle-class people...green-horns into competent citizens...Cities don't lure the middle class, they create it."

This notion of a grassroots-driven economy is even more relevant at a time when most new job creation stems from smaller firms, particularly in the information sector. A quarter-century ago, Fortune 500 companies provided one out every five private sector jobs; today, that ratio is fewer than one in 10. At the same time, cities must address the needs not only of the information sector, but also of the production sectors that are increasingly interrelated with them. Finding ways to promote a healthy manufacturing and warehousing sector—through tax or regulatory policies—would provide jobs for working-class New Yorkers and serve to complement electronic commerce operations based in the city.

Cities like New York would be wise to foster those things that strengthen the grassroots economy and make the community more attractive to creative and technological workers. This can be achieved through a broad range of activities: support for locally generated arts programs, efforts to foster networking and information-sharing among local small businesses, development of affordable housing, and support for technology training programs. An atmosphere open to flexible living and working options, that preserves the intrinsic character of a place, and that fosters the ad hoc cooperation between related firms and that provides the basic security for business operations, in reality represents a more "progressive" economic policy than those measures usually suggested by activist governments.

As it enters the 21st century, New York, the archetypal first-tier American city, still possesses

undeniable assets for success in the digital age. But nothing is guaranteed. Other cities, many with less daunting security concerns, social issues or infrastructure challenges, can plug into the Internet and exploit the new technological tool at least as easily. The key factor—and what has always made the difference—will be the degree of ingenuity applied by urbanites to meet the distinct challenges of a new economic epoch.

Today's city is not just a collection of fiber-optic cables, but an organism, whose various parts function together with reasonable efficiency. It also possesses a kind of soul, with a sense of itself, that leads its citizens to strive both as individuals and as part of a greater urban enterprise. In the digital age, ultimately, the most important characteristics remain those—sense of place, excitement, will power and commitment—that have driven successful cities from the days of antiquity to the dawn of the 21st century.

In the end, cities, and most particularly New York, will prevail by becoming more decentralized and multi-polar, and fundamentally more human. If they do, they will continue to draw those with talent and energy, and the spirit of urbanity, so closely tied to that of civilization itself, will not easily be extinguished.

The rebuilding of lower Manhattan should not be about reconstructing the steel and glass behemoths of a bygone epoch, but about finding ways to remold cities on a more human scale.

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