INFORMATION TECHNOLOGY AND DOWNTOWN RESTRUCTURING: THE CASE OF NEW YORK CITY’S FINANCIAL DISTRICT

Travis R. Longcore
Department of Geography
University of California, Los Angeles
Los Angeles, California 90024-1524

Peter W. Rees
Department of Geography
University of Delaware
Newark, Delaware 19716

Abstract: Among central-city land-use districts, the financial district traditionally has been the most locationally stable. Advances in building and business technology, such as steel frame construction, the passenger elevator, and the telephone, have been accommodated through refitting existing sites. The changes in building technology required by modern, global financial companies, particularly the large horizontal footplates that exceed the size of traditional sites, have finally loosened the concentrated business district location. In downtown Manhattan, the result has been a doughnut shape, as large financial institutions have moved to the periphery, leaving Wall Street with back-office functions. The obsolescence of traditional locations imposed by a building technology that favors horizontal over vertical spaces may be offset by the perceived need for face-to-face contact. The degree to which financial institutions in world cities maintain a dispersed but identifiable district in the future may be an accurate measure of the value of urban propinquity.

Technological change in building design has long influenced central-city geography. The steel-frame construction cage and the passenger elevator allowed the land market to concentrate downtown land values, producing the skyscraper office building that has become a worldwide urban symbol. The telephone permitted reorganization of internal office geography and reduction in face-to-face communication. Electric power applied to manufacturing transformed the vertical factory of steam engine-driven pulleys to the horizontal suburban shop floor of individual motors (Vance, 1990).

Today, telecommunication and information processing technology, stimulated by the need for instantaneous transmission of information in a globalized economy, is placing new demands on the existing built environment. Building infrastructure is increasingly obsolete. In the past, when technological change prompted building replacement, uses at the site often changed, reflecting readjustments to the land market (Ward, 1966; Bowden, 1971). But just as often, obsolete structures were internally refitted, reinforcing an inertial dimension to the city’s geography. How city morphology responds to the most recent changes involving information technology is
the subject of this study. It is a question frequently posed, as speculation grows regarding the future need for financial centers as places of face-to-face communication in an electronically linked business world (Warf, 1989, 1995; Brotschie, Batty, Hall, and Newton, 1991; Markusen and Gwiasda, 1994; Martin, 1994).

THE WORLD CITY AND THE INFORMATIONAL CITY

The impact of information technology is most keenly felt in the world city. The concept of the world city was first suggested by Friedmann and Wolff (1982; Friedmann, 1986, 1993), who argued that the contemporary world economy is increasingly articulated through a select group of urban centers from which global economic power and capital are organized. Such world cities are centers for transnational corporate headquarters, international finance, global transportation and communications, and high-level business and financial—or producer—services. To function, these centers require rapid telecommunications and the instantaneous transfer of information and capital, permitting decentralization of economic activities while increasing the need for centralized control functions (Castells, 1985; King, 1990; Sassen, 1991; Bakis, Aber, and Roche, 1993; Kellerman, 1993).

The role of information in the economy has long been recognized (Hepworth, 1990a). In 1977, Porat, who introduced the term “information economy,” found that more than 50% of the United States work force was involved in occupations producing, processing, and distributing information, or providing the infrastructure to do so. But nowhere is information manipulation a more dominant influence on the character of the urban center than in the world city, whose form depends more on the world economy than on local conditions. Growth sectors include banking, insurance, and international capital management, all of which create, evaluate, exchange, and process global information in what Castells (1985, 1989) has termed the “informational city.”

Studies concerning this new urban form have stressed interurban information flows between cities in a world urban hierarchy (Hepworth and Dobillas, 1985; Hepworth, 1986, 1987, 1990b; Brotchie, Batty, Hall, and Newton, 1991) and the potential decentralization from the central city of office functions made footloose by instant electronic communications (Kutay, 1986; Gillespie and Williams, 1988; Cook and Beck, 1991; Fathy, 1991; Askey and Marshall, 1992). Others have argued that although routine back-office functions have indeed decentralized, administrative control within large multinational organizations and a transnational managerial subculture reinforce the “extreme specificity of a few nodal places” (Castells, 1985, p. 18; Downs, 1987; Moss, 1987; Berry, 1989).

Pre-eminent among such places are New York, London, and Tokyo (Friedmann and Wolff, 1982; Moss, 1985; Friedmann, 1986; Beaugerard, 1991; Mollenkopf and Castells, 1991; Sassen, 1991; Dicken, 1992), where information technology has globalized and centralized financial markets and institutions. Regan (1989) believed that this condition had led to the integration of financial and capital markets, blurring the distinction between commercial and investment banking. Banks once could turn a profit by extending credit and collecting interest. But as telecommunications made the market for capital more competitive, international banks have turned increasingly to noncredit and investment banking services, and from loans to securities (Mey, 1989).
Fueled by computerized trading systems and electronically linked markets, traders can seek margins 24 hours a day from London to New York to Singapore to Tokyo and back again (Warf, 1989, 1995; Brunn and Leinbach, 1991). This integration of markets contributes to “one transterritorial marketplace” (Sassen, 1991, p. 327), but only from world-city centers that can support a sufficient density of telecommunications infrastructure: fiber optic networks connecting global teleports and satellite systems to buildings capable of supporting advanced information technology. Fiber-optic wire, although exceeding traditional twisted copper lines and coaxial cable in carrying capacity, speed, security, and signal strength, is not as easily spliced and hence its use favors high-volume, point-to-point communications. Fiber-optic systems, therefore, are used to link major hubs and thus reinforce the existing urban hierarchy (Moss, 1986; Moss and Dunau, 1986). But within major urban centers, access is ubiquitous, and the routes of fiber-optic systems do not appear to exert a spatially limiting influence on office buildings. For instance, in Manhattan, Citicorp, Olympia and York, and the New York City Teleport all have their own fiber-optic networks, while New York Telephone loops the island with three systems (Moss and Dunau, 1986; Moss, 1987, p. 537). Consequently, any reasonably placed building in Manhattan can gain access to a fiber-optic wire. By contrast, the building technology required to support the new functions of world cities may be insufficiently accommodated by existing structures and may lead “to the need for new office buildings capable of meeting modern technological and spatial conditions” (Moss, 1991, p. 183).

DESIGN CHARACTERISTICS OF “SMART” BUILDINGS

The information technology that supports the core activities of world cities demands what recently have been called “smart” or “intelligent” buildings (Moskal, 1985; Schwanke and Roark, 1985; Cross, 1987; Sequerth and DeFranks, 1987; Atkin, 1988; Bernaden and Neubauer, 1988). The key issue for this study is whether existing structures that presently form the core of the central city can be retrofitted, or whether building modifications may prove so expensive that new structures must be constructed in different locations.

“Smart” buildings have many characteristics that often favor new construction over the redesign of existing buildings. Heating and cooling systems (HVAC) must be automated to control environments required by electronic equipment, and space must be found for back-up water tanks for air conditioning. Security of uninterrupted power supply demands redundancy and duplication, substantially raising a building’s power service needs and demanding heavy generating equipment on site (Cross, 1987). Space for reinforced slabs for upwards of four diesel generators must be provided, as well as room for fuel storage tanks.

A building’s power and telephone needs require access to a regular and back-up entry point for cabling conduits. The number of phone wires entering a building may be in the order of one per 2000 square feet of floor space (Stern, Weiben, and Theodosias, 1985). Although it might be possible to enlarge a new entry conduit through the basement wall of an existing building, such retrofitting carries the danger of reducing structural integrity. Near the building entry conduit, provision must be made for a Private Branch Exchange (PBX) and maintenance rooms. A typical PBX
INFORMATION TECHNOLOGY AND DOWNTOWN RESTRUCTURING

Room is 25 x 25 feet, with another 17 x 17 feet to accommodate power supply, back-up batteries, and air conditioning (Stern et al., 1985).

Within the building, wiring space is essential. Computers and peripheral equipment must be connected through Local Area Networks (LANs), and in turn linked to the PBX. Wiring networks need to be integrated within the building fabric in such a way that multiple access points are provided without the wiring paths disrupting the work environment (Atkin, 1988). The wiring distribution system within a “smart” building may be considered as consisting of three subsystems. Primary wiring involves the vertical distribution of cables through risers and ducts between the floors of a building. Riser design must account for the bending radii of cables and space for distribution boards, junction boxes, and patch panels. In modern “smart” buildings, risers are distributed around the perimeter of the structure to reduce the complexity of secondary wiring networks. Insufficient riser space poses a significant challenge in the upgrading of many older, pre-1960 buildings, because constructing new risers can affect the structural integrity of the floors. Communications closets contain increasing amounts of equipment and often need three times the standard required space (Schwanke and Roark, 1985, p. 13).

Secondary wiring involves the horizontal distribution of power and communications around a floor. Such wiring can be under a carpet, suspended from the ceiling, wall-mounted, or in raised floors (Stansall and Bedford, 1985). The most flexible method is a raised floor of 8 to 12 inches in office areas and 12 to 24 inches in computer rooms. Older buildings with shorter story heights are often difficult to renovate for information technology precisely because of the lack of space for secondary wiring (Worthington, 1988).

Tertiary wiring is the connection of systems wires from the floor, wall, or ceiling to the appropriate equipment. This workplace cabling involves fewer building-design considerations, but still can point to an older building’s overall vulnerability. In one example of a diversified financial service firm, a Radio Shack power strip bought by a dealer to use on a trading floor caused the building’s underpowered electrical system to blow a fuse.

Specialized rooms house mainframe computers and LAN servers that require environmental variations not exceeding 10°F and 5% humidity. Conventional air conditioning systems cannot maintain these standards and computer rooms require raised flooring of two feet to accommodate wiring and special air conditioning equipment that operates 24 hours a day from an uninterruptable power source. The floors, as a result, must support weights of 100 pounds per square foot compared with half that load for general-purpose offices (Schwanke and Roark, 1985, p. 11; Cross, 1987; Alexander, 1988, p. 205). With the growth of LANs, rooms for computer servers add the need for specialized spaces that few older buildings can provide.

Among the most distinctive features of banks and financial service companies involved in the world city is the private trading floor, dealing in debt, equity, commodities, or money markets. Here, technological support and design criteria are essential. Architecturally, the trading floor of the largest brokerage houses and banks requires a large open area, free of columns to allow eye contact and face-to-face interaction for over 1000 dealers (Alexander, 1988, p. 203; Post, 1988, p. 26). Moss (1987) suggested that a preferable size is 30,000 to 40,000 square feet. Each trader requires multiple phone lines and a video switch to condense several on-line market
quotation systems to a single screen. Recording systems for later review and recording of phone transactions also are needed. The technical support for a trading floor may require a separate space of equivalent size.

Moss (1987, p. 538) has argued that the building “floor plate” of trading floors and their support spaces may be too large and technically complex to be accommodated in the narrow skyscraper office buildings built on the smaller grid of the 19th-century American city. He suggested that trading-floor requirements may be one of strongest factors creating a new set of building-location needs that are unfulfillable in the old urban financial core. In New York’s financial district, he noted, a “doughnut district” has been created, as head-office functions move to the periphery of the traditional district core, seeking larger plots of land for technologically superior buildings (Moss, pers. commun.).

THE CHANGING GEOGRAPHY OF NEW YORK’S FINANCIAL DISTRICT

The rise and locational stability of New York City’s financial district centered on Wall Street is well known (Domosh, 1990; Fenske and Holdsworth, 1992). At the beginning of this century, all but three buildings of New York City’s commercial real estate stock were in downtown (Real Estate Board of New York, 1985). Even as office and commercial functions moved to midtown, banks and financial services remained focused on the New York Stock Exchange on Wall Street and the American Stock Exchange at Trinity Place. Today, New York City retains the headquarters of more Fortune 500 corporations than any other American city, and its economy has been dominated since the 1980s by growth in the information sector (Markusen and Gwiasda, 1994). Attesting to its world-city status, the city produces more overseas telephone calls than any other entire country except Germany (O’Neil and Moss, 1991, p. 29).


An examination of office building construction patterns from 1960 to 1990 supports the view that New York City’s financial district has undergone significant geographic change as its specialized world-city function has grown. In 1960, the Downtown financial district was a compact area focused on Wall Street and Broadway, with the insurance district clustered around Maiden Lane (Fig. 1). Encircling this restricted site was a waterfront of wharves and warehouses, and the south- and west-side elevated highways. The financial district’s locational stability was encouraged through building remodeling or replacement on the same site as responses to company mergers and changing office technology. Mainframe computers still were bulky and slow, and personal computers and LAN technologies had not yet reached the market. Financial traders were not as dependent on telecommunications for access to overseas markets because the Eurobond and Eurodollar markets were in their infancy and banks could still make profits domestically on large corporate loans.

After 1960, the pattern of downtown office construction began to change with the appearance of more flexible office building designs. Hayden (1988) attributed this change to three factors. First, the size and shape of projects grew as buildings came
to be occupied by single companies seeking large floor plates that would be easier to reconfigure as business needs changed. Second, the shell-and-core marketing method was developed, in which the developer constructed the shell and left the future tenant to install and outfit the core. Third, high interest rates in the 1970s accelerated these tendencies. Developers sought to complete construction in the shortest possible time, and the shell of the building might be under construction while the interior was still in the final design phase. Consequently, buildings from the 1960s and 1970s could often accommodate later technologies that were not invented when the structures originally were built.

In the 1960s, new construction north of Wall Street suggested continued infilling within the existing district, but also the start of an outward move (Fig. 2). Five buildings were constructed along Water Street, taking advantage of large floor sizes available on undeveloped land in the district periphery. Three of these new buildings had floor areas of over 40,000 square feet. The 1970s confirmed the peripheral trend (Fig. 3). New construction extended the length of Water Street, occupied by tenants such as Chase Manhattan, American Express, and Chemical Bank. North of Wall Street, the World Trade Center, One Liberty Plaza, and Bankers Trust Plaza attracted firms such as Merrill Lynch, Bankers Trust, and the home of the Commodities Exchange Center. Zukin (1992, p. 206) has noted that the marketing of the huge space represented by the World Trade Center was aided by a local law requiring new fire-
Fig. 2. Existing major office buildings constructed before 1960. Numbers refer to street addresses (Office Buildings, 1992).

Fig. 3. New competitive office buildings, 1960-1969. Pre-1960 buildings are shown in grey (Office Buildings, 1992; Real Estate Board of New York, 1985).
The past decade, 1980-1990, reinforced the centripetal growth of the financial district (Fig. 4). Infilling along Water Street added 17 State Street, 3 New York Plaza, 85 Broadway, 7 Hanover Square, Financial Square, and 75 Wall Street, completing a new construction strip from State Street to beyond Maiden Lane. To the northwest, the new World Financial Center drew major tenants even farther from Wall Street, including Merrill Lynch, American Express, and the Bank of New York. The World Financial Center, part of Battery Park City, developed originally by the State of New York, was marketed many times, succeeding in attracting tenants only when its larger floor plates became a factor (Zukin, 1992). New buildings constructed within the old core district during this period, e.g., 45 Broadway and 1 Exchange Plaza, although technologically advanced, could not attract major financial tenants because they were too small, each having maximum floor sizes of less than 30,000 square feet.

To summarize the construction trends, Figure 5 displays office buildings constructed in the financial district in 1960-1990 with floor sizes exceeding 30,000 square feet, a more conservative figure than Moss’s estimate that financial institutions require a footprint of 40,000 square feet (Moss, 1987; Moss and Dunau, 1987). Nevertheless, with the exception of the southwest corner of the island, occupied by residential construction, large new office complexes of the type required by major financial institutions form a distinct outer ring around the old financial core.

Locational Patterns of Major Financial Institutions

To support a causal relationship between observed patterns of office building construction and the design requirements of contemporary information technology, interviews were attempted with seven of the top ten Fortune 500 commercial banks and diversified financial service providers, ranked by total assets for 1982-1991. The firms selected—Citicorp, American Express, Chemical Banking Corporation, J.P. Morgan, Chase Manhattan Corporation, Merrill Lynch, and Bankers Trust New York Corporation—were those required to manage large amounts of financial information, to be highly competitive in international markets, and likely to be influential tenants in any major construction project. Advanced information technologies are regarded as crucial for market competitiveness for all firms.

Of particular interest was the location of executive headquarters and trading floors. According to Castells (1989, p. 150), head offices remain in central business districts because of the need for face-to-face communication, social milieu, prestige, assets invested in the district, and the availability of ancillary business services. Nevertheless, two of the sample firms have left the financial district. Citicorp’s headquarters now is in midtown at 399 Park Avenue. The company’s trading floors, which were in downtown at 55 Water Street, moved to its midtown address in 1993, while its wholly owned building at 111 Wall Street now is used as a back-office data center.

In the early 1980s, Citicorp had sold buildings at 55 Wall Street and 20 Exchange Place (immediately south of 55 Wall). If the firm, whose concern for architectural design is manifest in its award-winning midtown tower, had valued the prestige, elegance, and classical grandeur of a central location downtown, it would have
Fig. 4. New competitive office buildings, 1970-1979. Office buildings built 1960-1969 are shown in grey (Office Buildings, 1992; Real Estate Board of New York, 1985).

Fig. 5. New competitive office buildings, 1980-1990. Office buildings built 1970-1979 are shown in grey (Office Buildings, 1992; Real Estate Board of New York, 1985).
retained these buildings. Completed in 1841, 55 Wall had an impressive columned facade and beautifully decorated rotunda. Twenty Exchange Place is the landmark Wall Street Tower, built in 1931. Together, the two buildings are located in the heart of the old financial district, one block from the New York Stock Exchange. Yet Citicorp left these locations for rented space at 55 Water, an international-style building separated from the East River by an elevated highway. The recent move of its trading floor to midtown involves the attraction of occupying a building it owns.

The other exception to a downtown location is Chemical Banking Corporation, the result of a merger of Chemical and Manufacturers Hanover banks. The new bank's headquarters and trading floor also are in midtown at 270 Park Avenue, the old Manufacturers Hanover headquarters. Manufacturers Hanover's own trading floor had been at 44 Wall Street, in the heart of the financial core, until the 1980s, when it moved uptown to 277 Park Avenue. The new Chemical Bank is retaining its property at 4 New York Plaza on Water Street to house technical support staff for its mid-range data center at 55 Water Street. Four New York Plaza was built in 1968, but was easily upgraded in the 1980s because of its large floor plates (36,000 to 37,000 square feet), large risers on both ends of the building, and accommodation for multiple points of entry for both power and telecommunications. Fifty-five Water Street, built in 1973, is a megastructure with floor plates ranging from 58,000 to 128,000 square feet. Today, Chemical Bank is using the building for global securities processing. Finally, Chemical is retaining four locations for back-office functions, including 52 Broadway in the heart of the traditional Wall Street district, which is used for the bank's internal audit division.

The avoidance of lower Manhattan for executive headquarters and trading floors by Citicorp and Chemical Bank may emphasize an important locational distinction. Despite the growing convergence between commercial banks and diversified financial service providers (Regan, 1989), commercial banks traditionally have had contacts with large corporate customers whose headquarters often were in midtown. Moreover, commercial banks tend to trade on international money markets, whereas diversified service providers deal with equity. Because money markets are non-stop, news is old in five minutes, whereas an after-work stock tip may still be good the next day. Therefore, dealers in equity may still have more to gain through continued face-to-face contacts, although dealers in money markets would see less advantage to such proximity.

Among the financial service providers studied, all retained a downtown focus. In 1986, American Express moved its headquarters from 50 Broadway, near the financial core, to the newly constructed American Express Tower at 3 World Financial Center. The move represented a large increase in available space and a giant leap in building technology. In the late 1980s, the investment division of American Express, Shearson Lehman Brothers, constructed a state-of-the-art processing center at 388 and 390 Greenwich Street, eight blocks north of the World Financial Center. Because of the technical superiority of 390 Greenwich to the American Express Tower, the company considered moving its trading floor to the newer building, a distance from the Tower equal to the distance of the original move to the Tower from Wall Street. The dealers, however, resisted the move, arguing that 390 Greenwich would place them too far from physical contact with the trading community. Their resistance reinforces the apparent need of companies trading in equities to meet their
technological building needs within the psychological boundaries of the financial district.

J.P. Morgan, one of the nation's oldest and best-known financial service providers, grew up on Wall Street, occupying 23 Wall (built in 1904) and connected at all floors to 15 Broad Street (built in 1914). The site is directly across Broad Street from the New York Stock Exchange. J.P. Morgan's move in 1988 to 60 Wall Street, although an outward shift, was not as far toward the periphery as others in the sample. But the one-and-one-half-block move was light years in terms of technology and presents a clear example of shifts in location in response to the requirements of "smart buildings." The old J.P. Morgan complex at 23 Wall/15 Broad was filled to capacity. Communications wiring was installed in coat closets, the power load of the trading floor exceeded building capacity, and eye contact on the trading floor was low because of a confusion of cables, pillars, and terminals stacked on desks. Space modifications required cutting holes in walls and threatening structural integrity. Economic cost dictated a move rather than renovation. In 1985, J.P. Morgan took over 60 Wall Street from Park Tower Realty before construction and redesigned its interior. Telecommunications and computing were primary design considerations. One floor of the original design was omitted and the space used to increase ceiling heights on all other floors (Goldberger, 1990). At the time of construction, 60 Wall had the largest installation of fiber-optic cable in the world. The 2,500 miles of wiring permits access almost anywhere in the building. The structure is built around a central core, housing elevators, telecommunications, data, and power risers. Secondary distribution is under levels that are raised a foot on user floors and 18 inches on data floors. The trading floors are not under the 50-story tower, but extend over the adjacent "public space" that J.P. Morgan maintains. By avoiding the building core, the three trading floors offer large, unobstructed space. The move to 60 Wall allowed the company to consolidate its space needs, and 23 Wall/15 Broad, in the heart of the old district, now houses human resources, auditing, and some technical support services.

Merrill Lynch achieved great success in the 1980s as a growing diversified financial services provider. In 1986, it moved outward from One Liberty Plaza to Four World Financial Center. Deducing the motives for the geographical shift is complicated, because Merrill Lynch's corporate partner, Olympia and York, also is its new landlord. Nonetheless, Merrill Lynch made major design changes to the interior of 4 World Financial Center. It created three double-height trading floors, added emergency generators with a three-day fuel supply and rooms of batteries to ensure an uninterrupted power supply, and strengthened some flooring to 250 psi to withstand the weight of equipment and cabling. A nine-pack cable was hardwired from support floors to each dealer position, one for each market data service and one for a keyboard. Cabling alone accounted for 20% of the cost of construction. Power supply was upgraded to ten times the office building norm, and additional chillers to cool the trading floors were installed on the roof (Post, 1988).

Merrill Lynch moved its data processing and back-office activities out of the financial district, consistent with the behavior of other firms in the sample. In 1993, back-office functions were moved to 101 Hudson Street in Jersey City, although in sight of headquarters and only 3.5 minutes away by PATH train. It also transformed an old truck terminal at 570 Washington Street, north of the financial district, into a data processing center.
The final two firms in our sample declined to be interviewed. Chase Manhattan’s headquarters at 1 Chase Manhattan Plaza, with floor plates between 31,000 and 33,000 square feet, has been occupied since 1963 and currently is under renovation (Garbarine, 1991). The company recently released its property at 1 New York Plaza and pushed north, acquiring 13 floors of 33 Maiden Lane, but this shift may represent consolidation around its headquarters rather than a centripetal process. Bankers Trust has maintained its headquarters since 1974 at One Bankers Trust Plaza, across Liberty Street from the World Trade Center, already a peripheral location. The bank’s occupancy includes seven stories of 14 Wall Street in the old financial core, used for back-office processing, a now-familiar function for the historic center.

**ANALYSIS**

The tightly focused spatial concentration of New York City’s financial district on Wall Street throughout most of its history finally has been weakened. As the city acquired a specialized position in the global economy as one of the primary centers for the articulation of economic power and capital, its major financial institutions relied increasingly on advanced information and communications technology. This technology imposed requirements on building design that could not be accommodated in many buildings located in the downtown district. New building requirements forced firms to consider renovating existing structures or moving to new locations. This reconsideration was enhanced by a loosening of locational ties. The rash of mergers, takeovers, and consolidations in the 1980s forced newly combined firms to reassess existing building stock, while the growth of foreign ownership, 20% of all office space in Manhattan by 1988, lessened the cultural affinity for traditional addresses (Zukin, 1992).

In the history of central cities, this condition is hardly new. In the past, many land uses have outgrown existing structures and taken the opportunity to change locations, causing significant movement of the CBD core, as measured by the peak land value point (Bowden, 1971). In Manhattan, the office, department-store retailing, hotel, and entertainment districts all migrated north, re-forming in midtown. Many other cities from London to San Francisco have seen such spatial restructuring. The one exception in many cities, however, has been the financial district, which has displayed a remarkable degree of geographical stability.

In world cities, such as New York City, the evidence presented in this study suggests that a stable and compact location for financial businesses is beginning to weaken. Over a 30-year period, headquarters and trading functions have gravitated toward the downtown periphery. There, they have found sites where more horizontal space permits buildings with larger floor-plates to support trading floors, while new structures can fulfill the design requirements of modern information technology.

The old downtown core could not adjust to the demands of new building technology. Whereas in the past technologically obsolete buildings might have been retrofitted or demolished and replaced, and the location of the financial district reinforced, three factors discourage this occurrence today. First, plot sizes in the old city around Wall Street and Broadway do not offer the horizontal expansion of floor plates now required. Second, older buildings often cannot be retrofitted because needed changes
would challenge their structural integrity. Third, recent pre-1960 buildings often are far from being amortized, whereas buildings from earlier eras have architectural value and are protected by historic preservation policies (Listokin, 1982; Dolkart, 1992).

The result is that the core of Wall Street has become a subdistrict rather than a center. Many buildings have high vacancy rates: 40 Wall Street is 80% vacant, 44 Wall Street is 50% vacant, its neighbor at 45 Wall Street is 90% vacant, and 60 Broad Street has over one million square feet of vacant space (Pacelle, 1992). Those properties with occupants increasingly are performing secondary, back-office functions. Overall 1991 vacancy rates reinforce the impression of a migration away from technologically less-advanced structures. In a 1991 report of downtown office vacancy

![Fig. 6. Competitive office buildings with floors larger than 30,000 square feet, 1960-1990 (Office Buildings, 1992; Real Estate Board of New York, 1985).](image)

**TABLE 1.—Office Vacancy Rates for Downtown Manhattan Districts, 1991**

<table>
<thead>
<tr>
<th>District</th>
<th>Primary space (thous. sq. ft.)</th>
<th>Secondary space (thous. sq. ft.)</th>
<th>Overall vacancy rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial East</td>
<td>33.6</td>
<td>7.9</td>
<td>26.4</td>
</tr>
<tr>
<td>Financial West</td>
<td>0.8</td>
<td>7.4</td>
<td>26.6</td>
</tr>
<tr>
<td>World Trade</td>
<td>25.9</td>
<td>1.9</td>
<td>12.9</td>
</tr>
<tr>
<td>Insurance</td>
<td>12.9</td>
<td>5.3</td>
<td>15.8</td>
</tr>
<tr>
<td>Downtown</td>
<td>73.2</td>
<td>22.5</td>
<td>20.4</td>
</tr>
</tbody>
</table>

*Source: Cushman and Wakefield, 1992*
rates, those districts with the highest inventory of secondary space—typically less-modern structures attracting lower-tier rental rates—displayed the highest percentage of vacancies (Table I; Fig. 6).

However, the outward spiral of major financial institutions presents a curious paradox. Although firms such as Citicorp and Chemical Bank may support the oft-mentioned anticipation of information technology to free economic enterprises from any financial-district location (Kutay, 1986), the financial services providers and dealers in equity markets studied have not abandoned lower Manhattan. Rather, these businesses, prompted to move by a technology that could release them entirely from a focus on downtown, chose to remain on its periphery. One might assume that the old downtown value of face-to-face communication remains, an observation reinforced by the unwillingness of American Express traders to move an additional eight blocks away. Yet One New York Plaza and One World Financial Center are separated by nearly a mile. Although this distance might not appear significant at first, the need to cross numerous traffic-controlled intersections (whether for pedestrians, taxis, or public transit systems) quickly raises distance as an obstacle to interaction. Few traditionally compact financial districts of many cities measure as much as a mile in diameter (Fig. 7). Such a distance between peripheral sites in lower Manhattan may eventually dispel the mystique of downtown as a psychologically cohesive geographical district.

The push-pull factors of building technology requirements set against the value of proximity in shaping the morphology of financial districts is reinforced by studies of other world cities, such as London. In a recent summary of his work on the City of
London, Thrift (1994) assembled strong arguments to support the continued presence of international financial centers because “they satisfy essential communicative/interpretive needs that cannot be met through electronic communication” (p. 352). Although acknowledging some spatial loosening of the City of London, he claimed that its enlargement had been slight because, first, the need for face-to-face communication remains as networks of contacts increasingly must be actively constructed; second, electronic communication supplements rather than supplants face-to-face communication; and third, the City remains a global financial node for financial visitors to gain information and execute deals.

Thrift did not address the issue of building technology. In contrast, Cowland (1992) observed that in 1975 no more than 6% of offices in the City had been built after 1965, and following the Big Bang in 1984, which internationalized securities trading, the new technology of international trading was the catalyst that “loosened the spatial centrality of Threadneedle Street” (p. 234). Like lower Manhattan, London has seen the limited dispersal of its once tightly compacted financial district to occupy sites beyond the medieval walls, in the air spaces of renovated railway terminals such as Charing Cross, along the South Bank of the Thames on the sites of old warehouses, and, with presently limited success, the London Docklands. Moreover, the form of this new building is different. Williams (1992), examining the strip of new financial buildings extending from Holborn Viaduct to Bishopsgate, described these structures as “groundscrapers: dense, deep-plan buildings that cover every inch of their site” and represent a fundamental rejection of skyscrapers. Driven by “the daily advances in computer and communication technology,” she argued, “the kinds of requirements seen as necessary for the modern financial institution—dealing rooms, flexible office space, . . . do not allow for old-fashioned infilling. They need a whole city block” (pp. 248–249).

CONCLUSIONS

The emerging “doughnut” shape of New York City’s financial district is limited by lower Manhattan’s restricted site. But the forces producing this shape may have broader implications for the spatial restructuring of financial districts in world cities. As highly competitive major financial firms retreat to secretive, security-conscious structures and a building technology that stresses large horizontal over vertical spaces, the traditional tightly focused financial district land market may finally demonstrate geographical flexibility. Monitoring the future extent of this morphological disaggregation by the one district that had for so long maintained its coherence and stability will tell us much about the value of urban propinquity.

NOTES

1Travis Longcore gratefully acknowledges grants from the Department of Geography and the Honors Program, University of Delaware, and the National Science Foundation Graduate Fellowship Program.
3Promotional literature for the 1989 Harborside Financial Center in Jersey City reinforces the importance of smart-building design requirements. Harborside advertises that its “floor load
capacity of 125 to 250 lbs. per square foot easily accommodates both heavy computer equipment and U.P.S. back-up battery packs.” It adds, “Harborside’s 13’.16” slab-to-slab heights allow for raised floors, underfloor cabling and complex above ceiling mechanical installations.” The office center promotes its “two 13,200-volt primary service feeders [and] redundant fiber optic capabilities with access to the Teleport System, NJ Bell’s light guide cable and AT&T’s Fiber Optic Link providing for the most intricate, secure telephone systems.”

Data from private multinational corporations are notoriously difficult to obtain, particularly regarding the location of facilities and the reasons for a firm’s locational decisions. The World Trade Center bombing in 1993 only heightened businesses’ security fears and resistance to providing information. Requests for interviews from the sample of firms were sometimes rejected, and, when granted, were made with the understanding that direct attribution would be withheld from publication. The facts and quotes in this part of the study may be confirmed in the authors’ field notes.

LITERATURE CITED


INFORMATION TECHNOLOGY AND DOWNTOWN RESTRUCTURING


