To the Graduate Council:

I am submitting herewith a thesis written by Morgan H. Sullivan entitled "Infrastructure Versus Infostructure: An Examination of the Causal Factors, the Methods, and the Technology of Alternative Office Use." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science in Planning.

David Patterson, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor and
Dean of The Graduate School

INFRASTRUCTURE VERSUS INFOSTRUCTURE:

AN EXAMINATION OF THE CAUSAL FACTORS, THE METHODS,

AND THE TECHNOLOGY OF ALTERNATIVE OFFICE USE

A Thesis

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ABSTRACT

The purpose of this thesis is to examine the causal factors and describe the strategies and technological advances that have prompted and allowed commercial office space users to explore alternative methods of housing employees.

The research for this document was completed using interviews with companies which have benefited from employing alternative office strategies, Internet based research, and the authors real life experience in the commercial real estate and development field.

The three causal factors, the downturn of the economy in 1987, the commercial real estate crash in 1989, and the introduction of high technology as a legitimate tool for office workers, combined to force many companies to reexamine their real estate practices. These companies, as described in the enclosed case studies, have employed technology to realize concrete economic benefits from the use of alternative office practices such as telecommuting, hoteling, and virtual offices.

Through the research, it was found that although many companies employ alternative officing methods, these companies tend to be large corporations that focus these methods on specific practices within their organization. Frequently, these practices are related to sales and marketing staff who typically spend portions of their day outside of the office which facilitates the use of many alternative office techniques. Small and mid-sized companies were not found to subscribe to alternative office techniques as readily as larger companies, primarily due to their lack of large sales and marketing staffs.

This assists in explaining why, despite the reduction in the use of traditional office space by many organizations, commercial real estate demand is currently robust in the majority of the country's major markets.

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CHAPTER I

INTRODUCTION

The past decade (1989-1999) has seen an unparalleled level of change to the commercial real estate industry. Encouraged by three causal factors, users of commercial real estate have utilized alternative methods of supplying space to their employees. These three causal factors are the downturn of the economy in 1987, the real estate crash of 1989, and the introduction of high technology as a viable tool to supplement traditional office space usage.

The first dynamic, the downturn in the national economy, required companies to aggressively reevaluate their business plans. Many business plans had been based on the continuation of the record growth experienced during the first half of the decade, but were rendered obsolete with the event called, "Black Monday." On Black Monday, October 17, 1997, the Dow Jones Industrial Average saw its member companies loose twenty two percent of their value in a single day. This catastrophic event resulted in the realization by corporate America of the need to re-evaluate their business plans. This reevaluation led to strategic planning focused on a return to profitability, one of the results of which was the goal of reducing operating expenses.

It is generally accepted that the most expensive line item on a company's budget is an operating expense, its employees. Consequently, workforce reductions received the most intense focus by companies required to increase profitability. The payroll reduction measures that were implemented were given the newly minted term "rightsizing." Rightsizing saw millions of employees either removed from the work force or re-employed in creative ways so as to reduce the employers' financial obligation to the employee. An example of this re-employment was the change in status from

salaried employee to independent contractor, thereby eliminating the employer obligation of costly benefits. Rightsizing also eliminated the overhead involved in keeping dedicated offices and equipment for each employee, resulting in a re-evaluation of office space needs.

The second causal factor, the real estate crash of 1989, is tied to two variables. The first variable was, again, the goal of corporate America to reducing operating expenses, in part, through employment rightsizing. This variable slowed the absorption of commercial real estate. The second variable was the recognition of the impact of the passage of the Tax Reform Act of 1986, which stripped many of the advantages of commercial real estate ownership from institutional, private, and corporate owners.

Instituting or tightening space standards (particularly in cases where space use was high and the type of space costly) can result in significant reduction in total occupancy costs. For example, where image can be traded for costs-as companies are increasingly doing-a move from Class "A" to Class "B" space, combined with a reduction in the amount of space per employee, can lower occupancy costs by 20 to 30 percent. Of companies indicating they were utilizing new space standards, 45 percent had tightened existing standards, 37 percent were more strictly enforcing existing standards, and 18 percent had recently introduced standards. (Klender, Nunnally-Anemogiannis, 1996)

Real estate obligations, namely ownership, management, and leasing, typically compose the second largest operating expense. Due to this, companies realized an efficient way to reduce operating expenses would be to decrease the space provided each employee as well as to reevaluate their current methods of deploying workers. Reduction and redeployment of the use of traditional office buildings, which

had grown progressively grand both in scale and appearance, required innovative thinking and aggressive implementation.

The third causal factor, the introduction of high technology to commercial real estate strategies, fueled the evolution of corporate office space. This high technology has provided workers a viable means with which to work outside of the traditional office via means of wireless communication devices and computer networks, which tie remote office locations together. These three dynamics initiated the concept and utilization of alternative officing. This evolution has seen corporate America provide their reduced work force with employment location options both outside of the traditional office building as well as within the existing office through creative utilization of office space.

When referring to users of commercial office space, such as corporate America, or the more generic reference to companies, this document will reflect the definition of "Primary Office Tenants" provide by the Massachusetts based research firm Cognetics. According to Cognetics, there are two groups of office space users. The first of these groups are referred to as "Primary Office Tenants." Primary office tenants include enterprises whose operations require only the use of office space. These occupants include law firms, consultants, and the federal government. Within Primary Office Tenants there are two categories, owner/occupants and lessee's. As used in this Thesis, the term Primary Office Tenants incorporates both owners and lessee's of office space.

The second group of commercial space consumers, as defined by Cognetics, is labeled "Other Office Tenants." These other office tenants are companies that tend to occupy office space as well as adjacent manufacturing, warehouses, and research facilities. Examples of this second group include hospitals, distributors, and manufacturers. (Birch, Haggerty, Parsons, 1994) Due to their diverse real estate needs

and lack of necessity to reduce or re-engineer employee space, other office tenants will not be referenced in this document.

CHAPTER II

CAUSAL FACTORS TO THE REAL ESTATE CRASH OF 1989

Many factors contributed to the need of companies to reduce their real estate obligations during the late 1980's. Foremost among these factors were companies increased equity position in real estate, a loosening of lending criteria, speculative construction (the result of the two previous factors), a downturn in the economy and the Tax Reform Act of 1986.

Corporate America's Equity Participation

The office boom of the 1970's and 1980's was not an accident nor was it the result of a single, underlying cause. Rather, it was the result of a number of phenomena, unique to that period, acting in concert. Almost 50% of all the office space built in the entire history of the United States was built in the ten years between 1984 and 1994. A surge of building activity of this magnitude can only be described as a "boom." What caused it? (Birch, Haggerty, Parsons, 1994)

One contributing factor to the development and construction boom was the increase by corporate America in the financing of commercial real estate as an investment. Office space use was traditionally considered an expensive, but necessary evil as a companies second largest operating expense. However, as their valuations continued to grow, many companies flush with funding searched for vehicles to utilize these excess moneys. Coinciding with the rise of the economy, this period saw many, typically publicly held, companies alter their view of commercial real estate by increasing their equity partnership role as opposed to expanding their leased portfolio as a means of accommodating their increasing size. This factor involved utilization of existing land and buildings with company-financed improvements and upgrades. This strategy represented a departure from traditional, leased facilities.

Due to the rise in corporate America's profitability and growth, the supply of new office buildings strained to meet the demand of these growing companies. This demand, in turn, assisted in fueling the economy as the service sector required to finance, design, and construct these buildings grew at an equally fast pace.

Previously viewed as a necessity of business, with the success of the economy and the enticing tax benefits available, the attitude toward real estate by users changed markedly during this time. With the demand for space came increasingly high rental rates which boosted the valuation of both buildings and buildable land. Corporations, which owned real estate typically accounting for 25% of their book value, realized the financial benefit of capitalizing on these holdings. (Ebert, 1994) This capitalization was available in two forms. The first involved occupancy by the controlling company of newly constructed buildings, thereby reducing, or in some locations, completely eliminating the need for leased space. The second form came in the development of, frequently, speculative office space for leasing to outside tenants, in effect creating a profit center. This development pushed many non-real estate companies into the role of landlord developer. This second form saw many large primary office users assume the risk-laden role of developer as they converted their own land into buildings and office campuses. This conversion turned sites purchased for future consolidation and expansion by the company into competition with traditional real estate practitioners, such as development companies, for tenants.

Owner/occupants hired outside consultants or boosted their in-house real estate departments to maximize the value of their real estate assets through development, refinancing, and sale-leaseback strategies. Additionally, companies who continued to lease their facilities renegotiated their leases to include provisions to accommodate their growing space needs. These provisions included "must takes" and "first rights of refusal"

on space becoming available in the future. In addition, external resources were employed and internal manpower were reassigned to research and acquire new projects and properties to take advantage of escalating real estate values caused by increasing demand for office space.

Inaccurately predicting a continued growth in company profits and real estate valuation, and in response to the drive to maximize current real estate assets, many corporations implemented aggressive measures to achieve the greatest return on their real estate investment. Underutilized properties were redeveloped or upgraded, unused land was developed and owned buildings were sold to tax shelter syndication's and leased back to capitalize on their escalating value. It is important to note , as described in later chapters and case studies that this phenomenon was not limited to less sophisticated or mid-sized companies. Rather, companies at the very highest level of earnings and success subscribed to this aggressive expansion and entry into ownership.

This new view on real estate impacted the rightsizing and alternative office movements in several ways. By becoming equity participants in commercial real estate, companies were required to bolster their employment ranks further to service this new arena. Then, as demand for additional space shrank, these departments became expendable and personnel were removed from the firms work force.

Additionally, as the economy slowed, many companies chose to consolidate into the less costly of their existing space holdings (frequently those in which they held an equity position). Relocation to less costly space is also often done as a result of reduced space needs or simply as a course of action to reduce occupancy costs. Similar to major consolidations, a relocation to new space offers a prime opportunity for altering space standards. Of companies relocating to less costly space, the greatest movement was from Class "A" to Class "B" office space (26 percent). Moves from the central

business district to the suburbs (25%) and away from "tight" or costly markets (23 percent) were also popular. Just fewer than 20 percent of respondents undertook the use of non-traditional space. (Klender, Nunnally-Anemogiannis, 1996)

As the rapid emergence of technology enabled business to use less real space & more cyberspace, through the utilization of wireless communication devices and computer networks, firms with large property holdings began to risk severe value reductions unless they took action. Not only did these industries need less space to do business, they held real estate worth billions that could fall in value as more companies put real estate on the disposition block.

Case Study: International Business Machines

An example of this drive to maximize corporate real estate lies in International Business Machines' (IBM) strategy in Metropolitan Washington DC. For decades a major presence in the area, IBM in 1983 decided to revamp its approach to real estate for exactly the reasons mentioned previously, growing business lines and an aggressive real estate market, which demanded increasingly high rental rates.

Working with local developers who provided development and construction expertise, as well as frequent equity participation, IBM undertook the construction of five office buildings totaling 1,200,000 rentable square feet. The purpose of this strategy was not the development of facilities to lease to third parties as profits centers, but rather to reduce IBM's reliance on traditional leased office space. Four of these buildings, (6701 & 6705 Rockledge Drive and 6700 & 6710 Rockledge Drive) were located in the same submarket, (Montgomery County, MD). Although IBM did not own any land in this submarket, they achieved the ability to develop these parcels by entering into long-term ground leases with the landlord. Considered Class "A" real estate from building quality

and appearance guidelines, these four buildings allowed IBM to relocate from more modest, leased quarters occupied in the same submarket.

Delivered in the period between 1988-1990, each of these four buildings enjoyed occupancy by IBM for approximately four years. As the economy waned, IBM, was faced with excess space in these buildings due to an aggressive national rightsizing campaign by IBM, which, locally, first targeted their real estate department. An effort was undertaken to back fill this growing vacancy by aggressive subleasing efforts. Unfortunately, many of the competing buildings in this 5 million square foot submarket were in the same situation with regard to successful tenancy of their space. After an average of 1.5 years of vacancy, IBM completed its disposition process. This concluded a period of time that saw IBM implement a mandatory teleworking campaign, which enabled the company to place employees outside of traditional office space. This enabled the company to reduce its Montgomery County, Maryland real estate presence from over 3 million square feet to just 350,000 square feet.

Unfortunately, the history of the fifth building constructed by IBM is even less favorable. Intended to be IBM's eastern region figurehead, this building was located in downtown Washington DC on the eastern edge of the Central Business District. The style and selection of interior finishes and exterior appearance rivaled the best that Washington then currently had to offer. With approximately 600,000 rentable square feet, the building was a massive undertaking that concluded with its delivery in 1989. Only partially occupied by IBM, over two thirds of the building was occupied by subtenants to the master lessor, IBM. Unlike similar structures in suburban Maryland however, this building was not nearly as well located and ultimately cost IBM millions of dollars as the sublease rental rates were below the rates needed to support the

replacement value of the building. Currently, IBM occupies only 30,000 rentable square feet at 1301 K Street, NW.

Loosening of Lenders Loan Criteria & Speculative Construction

During this same period in the early 1980's, financial institutions, enticed by the profitable returns of commercial development as well as the healthy growth of the economy, relaxed their lending requirements. These profitable returns were due in large part to the passage of the Tax Act of 1981 which created a major windfall for real estate investors by increasing the tax benefits of depreciation as well as increasing federal spending and reducing federal taxes. In addition, many lending institutions also became equity participants in commercial real estate development because of a perceived need to participate in the anticipated capital gains. This loosening of loan requirements facilitated the flow of loans into the development arena, prompting the construction of many projects which were built entirely on speculation, absent of anchor tenants. These "spec" buildings, frequently designed by renowned architects and constructed of ornate materials, demanded and received previously unheard of rental rates, thus initiating and supporting the construction boom of the early and mid-1980's.

This relaxed financing and speculative construction contributed to the rapidly approaching evolution in commercial real estate. As described in the forthcoming case study of Home Team Sports, companies robbed Peter to pay Paul by agreeing to long term leases in exchange for free rent concessions as the beginning of the lease term. Frequently exceeding one year in duration, this free rent was amortized back into the rental rate, leaving companies with above market rates which, combined with the lull in the economy, reinforced the importance of reducing their real estate commitments.

Preceding this lull, lessee's, taking advantage of soaring company valuations and the competition among owners to fill their buildings, played "checkers" with their real

estate leases, moving from address to address to exploit these two factors. In addition to their growing bottom lines, this strategy was motivated first by the need to move to larger quarters to accommodate the personnel hired to service their growing businesses. Second, by pitting Landlords against one another companies were able to gain valuable rental concessions. Abandoning the prudence which contributed to their successful history, the corporate occupancy trend became one of opulence, size, prestige, and location, as companies rivaled one another with their "trophy" buildings and prominent locations.

Case Study: Home Team Sports

A classic example of this loss of focus is that of the eastern regional office of Home Team Sports (HTS) in Bethesda, Maryland. HTS, growing at a rapid pace due to the explosion of cable television, found itself in 1988 in need of larger office quarters. Then housed in a well-located, Class "B" tower, HTS focused its facility search on a building which would reflect its growing success.

Enamored of recently completed as well as ongoing new projects in their desired submarket, HTS settled on the recently begun 258,000 square foot building located at 7700 Wisconsin Avenue, Bethesda, MD. Delivered for occupancy in mid-1990, this office building was caught in mid construction by the real estate crash of 1989. This unfortunate timing resulted in the period required to fully lease the building tripling from an expected one-year term to three. However, it did have one tenant secured, HTS. Just prior to the crash, HTS committed itself to a 30,000 square foot lease for a term of ten years. As with the building developers, its first occupant found itself caught by unrealistic market expectations and poor timing. The company's expected growth in the Metropolitan Washington DC market never materialized and it found itself in a long-term

lease in a highly ornate speculative building. HTS experienced a downturn in its business just as the twelve months of free rent it had negotiated expired.

From Boom to Crash

The surging economy allowed companies to financially participate in new construction as well as justify large amounts of expensive real estate to satisfy growing payrolls. Job growth is the engine that drives office demand. During the period preceding 1987, the engine was running at full throttle. At this time the entire country , with the exception of California, was enjoying economic growth at previously unheard of rates. Corporations which previously had earned reputations for thrift and sensibility became infected with unrealistic national economic forecasts. These forecasts prompted the development of company projections, which anticipated office space usage tied to hiring milestones, based on the optimism pervading society.

With the growth of commercial real estate, corporate America's payroll, and the economy came the parallel increase in office rental rates due to competition among occupants for the choicest properties. Projected earnings of occupants supported an increase in square footage requirements and building owners and developers were readily accommodating of these needs. Rental concessions, such as build-out allowances and rent-free periods were scaled back as demand reduced the need for incentives necessary to attract occupants.

On the surface, the real estate industry appeared to be enjoying an unprecedented run of productivity and profitability. However, the life of this trend was coming to a rapid close in 1988, following the stock market crash on Black Monday. This crash was preceded by the Tax Reform Act of 1986 (TRA 86) which eliminated many of the tax based financial benefits of investing in real estate gained with the Tax Act of 1981.

The Tax Reform Act of 1986

The Tax Reform Act of 1986 (TRA 86) has contributed to the decline of the real estate industry through the elimination of the capital gains tax differential, the increase in the time allowed for writing off taxes for depreciable real property, and the limitation on deductions of passive investment losses. These changes reduced the market value of real property, created an incentive for divesting real property, increased the difficulty of divesting real estate, and reduced the attractiveness of investing in new housing and construction. All of the important evidence shows that a serious downturn in housing starts and real estate markets began shortly after the enactment of TRA 86. TRA 86 reduced the market value of existing real estate by creating an incentive to unload properties while increasing the difficulty of doing so (Cordato 1991).

Gambling that TRA 86 would not pass, many developers, corporate real estate departments, and investors failed to diversify their holdings and continued finance, development, and construction activities. This continued activity, combined with TRA 86, led to the untimely demise of many associated with the commercial real estate industry. Also experiencing misfortune were the very corporations who had helped fuel, and participated in, the wave of aggressive re-development and speculative development, lending institutions

The Impact of the Savings & Loan Collapse

The adverse effects of the 1986 tax changes on real property values were a major contributing factor in the collapse of many savings and loan institutions (S&L's). Mortgages and similar real property loans constituted a significant portion of S&L's asset portfolios. Significant declines in the market value of real properties resulted in the erosion of the value of these institutions major assets, office buildings. This erosion of value initiated the collapse of the S&L industry and forced many lending institutions into

bankruptcy receivership. The volume of bankruptcy's led to the federally mandated bailout of these institutions. The S&L bailout itself has contributed to the distress in the real estate industry. Efforts by the Resolution Trust Corporation to dispose of properties taken over in the closing of failed or failing S&L's added to the stock of real property on the market which exerted downward pressure on market values by increasing the availability of surplus office space. This resulted in additional declines in real property values further, imperiling lending institutions that might otherwise be in relatively good financial condition as well as primary office users who had invested in real estate.

With the passage of TRA 86, the financial foundation of development companies and select lending institutions, typically savings and loans, was virtually eliminated. This caused an upheaval in the industry and contributed further to the ongoing decline of the national economy. Randall W. Byrnes, a principal in Boston-based real estate advisor Spaulding & Slye, commented on how his firm was able to survive the late-80's real estate slump better than most of its competitors. "We were looking at the numbers back in 1986 and we saw that the pace just wasn't going to continue. We had to take a hard look at ourselves and see what we had to change to survive" (Byrnes, 1990).

Repositioning for Survival

For Spaulding & Slye, survival meant withdrawing from a development-based orientation and repositioning itself as a diversified, full service real estate company. This repositioning, however came with a price as Spaulding & Slye's payroll shrank from 350 to 170 employees during this period. For investors, developers, banks, real estate advising companies, and corporate America, who had not practiced diversification, consolidation and rightsizing or, more typically, bankruptcy were the solutions.

As the real estate markets crashed and the economy headed downward corporations became victim to their aggressive growth predictions. Lenders realized, too

late, the error of their ways in financing an excessive volume of real estate projects, many of which were built on speculation which turned into write-off's. Since the life of an office building from conception to completion is typically five to seven years, there were still a number of projects in the development pipeline whose profitability expectations were based, in part, on the repealed Tax Act of 1981 and the pre-1987 robust economy. This lead time meant that as the industry was hit with the conditions that culminated in the real estate crash of 1988 (a downturn in the economy, a glut of space, and the Tax Reform Act of 1986) there were still a number of projects in varying stages of completion.

Development companies and lenders, intent on capitalizing on the accelerated depreciation tax benefits available through the Tax Bill of 1981, built on speculation, not demand, blind to the fact that their tenant base, corporate America, was intent on reducing, not increasing, its real estate obligations. This real estate crash resulted in skyrocketing vacancies as the industry, much like a train, could not stop in its tracks or reverse its motion. The end result was buildings coming into the market with no tenants and no near term prospects for such.

CHAPTER III

THE IMPLEMENTATION OF RIGHTSIZING

Corporate America became caught in the downward spiral of the economy as projected revenues were not in line with reality. Disappointing profit margins and corresponding excessive office space commitments were in part the result of bloated payrolls. With a reduction in the demand for their services, revenues shrank, which necessitated a reduction of unnecessary operating expenses. These expenses included real estate holdings, leases, and employees.

Companies were getting out of the real estate business as owners. For many years, large companies believed that the best way to control their real estate destiny was to build and /or own their own facilities. Today, their overwhelming preference is to lease to create structured synthetic leases. Their real estate plan has to be as nimble as their business plan, and they want to eliminate the capital expenditures, the depreciation on their income statement, and the non-liquid assets on the books (Barovick, 1997).

Real estate holdings evolved from being the focus of revenue generating exploitation to being a weight tied around the struggling corporations bottom line. For lessee's, the fact that they had too much space was compounded by long term rental agreements signed in the halcyon days of the industry. Particularly hard hit were those firms which had agreed to long term leases in exchange for free rent periods at the beginning of their lease term, as these concessions were beginning to wear off.

A sense of urgency, and a realization that they had to become "lean and mean" to address their surplus of space and lower-than-expected earnings were the motivations for corporations to reevaluate their workforce and real estate needs. Logically, a reduction in the amount of physical space a company occupies, both in

number of people and square footage allowances per person, would have a direct positive impact on a firm's bottom line. When occupancy cost becomes burdensome to a company whose profit margins are shrinking, the company has three means with which to address this issue: eliminate employees from the payroll; look for alternate sites away from traditional office space centers with more inexpensive space and an abundant, less expensive workforce outside of traditional markets; or, if these are not practical, employ innovative uses of existing space.

For a variety of reasons, many companies were forced to tie their future on the later two of the three options, or at best, a weighted blending of the options. This was due to variety of reasons, foremost among them the fact that much of the space occupied was either owned by the company or committed with long term leases, thereby partially mitigating the incentive to reduce the workforce as the space would continue to be an expense, occupied or not.

Early in the drive to become more competitive and return to profitability, corporations realized that adding revenues was much more difficult than reducing occupancy costs. A reduction in occupancy costs can have a dramatic effect on a company's bottom line. This is illustrated with a poignant example: The Sheraton Company calculated that every dollar of occupancy-cost savings was equivalent to adding $45 of new revenue. Calculated another way, every square foot of space reduction was equivalent to $650 of new revenue (Apgar, 1993).

With results like these, corporations realized that in addition to the traditional measures of workforce cuts and the elimination of layers of middle management, innovative measures to reduce the per-worker office space requirements had to be employed.

CHAPTER IV

THE IMPACT OF TECHNOLOGY ON THE REDUCTION OF OPERATING EXPENSES

The basics in corporate America are the bottom line. There is a need to lower expenses by reducing operating costs and to increase the effectiveness of the core business yet to still provide the same level of service. If costs are to be lowered then the fundamental process of how a company provides its services must be changed. Technology is one tool to create that change. The introduction and maturation of wireless communication and portable on society's work practices and work force is a key component of a company's ability to reduce operating expenses through use of alternative office techniques.

This balancing of goals demands hard decisions not just from real estate and facility professionals today, but also from business managers and corporate leaders. Firms seeking to minimize operating costs, maximize the potential of high-achieving employees, and accommodate unpredictable change, must balance objectives. Each objective may be reached in several different ways, but each choice, in turn, generates unforeseen issues and additional decisions.

This will not be the first time in history that technological innovations have transformed our social and economic systems. The agricultural revolution, circa 1850, was not as much about the inventions themselves (such as the cotton gin or mechanical reaper), as it was about the resulting business process reengineering of agriculture. From numerous small, family-run farms to an agrarian sector based on corporate structures and a capitalist value system, the technological developments that prompted the agricultural revolution eventually cut the agrarian labor force to what now stands as 2.8 percent of the employment base of our economy (Nunnally-Anemogiannis, 1997).

Then, with the 20th century industrial revolution, society went from an economy composed of numerous craft shops producing customized items to one of mass-produced, mass-marketed products. Business processes, whether in the production stage, sales & marketing, or product distribution, had to be redefined in order to reap the benefits offered by industrial technology. Old notions about building design, architecture, locations and space use had to be reinvented in response to the phenomenon that was taking place.

Now we are in the midst of another technology revolution and those in commercial real estate are feeling its reverberations. This revolution is the realm of information technology and telecommunications. From the statistics regarding layoffs at many major corporations and the growing significance of the services sector (presently comprising 66 percent of our economy), there is no doubt that significant structural changes brought on by technological developments are transforming our economy. Once again, commercial enterprises have had to reinvent themselves as corporations reengineer themselves, as business processes become realigned and redefined, and work forces become downsized (Nunnally-Anemogiannis, 1997) .

The impact of technology will result in not only a structural change in the way companies view, consolidate, and reduce their office space requirements, but also will result in a higher quality and more efficient means of satisfying clients through increased communication.

The information revolution shares a common denominator with the agricultural, transportation, and industrial revolutions, that being a fundamental change in the means with which an activity is performed. The information revolution involves a transition from mechanical communication to electronic communication. In the mechanical form, information is put on paper and physically transmitted. The transition to electronic

communication began when impulses could be sent by wire and then by the wireless. What is making the difference now is the ability to store and process great amounts of information electronically. This is referred to as the computer revolution (Seldin, 1995).

Case Study: Spaulding & Slye

In 1992 Spaulding & Slye, a real estate services firm with offices in Boston Massachusetts and Washington, DC made a fundamental change in the way it generated and tracked business efforts. Partially as a result of a request by one of its largest clients, Lotus Equipment Corporation, Spaulding & Slye changed from a paper-based client reporting system to an electronic based system. Named Lotus Notes, this system was based on the concept that shared information is more powerful to an organization than proprietary information because it encouraged employees to collaborate on new business generation and existing business execution. Through implementation of a wide area network (WAN), Lotus Notes allowed its employees to enter their client telephone calls and meetings into a computer database. This database was open and shared throughout the company, allowing employees to work together with clients in their respective cities.

Previous to the implementation of this program, employees maintained their own telephone logs and mailing lists, operating without the knowledge of their colleagues contacts and clients. To ensure the use and credibility of the new Lotus program, each employee was required to provide their full contact lists for inputting into the system. Also, an environment was created that rewarded, through a bonus program, those employees who involved other individuals and business lines.

Spaulding & Slye found the benefits of the Lotus Notes Contact System to be numerous. Management of the workforce was enhanced through the ability to track the productivity of employees by their volume of telephone activity and meetings.

Additionally, the direct mail marketing program was streamlined by producing one set of publications and mailing one to each designated client with the relevant employees signature. This as opposed to the pre-Lotus Notes practice of multiple copies being sent to the same client by employees who were unaware of each others efforts. Finally, communication between Boston and Washington, DC immeasurably increased, allowing Spaulding & Slye offices to jointly pursue assignments. To date, Spaulding & Slye has determined that their per employee productivity has increased approximately fifteen percent with the new Lotus Notes system. Additional benefits include a reduction in the number of employee trips between the two offices as well as elimination of the use of temporary workers to input telephone calls and meeting information.

CHAPTER V

TECHNOLOGICAL ADVANCES

Technology changes and productivity emphasis are the driving forces behind the ability to effectively use less contracted office space (Bergsman, 1995).

Much like the steel tools of the Agricultural Revolution, today's technological advances have allowed employers to reduce the number of workers required to perform a given task and concurrently engage remaining employees in previously unheard of tasks in increasingly diversified locations. In today's technological revolution, companies, intent on reducing operating expenses, have equipped their employees with the necessary technological trappings to perform their functions outside of the office.

The information revolution goes beyond computers as simply information processing machines which function using electronics rather that the mechanics of earlier calculators. The information revolution involves additional technology which expands the nature of computers readily available to decision makers. More data are available to facilitate a higher order of thinking (Seldin, 1995).

While it is natural to think that more data would require more employees to digest and process the information, in reality, the inverse is true. Data amount is increased with the same, or reduced, reliance on the work force when technology is employed.

Computers

Although many telecommuters (employees who work at home) in the late eighties could telecommute at least one day per week without computer assistance (via use of the telephone and facsimile machines), that number has been steadily eroding. Teleworkers are increasingly likely to use computers while teleworking simply because the percentage of information workers who use computers daily in traditional offices is growing, permitting more efficient communication with the home office.

Personal computers are delivering unprecedented information processing power to the desktop, regardless of the location of the desktop. All of this stems from the growth in power of microprocessors, the "brains" of personal computers which allowed increased information storage capacity as well as more complex uses. A benefit to alternative office efforts, this growth in power is joined by a reduction in the size of computer technology. Where previously a powerful computer was limited to the desktop, today's laptop computers can match desktop versions in power as well as being readily transportable.

In effect, this means that, for service sector employees, the jobholder can have all the information resources of the principal office at home, in a telework center, or both.

Where the telecommunications network can't support enough information transfer, or the teleworker desires a light weight means of transporting information, work can be carried between the principal office and the telework office, or home, via a magnetic or optical storage medium. The number of options for this information transfer is continually growing: floppy disk, Zip™ disk, removable hard disk, recordable/erasable and CD-ROM,'s are frequently employed for this task.

Another critical outcome of this microelectronics capability growth is desktop video conferencing. That is, the average desktop or laptop personal computer can now display the host or guest at the principal office in living color, with full motion, and high quality sound, given the proper network connections.

This video conferencing also assists managers in putting to rest their fears of managing remote workers. Now, a manager, or managers, at the office can contact remote employees and hear as well as see that they are focused on the task as hand and being productive. More to the point, lack of visual contact will no longer be an excuse for corporate America to prohibit teleworking.

Further, with multipoint videoconferencing, many meetings can be held with all the participants "present" and no two of them occupying the same room. As this practice becomes more accepted, companies will have to ability to reduce their conference space and facilities, incrementally reducing their operating expenses. Companies can now schedule and sponsor conferences with "all parties" even it each participant is not physically available.

Telecommunications Networks

Telecommunications networks are the freeways of teleworking. At present there are two broad kinds of networks: local area networks (LANs), and wide area networks (WANs). As the names imply, one concentrates on shipping information around a relatively restricted area, while the other has a much broader scope. An everyday example of a WAN is the standard telephone system. As far as the network is concerned, the fundamental question is, what has to be telecommunicated? The answer, for most late 1990s teleworkers, is voice messages, text data and numbers that have been generated "off line". In both of the latter cases, the text and data are represented on the computer by a smaller number of bits per information element. Therefore, none of these modes of information transfer requires much in the way of transmission capacity. However, that relatively simple demand on the transmission medium is changing (Nilles,1999).

Wide Area Networks

With telephone systems going digital worldwide, the future of analog systems, common on many cellular telephones, is short lived. The most common telework telecommunications appliance today is the modem. Its sole purpose is to convert the

digital output of a computer to analog signals capable of being transmitted on the telephone WAN and vice versa.

The replacement of the standard telephone system is first, ISDN (Integrated Services Digital Network) then ADSL (Asymmetric Digital Subscriber Line), frame relay and ATM (Asynchronous Transfer Mode). Each of these WAN technologies are completely digital, as opposed to analog, and deal with message switching. The more important consequence for telecommuters is any kind of information can be sent over the same telecommunications line - voice, computer data, video, and have it received reliably at the other end. This development will continue to eliminate the reasons cited for not utilizing telecommuting, namely, the concern that methods that information sent between the office and the remote site are not reliable (Nilles, 1999).

Aside from the message handling software that constitutes the bulk of ISDN, ADSL, and ATM technology there is a parallel trend toward replacing copper wires with optical fibers. The motivation is the same as that behind ISDN and ATM developments: increasing capacity. One of the few drawbacks to optical fibers is the fact that they are not as durable as copper lines and are difficult, if not impossible to repair

To the benefit of companies utilizing or considering telecommuting, the global trend in privatizing telecommunications carriers promises to open competition and ultimately reduce costs and fees to subscribing companies.

Local Area Networks

Local Area Networks are the main means for high-speed, intra-office telecommunications. LAN's have grown from a rarity in the mid-1980s to the common means of communications among members of work groups who use personal computers. LANs communicate between personal computers at high rates of speed.

However, the problem with LANs for telework is embodied in their name: they are truly local in the geographic sense, while teleworkers frequently are not.

The first step in solving this problem comes when one of the personal computers in a LAN acts as a telecommunications server. That is, it is connected to the network and, via one or more modems, to the telephone system. Teleworkers can dial in to the LAN communications server and get access to the files of their work group. Unfortunately, the teleworkers are limited in the rate of data transfer by the capacities of their modems (Nilles, 1999). This issue of capacity has been the one drawback to the Lotus Notes system employed by Spaulding & Slye. As the frequency and intensity of use of the program increased, there have been short periods of downtime. With the continued expansion and employment of digital WANS, this issue will become a non-factor.

The Internet and Intranets

The Internet, a well-kept secret among military and academic communities for two decades, exploded into public consciousness in 1993 with the introduction of the World Wide Web and MOSAIC, the first GUI Web browser. In just a few years, the Internet has changed the course of the computer industry and materially altered the possibilities for teleworking.

In particular the Internet, through its relatively inexpensive and user friendly operation, has allowed major expansion of the working horizons of small-to-medium-sized businesses or any other organizations that could not afford extensive private telecommunications networks. Further, by making telecommunications contact with vendors and clients a matter of daily experience in many offices, the psychological barrier to acceptance of teleworking is greatly diminished. It is a smaller step to go from Internet interaction with a vendor or client to doing the same with fellow employees.

At the minimum, expansion of a company's network to the Internet simply requires the addition of browser software to the arsenal of telecommunications technologies. This will give employees access to the Internet. Toward the maximum end, a company can have its own Internet servers, connected directly to a local ISP (Internet Service Provider) or even one of the Internet backbones. This step can involve extensive technology investments as well as the cost of full-time wide-band telecommunications interconnections.

Intranets generally differ from the Internet only in that they are isolated from it. That is, a company with multiple facilities could have its own private telecommunications network interconnecting the facilities and providing Internet-like access to all its employees without ever being connected to the Internet. More typically, companies with Intranets are also likely to have Internet access as well. Additionally, companies can have the security advantages of private Intranets through the use of VPN (Virtual Private Network) technology that uses Internet carriers but isolates the company's communications traffic from the Internet (Nilles, 1999).

With this rapid improvement in available technologies, organizations can continue to be aggressive with their efforts to reduce operating expenses while maintaining a high quality level of service and a motivated workforce.

Concerns Associated With The Information Super Highway

As with all revolutions, enthusiasm for the changes taking place varies. These concerns, as they relate to the information revolution, center on evolving technology, availability, and cost. Additional areas of concern are reliability, install and repair intervals, security, and backup systems. While computer hardware and software technology appears to take great leaps forward every two to three years, it takes a while for companies and citizens to adapt to the latest technological developments and realize it practical uses. It

takes longer still to realize the ultimate impact of that technology on our economic and social systems. Economically, socially, and culturally, we are in the infancy stages of this latest technological revolution (Nunnallly-Anemogiannis, 1997).

Two issues constitute the question of availability, time, and system responsibility. As with any emerging technology, when the service becomes available is of paramount concern to both current and prospective users. In reality, many technology-based transactions among individuals and groups are not limited to these metropolitan areas. For those who currently have access to fiber optics or ISDN lines this limits their ability geographically to communicate with coworkers, vendors, and clients. Correspondingly, those individuals and companies who are not located within large metropolitan areas are slow in receiving high speed access lines, are behind their constituents on the Information Super Highway, thereby reducing their effectiveness and their ability to employ alternative officing.

Further complicating this issue of availability is who is actually responsible for installation of the technology. In the case of fiber optic line installation there is the question of where the fiber optic company's responsibility ends and where the user or building owner's begins. For example, MFS Telecom owns their lines right up to the tenant's space. In contrast, the Baby Bells must end their ownership at the "point of presence" to the building. In their case, a third party must be contracted by the landlord to maintain the interior lines. Thus, it could be a cost multiplier when a user has to call more than one entity to troubleshoot or repair the network (Harris, 1994).

An additional consideration for companies is whether their buildings have the capacity to receive fiber optics. This is not a concern with ISDN lines as they utilize existing copper telephone lines. Frequently, ownership or long term leases in buildings which are not equipped to accept fiber optics restrict companies which desire fiber optic

technology. As installation into a building is expensive, this can further affect a company's ability to employ alternative officing. This limitation is slowly being eradicated as "smart buildings" which are already pre-wired are coming into the market.

The question of acquisition and implementation cost is one of the foremost concerns among prospective information super highway participants. Before it can implement new technology, a company must show that it will both provide a payback and be compatible with existing infrastructure (Borosook, Nadeau, 1995). The anticipated payback would be realized by an increase in employee productivity and a decrease in operating expenses.

According to a survey of the 3000 members of the National Association of Corporate Real Estate Executives, 32% of the respondents thought the information super highway would actually increase occupancy costs (Buckley, 1992). Based on the results of two major corporations which have incorporated alternative office space use into their business plans, this belief is not accurate. One of those company's, AT&T, has found that for every dollar invested in the virtual office (which is made possible by the information superhighway) they get two dollars savings in occupancy costs. Additionally, Ernst & Young has reduced their occupancy costs by $25 million by implementing office hoteling (the use of non-assigned individual offices by numerous employees) (Pritchard Mayfield, Lubieniecki, 1995).

Ironically, the information super highway serves as an equalizer between small and large firms. It allows large firms to decrease their size and office space requirements by reducing the manpower and space required to perform a given task. Both large and small companies are able to increase the number of their locations at a minimum of expense. The end result is that a company's optimal number of locations will be less a function of the number of employees than it has been in the past. Even the

definition of location seems at risk as increasing amounts of office workers are afforded the option of virtual offices and telecommuting.

In the short run, however, adapting to the information super highway remains a perplexing proposition. The investment will require significant capital outlays but could by recouped in a reasonable period of time. The cost of not adapting, and perhaps losing business as a result, could also be a determining factor (Buckley, 1992).

CHAPTER VI

THE IMPACT OF TECHNOLOGY ON COMMERCIAL SPACE USE

The economy that drove the development of real estate for the past three decades isn't there in today's information age. Previously, all business was done in office buildings, but today's companies are expanding globally using fewer people to do more work in less space with the help of electronic connections. Location or proximity to customers-no longer drives the bottom line. Business can now reach customers, bankers, even assembly lines, via their infostrucuture, not infrastructure (Libert, 1999).

The adoption of the information superhighway will have varied consequences for each user. One of the foremost benefits of the information superhighway to companies is an ability to reduce office space consumption by having employees, either partially or fully, produce work out of the base office. Both of these objectives further the ultimate goal of a company charged with increasing efficiency, a reduction in operating expenses. The basics in corporate real estate are reducing occupancy expenses while adequately housing the workforce. There is a need to lower cost by reducing operating costs and increasing the effectiveness of the core business. The fundamental process of what you do must change through the use of technology as a tool. The technology is available but it is the combination of the process and the technology together that is the key (Pritchard Mayfield, Lubieniecki, 1995). This chapter will examine and explain the latest trends in office space use as well as provide case studies of firms which have benefited from this approach.

Motivating factors of Alternative Officing

Three factors appear to be the primary reasons for companies to critically examine their real estate needs and usage. These are self motivated adjustments in a company's size and scope, an eagerness to embrace high technology, and compliance

with the targets set forth in the Clean Air Act of 1990. This Act mandates that companies which employ in excess of 100 employees are required to reduce the number of miles driven by their work force, including commutes and within the course of doing business.

These three motivating factors must be balanced against one another. For example, a decision about leasing a particular building has to be made in light of its effect on operations, both current and in the future. Similarly, an organization's policy to promote alternative officing for a percentage or all of its staff needs to be developed and considered in terms not just of its effects on employee morale or its compliance with government environmental regulations, but also in terms of how it would affect the amount, type, and use of the existing real estate portfolio. Decisions about disposal of surplus property and the potential reuse of existing leased or owned facilities should be made at the same time and in concert with the alternative office program.

Case Study: Skadden, Arps, Slate, Meagher, & Flom, LLC

Skadden, Arps, Slate, Meagher, & Flom, LLC (Skadden, Arps) is consistently ranked as one of the five largest "white collar" law firms in the nation. As such, the firm annually faces extraordinary costs for providing its attorneys and in-house consultants an environment with which to accomplish their work, which is measured in billable hours. The cost of providing their employees a work environment after traditional business hours had expired, a combination of many factors, was important. In addition to the expense of heating and cooling their space during building after hours, Skadden, Arps also provides free meals and vehicle service to their employees working after 8:00, p.m. which increased the overall expense of their employees remaining in their offices after traditional work hours. In an effort to reduce operating expenses, yet still maximize billable hours, the firm embraced high technology and telecommuting.

In 1997, through implementation of a "technology reimbursement program", Skadden, Arps provided each of their "billable employees" with a stipend of three thousand dollars to be spent exclusively on computer and home office equipment. Each attorney was then hooked into the office via a local area network which provided the means to track their billable work hours.

To date, Skadden, Arps estimates that its billable employees annually produce 5-15% of their work with the equipment provided by the technology reimbursement program. Additionally, the firm has seen its after-hours HVAC, meal and driver service expenses reduced. Perhaps most importantly is the increase in morale shown by those employees who utilize the program.

Dynamic organizations need flexible work settings to accommodate changing business conditions, changing product focus, production strategies, and fluid patterns of work. Redesigning the traditional office, distributing employees in new workplaces, and placing workers into the "virtual office" where work takes place any time in any place, are three approaches to "fit" the workplace for high employee productivity. The full potential of each approach to add value to the organization appears when it is designed as an integrated strategic organizational initiative (Joroff, et al, 1984)

CHAPTER VII

BENEFITS OF ALTERNATIVE OFFICING

The benefits of alternative officing are numerous and include:

Improved Morale- Companies consistently find improved morale for their telecommuters. Employees gain a sense of independence and pride in their work. They are also able to spend their time more wisely, less on the road, and more with their family.

Increased Productivity- Another result, though not anticipated, is the fact that employees who telecommute work longer hours. As one company puts it, "The voice mail starts flying at 7 AM." because employees are not commuting, they tend to give some of that saved time to their work.

Improved Recruiting- In tight labor markets, which many urban areas are today experiencing, alternative officing permits companies to recruit employees who live outside of commuting distance and/or who thrive under the less bureaucratic management system required. This feature can be the determining factor in securing a qualified work force.

Reduced Absenteeism- Instances of sick family members, must-do errands, and "mental health days" are reduced by the employee who can choose the hours to perform the assigned task. Thereby, accomplishing and caring for those issues which would typically have the employee absent from the main office.

Improved Management- An often surprising result of alternative officing is the change of management style from a visual based system of productivity, "I see the employee in the office ten hours a day, thus, he is a hard worker" to a purely qualitative method of measurement. This second form forces the manager to base evaluation solely on productivity, as defined by the company and the manger, as the manager frequently does not know when and sometimes where the work was performed

Reduced Commuting Traffic- The employees ability to bypass the typical rush hour schedule results not only in decreased fuel consumption, but also can permit a company to comply with trip reduction ordinances mandated by the Air Quality Board.

Disaster Preparedness- An example is the winter of 1995. A severe storm in Boston resulted in a transportation crisis, and many workers opted to save themselves a slippery commute to the office. Masses opted to work at home, by remotely dialing into the office LAN (Local Area Network): tapping into the Internet, faxing from their desktop computers and frequently checking their office voice mail.

Americans with Disabilities Act- The Americans with Disabilities Act, commonly referred to as ADA, allows employers to satisfy the requirement that companies accommodate employees with impairments as long as this accommodation does not apply undue hardship on the operation of the company. Alternative officing, particularly telecommuting, permits disabled or handicapped individuals to compete for, obtain and hold satisfying, profitable employment (Nilles, 1998).

Alternative Officing as Part of a Company-Wide Strategic Initiative

These benefits notwithstanding, alternative officing requires the creation of a formal corporate policy to withstand the considerable operational, management and cultural changes which the subscribing company will experience.

This means setting standards and parameters. In its review of some of the country's best telecommuting programs, the Metro Atlanta Telecommuting Advisory Council identified eight criteria for effective programs, what it called the "Eight P's of Telecommuting':

1. Purpose: establishment of realistic goals and a system of measurement.
2. Preparation: designing a solid management foundation.
3. Plan: implementing rules, budgets, decision-making.

4. Participants: selecting and training, performance measurement.

5. Perception: the organization's philosophy regarding telecommuting.

6. Pilot: a small-scale, trial run of procedures.

7. Performance: measurable goals and objectives.

8. Permanence: assimilation into the corporate culture (Reitman, 1998).

As increasing numbers of companies employ alternative offices where it's hard to tell the managers from the managed, this may soon need a new name: the mainstream office. An urge to make the office more like home, and the home more like the office, has caught on at a number of major corporations, where changes are being driven by the high cost of office space, competitive pressures, and shifting cultural shifts (Newman, 1998).

CHAPTER VIII

METHODS OF ALTERNATIVE SPACE USE

The utilization of alternative officing began with the changes begun in the late 1980's and early 1990's when companies began to move away from large offices, opulent space and tenants spending incredibly high dollar amounts on improvements. At the same time, Corporate America also began looking for ways to improve efficiencies in work production. Virtual offices, team offices and similar concepts are extensions of this search to become more efficient from a space utilization standpoint (Bergsman, 1995).

Computers and telecommunications allow companies to decentralize their operations by de-coupling office functions that were previously under one roof and putting them in multiple locations. In real life terms this ability translates into employees working out of satellite offices in less expensive locations as well as working out of their homes, thereby reducing the per-person square foot requirements of the company. The underpinning of almost all space changes comes through improved technologies that have made it possible for work that was once performed in the office now to be done in the home, at the client's office, or even on the road (Bergsman, 1995).

What we have observed thus far is that one of the immediate repercussions of the technology revolution has been a "redistribution" of various corporate functions among different types of space-ranging from pragmatic back--office locations to more expensive "image" conscious space for executive headquarters operations. Recall the analogy that we drew to the agricultural revolutions. The modern technology of that time was the catalyst for a whole series of structural changes to our economy which eventually transformed our entire social and cultural fiber. Apparently 1897 and 1997

have much in common as once again technological changes are occurring in tandem with economic and cultural shifts that increasingly emphasize "quality of life" or "standard of living" considerations (Nunnally-Anemogiannis, 1997).

Unlike the late 1800's through the early 1900's where rural families were drawn to urban areas in search of a better quality of life, workers in the 1990's find the exurbs more attractive. The principals of modern commerce promote the notion that business enterprises in a service-based economy, organized around and enabled by information technology devices such as laptop computers, modems, fax machines, the Internet, and corporate-wide integrated information systems, can conduct business from virtually anywhere. Whether companies embrace telecommuting, video conferencing, or commerce via the World Wide Web, technology has a liberating effect in that companies and their employees are no longer completely tethered to traditional commercial venues (Nunnally-Anemogiannis, 1997).

Telecommuting

In reality, each form of alternative officing outlined in this document employs telecommuting by providing the employee the means to be productive away from the office.

As defined in "Moving the work to the workers instead of moving the workers to work; periodic work out of the principal office", one or more days per week either at home or in a telework center constitutes telecommuting. The emphasis here is on reduction or elimination of the daily commute to and from the workplace (Gordon, 1997).

A representative list of companies which employ telecommuting reads like a who's who of the Fortune 500: Aetna, American Express, Bank of America, Pacific Bell, Sears, Cisco Systems, Deloitte & Touche, Travelers Insurance, IBM. Additionally, a

number of local and state municipalities partake, including the States of Georgia, Virginia, Arizona, California, and Hawaii.

Why are so many companies and municipalities implementing telecommuting? The answer lies first with new technology. It is only in the last few years that the technology has been widely available that allow information and communications capabilities to be moved from the office to the home.

Case Study: AT&T

Over the last several years, AT&T has developed a comprehensive program that currently allows 30,000 employees nationally to telecommute on a regular basis from home. This project is particularly interesting because it includes a rigorous cost/benefit analysis of their North Central New Jersey site. AT&T conducted a five year study of 600 telecommuters and concluded the following:

Real Estate- The most substantial savings were in reduced real estate costs. By allowing employees to telecommute, AT&T was able to close an entire office complex. Annual savings: $6,333,124

Productivity/Increased Hours- In addition to hard cost savings, there were substantial productivity gains. AT&T, based on employee interviews, estimates a conservative gain of two and a half hours per employee per week in time worked. Annual gain: $5,112,841

Productivity/Increased Efficiency- Also, employees state almost without exception that they were able to be more productive during the hours they worked, due primarily to fewer interruptions. Annual gain: $3,127,617.

Start-Up and Operating Costs- There were, of course, start-up costs associated with setting up employees to work at home. Office alterations averaged $3,000 per employee and computer/phone installations averaged $4,000 per employee. These

costs were depreciated over five years and $1,250 per employee per year was added for phone, fax, copy, and postage bills. Annual costs: $3,205,507

AT&T Cost Savings & Productivity Gains

Real Estate Savings-	$6,333,124
Productivity Gains-Hour-	5,112,841
Productivity Gains-Efficiency-	3,127,617
Total-	$14,573,582
Less Costs-	3,205,507
Net Annual Gain-	$11,368,075

This impressive net annual gain directly benefits the bottom line of AT&T through reducing operating expenses. Importantly, these figures are, again, the result of the implementation of alternative officing at only one location of AT&T (Unknown, 1995).

Virtual Office

The latest incarnation of alternative officing is the Virtual Office. A product of a company's expanded use of telecommuting, the virtual office allows employees to maintain an "office presence" with no physical ties to traditional office space. This, in effect, is the most efficient means of officing an employee.

There are many advantages to a virtual office.

Web-based e-mail accounts can be set up for employees. Unlike e-mail provided by an Internet Service Provider or an online service like America Online, Web-based mail can be accessed from anywhere the Internet can be accessed, such as from a kiosk in an airport.

Documents can be published so that co-workers can download them or collaborate with colleagues on them online.

A daily planner can be set up which will e-mail reminders alerting of forthcoming appointments or deadlines.

Online conferences can be organized

Bulletin boards can be created to discuss projects or issues in displaced time.

Additional benefits include the ability to track packages, prepare travel plans and do corporate research (Mello, 1998).

Hoteling/The Non-Territorial Office

Hoteling or the non-territorial office is the use of non-designated offices by employees who typically conduct business away from the main office. Hoteling uses an administrative coordinator, sometimes called a concierge, similar to the concept employed in commercial hotels. The employee calls (or e-mails) the coordinator to reserve an office, then when he/she arrives everything is set up for him/her to work: the desk is the right height, the chair is the preferred manufacturers model and the file cabinet is next to the desk. It's just like a regular office, with the only difference being next week it's someone else's office (Bergsman, 1995). Additionally, the concierge programs the employees office to accepts all calls to the employee's extension as well as programming the desk top computer with the employees requested files. Again, the intent is for the employee to have the ability to commence work upon arrival.

Contrast this mind set to that of Nike and Microsoft, two Fortune 500 companies that constructed campus-like facilities to house their employees. Country club in nature, the corporate headquarters of these two corporations are replete with gourmet "cafeterias", fitness centers, and day-care and medical facilities. The idea: If employees never have to leave, their productivity will rise (Ogilvie, 1994).

The reasons for the use of hoteling are two fold, greater employee satisfaction and direct and immediate cost savings While hoteling is not a solution for all disciplines,

it is a highly effective means of space and cost reduction for companies which are sales oriented. For sales oriented firms, the goal is to maximize the amount of time spent out of the office so as to facilitate working directly with clients. This practice creates a win-win situation for both parties; the client receives more personalized attention and the service firm realizes the financial benefits of reduced occupancy space, greater employee satisfaction, and more satisfied clients (CB Commercial/Torto Wheaton Research, 1993). Although unachievable without total control over every employee, the goal of hoteling is to have an office that is 100% full during all business hours.

There are a number of factors to help make hoteling a successful solution. A company should:

-Reduce the total amount of office space and increase office density so that the organization is operating an office with near full-time occupancy.

-Provide a high performance workspace for employees whenever they are in the office and appropriate portable computer equipment to use outside the office.

-Provide a secure "home base" to store people's belongings while they are gone, where other people can drop off things, and where they can do some work "on the fly."

-Provide a single telephone number that follows a person wherever he or she goes. An employee's physical locations should be transparent to clients and perhaps even colleagues.

-Employ an efficient concierge system which can quickly locate all employees.

-Assure parity of accommodations with other people at the same level. Being out of the office is not a second-class citizenship.

-Make it easy for employees to return to the office, find what they need, and get to work quickly.

-Help them feel they are connected to the organization and their colleagues as they come in and out of the office.

-Use electronic mail and voice mail liberally to ensure immediate and consistent communication with all employees.

-Provide flexibility for day-to-day and future changes (Ebert, 1994).

This practice is employed by a variety of companies such as IBM, Digital Equipment Company, Ernst & Young, and Andersen Consulting. Moreover, the use of hoteling is not limited to the United States. The United Kingdom marketing staff of IBM as well as the England and Japan based offices of Andersen Consulting employ hoteling. An excellent example of the use of hotelling and its subsequent benefits is the San Francisco office of Andersen Consulting.

Case Study: Andersen Consulting

The branch office of Andersen Consulting in San Francisco, California, occupied one floor of a high-rise tower in the financial district. The practice had grown to the point where it would have to lease an additional floor. Yet the partner in charge of the branch office had observed that the assigned offices were usually vacant because of the company's goal to maximized the amount of time that consulting managers were out of the office and working directly with clients. Based on an informal assessment of actual occupancy patterns, the partner in charge recognized the need to implement some new workspace policies.

The partnership convened a committee of managers to address both the low occupancy and the need to accommodate more consulting managers while containing costs. The managers' committee considered two options: 1) assigning about five managers to one office; or 2) using what they called the JIT (Just-in-Time) non-territorial

office. The managers preferred the JIT system since it prevented conflict among people who would be assigned to the same office.

The goal of the JIT system was to:

- use space more intensively, given the low occupancy patterns;
- reduce facility costs by reducing space requirements;
- demonstrate to clients that they themselves were willing to put into practice new approaches to managing an organization; and
- create an interior environment that was different from the dark wood and conservative tone of the Big Six accountancy firms from which the had evolved.

What had been partners' offices were now designated as JIT offices to be used by employees on a reservation basis. The only difference between the JIT offices and the partners' offices is in policies preventing personalization of space- the JIT offices are not personalized with family photos, mementos, etc... Each office is furnished with a conference table that also serves as the desk. A credenza holds a telephone and computer and provides an additional work surface. The furniture in JIT offices is identical to that which had been in partners' offices.

Each consultant is assigned two file drawers and two binder bins in a centralized filing room. Each JIT office also includes a number of regularly used standard reference materials. These are stocked and updated by support staff on a regular basis.

A support person also stocks a standardized set of office supplies in exactly the same place in every JIT office.

All offices are equipped with a Local Area Network. Each manager now has an individual telephone number, which is transferred by the secretaries to the office the

manager occupies at a given time. This flexibility necessitated installing many more phone lines.

A small number of secretaries handle typing, reservations, and scheduling of the JIT offices. Employees call a secretary in advance to reserve a JIT office or they use whatever office is available if they arrive unexpectedly. An additional staff person was hired specifically to stock the JIT offices and to ensure that all personal belongings and files were removed when the person using the office left. If all JIT offices are full, employees can use unoccupied partners' offices.

Providing 13 JIT offices for 70 consultants generated an annual rent savings of $114,000 and a first-year total cost savings of $505,000 because only 13 rather than 70 individual offices had to be furnished.

Employees' response to the system has been largely positive. Advantages included the space efficiency benefits, the enhanced physical environment, and the readily-available reference and support materials. Disadvantages included the time required to move files and materials between the central filing area and the JIT office, and the fact that it was not possible to keep one's own "stuff" within reach.

Almost 90 percent of the respondents reported that the quality of the work done was about the same as previously; about 70 percent indicated that the amount of work was about the same or better. Access to files was rated as worse under the JIT approach by 75 percent of the respondents, which was considered an important complaint.

This application of the non-territorial office worked. Seventy-five percent of the staff reported that accommodation was as good as or better than in their previous pattern of territorial offices, and the new system generated considerable cost savings (Becher, 1991).

The Universal Plan Office

More so than other means with which to become a more efficient user of office space, the universal plan office requires the full support of all company staff affected. This is due to a loss in status many employees suffer as a result of implementing this plan. Employees' willingness to accept alternative, affordable space options is directly proportional to their involvement in planning and their stake in the benefits they share with their firm (Apgar, 1995).

The universal plan approach can be viewed as a significant but not radical move toward using space more efficiently. The principle can be applied in many different ways. The groups who lose most are the most senior people who must adapt to a more egalitarian and less status-conscious organization (Apgar, 1995).

Under the universal plan, space is no longer allocated based on rank and status. Rather, after analyzing work functions, a manager identifies a single-size office that can accommodate people doing different jobs. The tailoring of the individual work space to the job, or even to the individual work style, occurs through the provision of furniture equipment used to fit-out the space. Typically, a single furniture system is selected and then, depending on the particular nature of the work, different components are placed in the workstation. The intent is to reduce the costs and disruptions of reconfiguring the office to accommodate differences in rank and status, and to focus attention more on the work itself than on the status-communicating aspects of the office.

In practice, most organizations attempting this strategy have implemented a modified universal plan. They often reduce the number of workstations sizes available to three broad bands: 1) for the highest level executive; 2) for managers above a certain level; and 3) for professional and support staff. Within each band, no differences in office size occur.

Case Study: Union Carbide

Union Carbide's headquarters in Danbury, Connecticut, was one of the first major American buildings to institute same-size offices. At Union Carbide, all professional and managerial staff regardless of level, (except for secretaries and the most senior executives) were allocated a 13.5 x 13.5-sq.-ft. enclosed office. Secretaries worked in open workstations, and senior executives had large offices on an executive floor. Within the standard office, everyone from first-level manager to division president selected one of 15 predefined furniture packages. Each package included not only the desk, chairs, cabinets, and so on, but also the light fixtures, floor covering, and accessories. As the following case study shows, the specific form of the universal plan office can vary enormously (Joroff, et al, 1993).

Case Study: Aetna Life & Casualty

Aetna is one of the largest general insurance companies in the US Rising costs and the need to become much more efficient have led Aetna to look for new approaches to space planning and design that reduce costs. Until quite recently the company was oriented very formally and hierarchically. It is now seeking to become more team-oriented and to adopt a flatter organizational structure that will be reflected in its offices. In adopting a universal-plan office strategy, Aetna's goals were to:

- reduce cost, time, and disruption necessary to achieving workstations and office reconfiguration;
- provide greater equity in space allocation, with fewer status distinctions;
- provide needed environmental support for different job functions;
- provide additional areas for meeting of groups or teams;
- provide more and better-organized file storage in the workstation; and
- allow more light and views for rank-and-file staff.

The new approach eliminated the use of many different workstation and office sizes and replaced them with two basic footprints. The overall system design organized cabling, conferencing, and offices both to reinforce new management concepts (e.g., flatter organization, more egalitarian relationships, and more teamwork) and to compensate for the loss of some space (e.g., smaller management offices) with more conference and meeting rooms.

Managers and directors moved from 150-sq.-ft. offices on the perimeter to 120-sq.-ft. enclosed offices on the interior. All other employees- supervisors and lower-level staff members- moved to 60-sq.-ft. workstations near the windows. Vice presidents and the CEO still have large enclosed offices on the building's perimeter.

Some of the space saved by the smaller universal footprint was used to provide more conference space and other meeting areas called "oases" designed as permanent rooms that would be difficult and expensive to change or remove. The intent was to reduce the likelihood of eliminating this interaction space as soon as additional office space was needed.

Staff have no choice in workstation footprint size. An individual can, however, request different furniture components for a workstation form a single approved line of systems furniture.

The adoption of the universal plan was part of a large-scale renovation of the corporate headquarters. Aetna used formal employee surveys and post-occupancy evaluation methods to identify employee requirements and preferences. In addition, after having several full-scale mock-up offices constructed, Aetna invited staff members to work in them. The mock-up was a total environment, including sound masking, lighting, and HVAC systems, and included more than 100 workstations in two different buildings. It cost $1 million to set up and was in place for three months. Aetna

calculates that this mock-up saved the company money in the long run because contractors could bid much more accurately knowing exactly what the installation would be like. The company also felt very confident from the beginning, based on the response to the mock-up, that the money they were spending would achieve its purposes.

Aetna attributes a cost saving of $300,000 to $1 million annually to the universal plan office footprint. The savings come primarily from the fact that workstations do not have to be reconfigured or modified each time an organizational change occurs, a new staff person is added, or someone is promoted. The time for relocating an individual was reduced to one hour, for what Aetna call a "shopping car move" where only the person's files and personal belongings move.

In interviews, employees reported that the aspects of the universal plan they liked most were the privacy; the availability of the oases; greater storage capacity; the cleaner, more pleasant environment closer to windows and natural light and the more professional appearance of the offices. Most of those expressing dissatisfaction were supervisors and managers who were the highest level staff occupying open workstations. A number of these people wanted more privacy and the ability to hold meetings with three to six people in their own office, and they felt the office should communicate status. Survey data showed that 90 percent of the respondents felt the universal plan was about the same or better than previous office accommodation. Of this figure, from 25 percent to 40 percent felt the system was "better" or "much better."

The universal plan approach can be viewed as a significant but not radical move toward using space more efficiently. The principle can be applied in many different ways. The groups who lose most are the most senior people who must adapt to a more egalitarian and less status-conscious organization.

In summary, the universal plan adds value to the organization in the following five ways, by:

- reducing casts associated with employee turnover;
- dramatically speeding personnel moves;
- significantly reducing disruption and downtime;
- freeing space to support other highly valued organizational behaviors; and
- creating a more egalitarian environment that reflects senior management desire to flatten the hierarchy (Joroff et al, 1993).

The Team Office

From the major automobile manufacturers to pharmaceuticals, computer, furniture, and real estate industries, American corporations are working to break down internal barriers to communication and collaboration. Chrysler's billion-dollar product development center outside Detroit is a working monument to what the automobile industry call "simultaneous engineering," whereby information and leadership shifts continuously in a fluid and spontaneous manner between members of a team concerned with generating new ideas, services, and products. These team members are housed in one, egalitarian, office Each team office is typically outfitted with a desk and file area for each employee. The motivation to implement the team office relies on reduced square footage achieved through a reduction of individual offices and an increase in creative thinking and interaction.

Thomas Allen's research in R&D organizations shows that informal communication, especially with people outside one's own discipline, department or project team is critical to the exchange of ideas (Joroff et al, 1993).

Case Study: The Steelcase Corporate Development Center

The building design of Steelcase's Corporate Development Center (CDC) was intended to meet two major objectives: to contribute to the development of innovative products, and to speed the product development cycle so that new products could be brought to market faster, thus better exploiting shifts in the marketplace.

Steelcase had a clear, strong vision of both short-range and long-range objectives. Its values included recognizing the basic worth of individuals, the need for the building to be as dynamic as the organization occupying it, and the fact that effectiveness sometimes must be bought at the expense of simple efficiency.

These ideas come together in the concept of the Total Workplace, which had three meanings. One was the idea of integrating decisions often considered in isolation by individual departments such as human resources, information technology, design and construction, and building operations and management. The second meaning of the total workplace concept was convincing the workplace to go beyond one's own personal office or workstation to include the entire workplace (site, amenities, commons areas, project rooms, support areas); a series of loosely-coupled settings which could all accommodate work and tasks. The third meaning was the idea that the processes used for planning, designing, and managing the workplace are as much a part of the building's quality as are its physical characteristics.

The fundamental premise underlying the CDC project was that innovative product solutions require enormous amounts of information about technology, design, the production process, and the market that must be widely shared at all stages of the development process. Informal communication across project teams and across disciplines and departments to stimulate creativity was the bedrock of what Steelcase call the "advanced work culture." Its distinguishing features were its emphasis on:

- teamwork that cuts across discipline and departmental boundaries;
- free-flowing and serendipitous face-to-face communication;
- clear goals reached by taking advantage of unexpected ideas and opportunities; and
- information and ideas moving freely among all players from the very beginning of the process.

Functional diversity was another key organizing principle. Steelcase realized that disciplines such as engineering, marketing and design tend to attract very different types of people. Each group's work styles, attitudes, and values often are poorly understood (if not ridiculed) by the other groups. Once attitudinal barriers like these arise, it is very difficult to get groups to cooperate. To break down such barriers Steelcase wanted to bring people into closer contact so that they might come to realize that while another group may think and behave differently, there is great diversity within that group, and that diversity is needed to generate good ideas and new products (Becher, 1991).

According to a Deloitte & Touche/NACORE benchmarking study that reflected the response of 254 companies, of the companies initiating off-site (alternative office) options, telecommuting was most popular (47 percent), followed by satellite officing and virtual officing (both 27 percent). Shared space (58 percent) was the most popular alternative on-site option followed by hoteling (33 percent) (Klender, Nunnally-Anemogiannis, 1996)

CHAPTER IX

PRODUCTIVITY AND MANAGEMENT ADVANTAGES GAINED THROUGH ALTERNATIVE OFFICING

The classic definition of productivity is based on a comparison of output produced by a given amount of input--typically, hours of labor. For example, a person processing insurance forms can do five, or twenty per hour; change the methods, add training, improve systems, update the technology and those numbers should increase. Previously restricted to manufacturing, productivity is becoming the barometer of an individual's as well as a company's success. In the past, productivity was frequently gauged by how busy an employee appeared or how much time the individual spent at the desk.

This approach to productivity, and productivity measurement, is of little value for today's professional level office workers. It is these workers (such as programmers, accountants, market researchers, lawyers, engineers, designers, and so on) who make up a large and growing segment of almost every developed nation's payroll (Gordon, 1997).

Few, if any of these workers produce any number of "units" of work per hour, or perhaps even per day or per week. Their work output cannot sensibly be measured with the same "unit" mentality as we use for factory workers or even for lower-level office works. There isn't a direct correlation between units of labor and units of output for these professional-level, or "knowledge" workers. The factory worker standing at a drill press can reasonable be expected to produce another ten units if we add another hour to the workday, but the knowledge worker doesn't have this same kind of directly-proportional increase.

If we can't measure white-collar productivity in the office, we certainly can't measure it away from the office. Herein lies the problem with measuring the productivity effects of telecommuting on knowledge workers (Gordon, 1997).

Technology is reshaping how companies gauge this all-important variable. With increasing numbers of employee's working out of the office, companies have realized the only way to gauge an employee's productivity is through bench marking. Benchmarking establishes "best case" standards which can be formulated using the company itself or its competitors. These standards are then applied to every day practices to gauge the efficiency and effectiveness of the work being produced. In effect, the base office is not concerned when or where the work is accomplished, only that it is accomplished in a timely and efficient manner in a high quality fashion.

Advances in technology have made possible the elimination of millions of clerical, administrative, and middle management jobs by increasing the productivity of a smaller number of employees. This streamlining serves to make the organization more nimble and efficient, which are two requirements in today's globally competitive environment. The faster a company can make decisions, the more successful it will be. This efficiency bodes well for smaller companies whose ability to respond quickly pleases clients who themselves are operating on tight deadlines and narrow margins. This ability to respond quickly also increases their potential for revenues.

Conversely, a lack of efficiency affects larger, more cumbersome corporations, as decisions must pass through a "chain of command" before they are executed. This traditional process not only is time consuming but also supports the need for a bloated workforce. The charge for these larger corporations continues to be to match the efficiencies of their competitors, a challenge most readily accomplished by embracing technology.

Case Study: International Business Machines

An excellent example of this evolution is the Southeast office of International Business Machines (IBM's) real estate division, located in Atlanta, Georgia. This division has realized enormous benefits by streamlining their operations. Originally equipped with a staff of forty, this workforce was reduced to eight employees between 1993-1995. Despite this reduction in workforce of 80%, productivity and revenues have actually increased. IBM has attributed this remarkable result to an increased reliance on technology. The eight managers now generate and execute their own paper work, a practice that has reduced the secretarial support staff from twelve down to two who serve all eight managers. Two secretaries serve all eight employees, and personnel are encouraged to spend as little time at the base office as possible, instead working with clients in their offices or at home. Communication among managers and the home office is primarily accomplished by electronic mail. When in need of an office, managers, via electronic mail, reserve one of four offices, in effect, utilizing the alternative office technique of hoteling. Not only has productivity increased, office space requirements have dramatically decreased, creating a win-win situation for IBM.

With the increased focus on occupancy costs, corporations are discovering a number of specific benchmarks that are critical to gauging their success in meeting, but not exceeding, their office space requirements. These benchmarks include square footage per office, reduced space for common areas such as corridors and reception areas, and more efficient lay out of space. Similar to the employee productivity indicators now being implemented, these benchmarks are based on actual space requirements versus prestige or hierarchical factors. These factors have typically relied on the time honored tradition of providing additional office space to the individual as that person rises in stature and tenure within the organization.

Space standards used to be assigned by hierarchy, with a wide range of office sizes for a variety of positions. Now, it's common to have a large corporation utilize only two different office sizes for the majority of the staff, with only very senior executives given larger work spaces (Grant, 1995). Office space benchmarks include occupancy costs as a percentage of revenue, costs per square foot, square feet allocated per person, and annual fluctuation in occupancy costs.

Case Study: Systems Automation Corporation

In 1997 Systems Automation Corporation (SAC) found itself in office space that was ill suited to their company mission and growth. A defense contractor specializing in military spending forecasting, SAC required their space to not only adequately house their employees, but also to provide a presentable appearance for visiting clients, both existing and potential.

Their existing office configuration and occupied building did not accomplish that goal. Constructed in 1964, the building had enjoyed only modest renovations during that time period. SAC, a tenant in the building for twenty seven years had, through a convoluted series of moves, come to occupy all of the fifth floor, one half of the sixth floor and one half of the third floor. This space, totaling 17,000 rentable square feet, was built out completely as hard wall offices, meant to accommodate the needs of individual workers.

Compounding this difficult situation, SAC was undergoing a period of intense growth, based on secured federal contracts. Occupying three and sometimes four employees per office, SAC did not have the ability to grow in their fully occupied building. This prohibited the accommodation of their expected growth from seventy two employees to one hundred and thirty employees. Understanding that relocation was the

only option available, SAC took the opportunity to perform a benchmarking study on their real estate expenses.

In comparison to their competitors, who target two hundred rentable square feet per person, SAC was providing each employee two hundred and fifty square feet per person. This allocation was inflated primarily by the previously mentioned inefficient hard wall build out style of their premises. Working with an architect, SAC realized that through virtually exclusive use of systems furniture (frequently referred to as cubicle furniture), an allocation of two hundred square feet per person was achievable if an efficient building could be secured.

The facility search of SAC led them to the ideal building. Constructed in 1986, this 190,000 rentable square foot structure featured 20,000 rentable square foot floor plates, that is, each floor of the building averaged 20,000 rentable square feet. The interior of the building was virtually column free which facilitated the installation of systems furniture by providing large blocks of open space. An additional benefit allowed tenants located on multiple floors to install interior stairwells which would increase the interaction between separate floors. Aggressively looking to achieve or beat the square footage milestone of their contemporaries, SAC designed the space, which was located on two floors, to be ninety five percent cubicle-style furniture.

Now occupying 30,000 rentable square feet in their new buildings, SAC has occupancy in a modern, efficient building that accurately reflects its stature in the business community. Most importantly, the employees of System Automation Corporation occupy an average of 195 rentable square feet per person.

While corporations can be caught focusing strictly on the bottom line, the reality is that workforce accessibility, morale, and productivity are also vital contributors to the health of a company and its ability to perform. "The bottom line is, you still have to get

the job done, you can't say, 'I've got to reduce my operating expenses, we're going to cut this office in half, and everyone is going to work out of 100 square feet" (Rossi, 1995). Of utmost importance is an employee force that enjoys and responds to the implementation of alternative office techniques. As unlikely as it may seem, as it relates to rightsizing, after the initiative is complete, there is a boost in morale of those workers who are part of the solution, and hence retained. A fine example of this is the reengineering effort of the corporate real estate department of American Express.

Case Study: American Express

American Express, an international financial services company with approximately 70,000 employees, began its reengineering effort in late 1994. The goal of the effort was to eliminate existing administrative redundancies present within American Express' independent subsidiaries and create shared utilities on a company-wide basis. The specific shared services created include human resources, legal, technology, operations, and real estate services.

The primary goals of the reengineering effort for real estate services consisted of the following:

-reorganization of existing resources, systems, and activities to deliver value-added real estate services to customers, shareholders, and employees;

-reduction of departmental operation costs through the elimination of redundant activities;

-restructuring of strategic alliance partnerships to reflect the new operating philosophy and structure, and to expand the usefulness and compatibility of all business opportunities within the company; and

-standardization of real estate utilization, operations, and systems throughout the company.

The reengineering effort resulted in a more centralized decision-making corporate real estate department with decentralized execution of real estate services. The number of real estate operating units decreased from six in 1995 to one in 1996 while the number of operating locations increased from four in 1995 to 13 in 1996. As a result, the number of internal corporate real estate employees decreased for 240 in 1995 to 90 in 1996. Further, the number of external service providers was also reduced from 15 in 1995 to seven by 1996 in an effort to increase efficiency.

The benefits perceived by American Express of the reengineering effort include:

-improved linkages between real estate and business unit strategies;

-strategic and proactive approaches to critical initiatives, such as analytical resources and asset management;

-reduction of costs and enhancement of real estate services;

-application of best practices, such as benchmarking and uniform occupancy standards throughout the company; and

-improved employee morale within the corporate real estate department.

Based on the reengineering effort, American Express' corporate real estate department identified several lessons learned. These lessons included more attention paid to cultural issues, the necessity for building ownership/identity for the effort, that outsourcing forces change, and that a lack of information and reporting can cripple the effort.

Efforts are currently ongoing to refine the reengineering process. These efforts have focused on improving the economics of the corporate real estate department, improving the consistency and solidifying the corporate real estate department's role as an advisor to other business units, and clarifying of the ownership structure of real estate throughout the company (Klender, Nunnally-Anemogiannis, 1997).

CHAPTER X

CONCLUSION

The question of the impact that alternative office practices have had on the demand for commercial office space involves almost as many opinions as it does variables. Undoubtedly the companies that have utilized the alternative office methods described previously have benefited by a reduced need for space, but how has the overall market faired?

More people are spending days-or weeks- working on notebook computers and modems from hotels and regional offices as well as the occasional day at the home office. As detailed in the presented case studies, individual companies have indeed benefited; however, the commercial real estate market as a whole continues to be robust. The reason for this? Despite the fact that the majority of companies have employed rightsizing as a means of reducing operating expenses, most rightsizing reflects the outsourcing of tasks previously done internally. This does not reduce the amount of office space used, it simply redistributes it to other locations and styles of space. An example of this would be a computer programmer who is displaced from the workforce. The employee then creates its own company, and after an incubation (growth) period, the company finds that its personnel have grown to the point of requiring office space. A second example would be a displaced employee who finds employment through either a service provider or competitor of the employee's original company. In both examples, the demand for office space is not reduced, it is simply redistributed.

After rightsizing occurs, roughly the same number of workers performs the outsourced tasks. However, they are now employed at smaller firms possessing core

competencies in the outsourced activities. Rightsizing does not mean a drop in total employment but instead is the reshuffling of tasks and employment among firms. In fact, U.S. employment has continued to grow by roughly 1.7 million workers per year even as rightsizing has spread. Often after rightsizing, the same individuals perform the same tasks as before, the difference is that they are now employees of smaller firms serving as vendors (Linneman, 1998).

To obtain the estimated increase in the demand for office space over the next decade, the current amount of space per office worker (155 rentable square feet) is multiplied by the increase in office sector employment over the next decade (5,372,000). This yields a total estimated demand increase of about 832 million rentable square feet over the next ten years. From this, the 32 million rentable square feet decline associated with alternative officing is subtracted, to arrive at a net increase in office demand of about 800 million rentable square feet. The demand for office space will conservatively grow by an annual rate of 1.25 percent over the next decade (Linneman, 1998).

Despite the embrace by corporate America of alternative office techniques and rightsizing, and the annual increase in rental rates, the national office building market will continue its pattern of growth.

If the media storm about telecommuting and the virtual office makes people think that all employees will be working at home or at other preferred remote locations, you can relax. The office building as we know it will be with us for a long time, though it is changing dramatically. Neither the skyscrapers in our central business districts nor the smaller office tucked away on back roads are going to empty out, but they will change (for many people) from being the place to work to being a place to work (Gordon, 1997).

The office building as it is currently known may disappear, that is if it is defined as a place that everyone must come to for doing their office work. However, the demand and need for office space will remain, the difference is that the utilization of this space will evolve and offices will increasingly be viewed as one of many possible places to work, not the only, or primary, location.

The challenge facing corporate America is to not forget its recent, painful, past and to continue to control its bottom line through aggressively efficient hiring and space leasing efforts.

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VITA

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