RICE UNIVERSITY

CRITERIA FOR CORPORATE LOCATION

by

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ABSTRACT

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Decision makers in today's business are not necessarily making locational decisions for their corporate headquarters based on complete, objective, and rational criteria. There has been a lack of knowledge as to what impacts the locating process to satisfactorily guide the decision makers. Four factors impact or are impacted by the location of corporation facilities. These factors are: (1) geographical location, (2) physical determinants, (3) economic circumstances, and, (4) time related considerations which are the common denominator to all of the other impacting factors. A reasoning for and a means of evaluating these four aspects, to result in a basis for decision makers from which to work, is contained in this paper.

The first portion of the discussion deals with determining types of corporations and identifying their place in a model of growth. Two examples are then cited for demonstration of the model's descriptive mode of corporate location, as a result of growth and change over time.

The present nature and characteristics of corporations is discussed in the second portion. It is followed by an examination of the current activity of corporate relocations
and the reasons for shifting criteria.

Criteria, which impact or are impacted by a corporation's physical location of its operations, are considered in the third segment of the discussion. These criteria are separated into the four components: location, physical, economic, and time, with analysis of each as it affects or is affected by the location process.

An example method developed, which satisfies the criteria established in the previous sections, is outlined in the fourth chapter. This demonstrates a means of implementing the criteria.

From the combination of the four areas, decision makers should be able to make more objective locational moves. Locating corporate facilities should be based on the four criteria component areas. It is the concept to eliminate illogical moves through the recognition of impacting and impacted factors and the consequences associated with all relocation alternatives.
ACKNOWLEDGEMENTS

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For MAC, SALLY ANNE, and those whose voices we now
miss.
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INTRODUCTION

Corporations typically follow a pattern of growth and thus, location from a small company for which land and/or facilities are inexpensive through an expanding and relocating process until they frequently become publicly-held companies. This public jump, coupled with growth, is closely tied to financial resources, which historically have had an influence on a company's location of its offices (New York City in the past). When a company has achieved a strong enough position, in relation to its financial resources, it possesses the latitude to move where it desires. Many of these moves have been on subjective criteria of the chief executives or primary-controlling interests. However, in recent years several factors have exerted a greater control on corporations; increased stockholder sophistication, corporate structure, redirection of control, and economic pressures have all shifted the emphasis to objective determination of location.

There has been a distinct lack of any means to determine what factors impact the locating process, other than some economic geographical models, which are not broad enough in today's business world, to satisfactorily guide the decision makers. Three additional factors impact or are impacted
by the location of corporate facilities: (1) geographical locational factors, such as employment areas and a genuine consideration of them, (2) physical determinants, such as those determined by space programming and growth programming in relation to the locating process, and, (3) timing, as a common denominator to all of the other impacting factors. These are in addition to a company's economic factors, both internal and external, in strictly dollar values. A reasoning for and a means of evaluating these four aspects, to result in a basis for decision makers from which to work, is contained in this discussion.

All four of the criteria areas are approached simultaneously and eventually merged and valued. These criteria, as presented, were developed on a Houston corporate relocation problem.

The first portion of the discussion deals with determining types of corporations and identifying their place in a model of growth. Two examples are then cited for demonstration of the model's descriptive mode of corporate location, as a result of growth and change over time.

The present nature and characteristics of corporations is discussed in the second portion. It is followed by an examination of the current activity of corporate relocations and the reasons for shifting criteria.

Criteria, which impact or are impacted by a corporation's physical location of its operations, are considered in the third segment of the discussion. These criterion are
separated into four components: (1) geographical, (2) physical, (3) economic, and (4) time, with analysis of each as it affects or is affected by the location process.

An example method developed, which satisfies the criteria established in the previous sections, is outlined in the fourth chapter. This demonstrates a means of implementing the criteria.

From the combination of the four areas, decision makers should be able to make more objective locational moves. It is the concept to eliminate illogical moves through the recognition of impacting and impacted factors and the consequences associated with all relocation alternatives.
I. HISTORICAL BACKGROUND

Introduction

Large-scale corporations\(^1\) in the United States are a third quarter, nineteenth-century development. With their evolution came the necessity for office spaces to house them and their various functions, basically dealing with "paper work" and decision making. Industrial and technological developments were the foundation for corporations and also the basis for new building forms in which to house their operations. The introduction of rapid-mass manufacturing and communication means were a tremendous boom. They allowed larger activities and distributions, which in turn lead to greater specialization. As a result and as a response to more sophisticated financial arrangements, management became more complex.

The corporation was becoming larger and necessitated office facilities to support it. Employment in offices took a steep turn upwards. In 1880 only 8 percent of the occupations in this country were of the office-type; by 1970, 40 percent were office-related. Projections are that by 1980, white-collar employment will be a greater percentage than

\(^1\) "Corporation" in this discussion will be understood to refer to a business company regardless of its legal titles or status.
blue-collar of total employment.\(^2\) A large part of this is due to the advances in mechanization and automation in the labor field; however, it is also a result of the increased complexity of management and administration and its techniques for mechanically handling its volume of work.

With this requirement for corporate officeing came the growth of office buildings and increased concentrations in cities. There was a tendency for corporations to closely congregate for the purpose of facilitating operations and trading among themselves. The physical complexion of the city changed very rapidly. Activity of new construction accelerated to a phenomenal rate, as shown in these figures for new and alteration office construction in the United States between 1957 and 1968.\(^3\)

<table>
<thead>
<tr>
<th>Years</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957-1960</td>
<td>294,000,000 sq. ft.</td>
</tr>
<tr>
<td>1961-1964</td>
<td>365,000,000 sq. ft.</td>
</tr>
<tr>
<td>1965-1968</td>
<td>490,000,000 sq. ft.</td>
</tr>
</tbody>
</table>

To a great extent, office buildings and thus, corporate locations, shaped our modern cities; therefore, corporate "image" became an integral part of a city's physical characteristics both favorable and unfavorable.

There is a definite relationship between the way cities grow and the manner in which corporations locate. The urban planner, governments, and corporations must have an

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\(^2\)Oliver Realty Inc., "A Basic Look at 'Office Space,'" Reporter, Fall 1971, p. 3.

\(^3\)Ibid.
understanding of the corporate locating process in order to better facilitate rational growth and form and eliminate as many haphazard and illogical decisions as possible.

**Corporate Growth Model**

Most American corporations' growth patterns have followed a staged succession of expansions physically, productively, and economically. Examining a broad sweep of corporations, these stages can be loosely categorized in a ladder structure, which under most circumstances, delineates a path they follow. Regardless of the particular nature of the corporation's business, it undergoes a certain chain of events which are almost solely the result of economic and market factors. These economic and market factors are the common denominator in all the corporations' positions in the American enterprise system. Above all, they are the dominant aspect and control the corporation activities. There are increasing indications that these economic and market controls are adjusting in nature (to be later discussed), but they still form the backbone of a corporation. They come in many varied forms, from cash flow input-output models, to corporate structure as a result of particular legislation or taxes, to influences working in the market place. The following breakdown of segments in a corporation's growth process is a result of the influences which economic, and especially financial factors, exert on this process. They are stated in locational physical terms, because that is one of the most adequate indicators of a corporation's position on the ladder.
Obviously, the initial state of a company is its inception and early development. Capitalization is generally small, thus, the company locates where facilities of any type are quite inexpensive. For example, manufacturing companies, which locate where land is cheap and/or their materials are located would simply cut out a small area for office functions in their facilities. A service related company would locate in an inexpensive office, as close as possible to the market for its services. Overhead items, such as rent, are kept at a minimum because of the company's youth and lack of financial capacity. When it is in the formulative period, it cannot afford, nor does it need, such things as tax deductions. Most of the time of personnel is spent soliciting new business accounts and servicing existing accounts.

As the business progresses and the company begins to reach its limits physically, it usually increases its facilities. It is still a time for the company to be modest and meet only its immediate future requirements, such as an additional small building adjacent to the existing one, or an increase in office size. At this time, branching out expansion of facilities is usually not experienced.

If business flourishes and progresses at a favorable rate, the company will further expand. Generally, this growth is manifested in the establishment of a main office in the Central Business District and/or similarly concentrated business-activity areas. The company now needs to be in the "thick" of the activity and is experiencing accelerated
growth. Contacts on a day-to-day basis are mandatory. The sophistication of the management of the business and office are becoming more complex and require increasing staff capabilities. New functions are initiated and old ones expanded. Plans for future growth acceleration are studied and provisions are made for some expansion. Due to capital requirements, investments, cash flows, and referral ties with financial resources, usually banking institutions, are becoming larger.

Through this period the corporation may restructure or reorganize; also, it may formulate additions. The complexities and refinements of the operations are rapidly expanding, placing increasing dependency upon management and decision skills, which require personnel control and coordination. On a broader geographical basis the local image of the corporation is developing and gaining recognition.

The next rung in the ladder centers around financial resources more directly controlling the activities of the corporation. Historically, this has been the large banks of financial centers, such as New York City, along with the stock exchange ties, etcetera. Growth becomes so dynamic that capitalization is required in huge amounts, which the corporation must raise through outside sources. This association, with entities primarily centered in New York, Chicago, or other financial center cities, has precipitated corporate headquarters moves to these cities. With this increase in capital the growth capabilities of the corporation at this
stage are increasing on a large scale and at a very rapid rate.

When the corporation is of such stature and power it can, in essence, control its own business again, it has the latitude to relocate. Through the previous stage the management and executive functions have increased in number and experience. Possibly, other locations of offices with its management operations, have been created; but they are still controlled from the headquarters. The corporation may make the decision to relocate and in the process, in effect, consolidate all its operations. Should relocation be the decision; In what manner was the decision reached? What was the basis for the decision? Where will the location be? and, When will the location become effective?

Examples--International Systems and Controls Corporation

The case of International Systems and Controls Corporation is a Houston-based example of this model in process. Originally in 1928, it was Houston Oil Field Material Company, Incorporated. Its location was a warehouse district of Houston where land was inexpensive. As the company grew, it reincorporated in 1937, under Delaware law, retaining its warehouse location. The main business of the company was providing services and products to the oil industry in the Texas Gulf Coast region. As time passed and they expanded servicing a larger geographic area, they added more office space to their warehouse facility. In 1964, J. T. Kenneally
joined the company as chief executive officer. He immediately embarked on an acquisition and expansion program. In July 1967, the company's name was changed to International Systems and Controls Corporation. J. F. Pritchard and Company was acquired adding process technology, additional engineering capabilities, and project management to the company's business. Pemar Engineering, Incorporated, and Pemar International W. H., Incorporated were also acquired in 1968. They brought expertise in agricultural fields especially rice and grain. In 1968, for the purpose of additional strength, the finance area of the firm acquired partial control of Investors Counsel, Incorporated. In 1969, the company acquired Reed-Joseph Company and Thomas Conveyor Company, both engaged in agriculture technology fields. In 1970, Owens Manufacturing, Incorporated, which manufactures equipment used in coal mining and The Prescon Corporation, which designs and produces systems for pre-stress concrete were added. Again in 1971, engineering capabilities were expanded with the 50 percent acquisition of KHD-Pritchard GmbH. In 1972, the addition of Plate Fabrication and Hea Tran, both dealing in petrochemical processing equipment, took place. Also, in 1972, engineering capabilities were expanded with the acquisition of Stadler Hurter Limited. In 1973, with the acquisition of Sanderson and Porter, Incorporated, additional engineering was added. In 1973, a merger with Flodin, Incorporated took place, which took the company into the food-processing business. In 1974, the company gained control of nearly all of
Verkor N.V. of Belgium, which added additional design capabilities. The future growth of the corporation is going to be directed at maintaining its present companies, including development of equity interests, in some projects in which it is involved. Any acquisitions will be limited to expanding existing areas and markets. Presently, the acquisition of C. D. Schultz and Company Limited, Hammon, Jensen, Wallen and Associates, Incorporated, and Jackman Enterprises, Incorporated, all engineering and manufacturing related companies, are pending or in process. 

This acquisition activity presented extremely rapid and diversified growth; it included not only domestic but international growth as well. Obviously, the warehouse office was no longer sufficient for this corporation. It not only needed a significant increase in office space in which to house its headquarter operations but also an "image" location suitable to its growth. Greater accessibility to related business and banks was needed. Also, the employee residential locations were a necessary consideration; therefore in 1967, the company moved its offices to a business center location. Their next movement up on the ladder would logically be to a major financial center for its anticipated growth.

Shell Oil Company

The Shell Oil Company is an example of a corporation

\footnote{From Form S-1 Registration Statement, International Systems and Controls Corporation, November 8, 1974. pp. 4-6.}
that has reached the highest rung on the ladder. Operations in the United States began as two separate organizations of the Shell Group: one on the Pacific Coast and one in the Mid-Continent region. One was marketing oriented and the other was oil-producing oriented. As a result of a merger with Union Oil Company of Delaware, both were owned by Shell Union Oil Corporation, an east coast holding company created in February of 1922. Acquisitions and mergers continued until the Great Depression. The corporation had grown nation-wide and was a typical vertically-integrated oil company with exploration, production, refining, and marketing capabilities. It also had two wholly-owned subdivisions: Shell Development Company, which was in chemical research and development, and Shell Pipeline Company. With the poor economic situation of the Depression, the company cut back a great deal and realigned some of its operations. In the mid-1930's actions such as closing the Arkansas City, Kansas refinery, developing new technology of delivery, and shifts in marketing areas were the thrust. In 1939, as a result of the massive realignment of the corporation, major decision centers were consolidated in San Francisco and St. Louis with the main headquarters located in New York City. Offices were scattered from coast-to-coast but were responsible to the various decision centers, not necessarily the headquarters. In 1940, the St. Louis office was consolidated into the New York office; this was the beginning of Shell's major move to New York. Similar to other oil companies, Shell went through
World War II under strict control of government. With the end of the War the corporation began more acquisitions and greater growth. Between 1949 and 1951 the majority of Shell's operations were brought to New York; now authority was centrally located on the east coast. Shell remained in this corporate location while acquiring, expanding, growing and changing, as was the whole oil industry. In 1970, Shell moved all its headquarter operations to Houston.\(^5\) It had achieved the eminence that it was no longer dependent on New York City: the highest rung on the ladder.

Conclusion

From these examples it can be seen that the need for a rational, objective, and detailed means of relocating is a necessity. Corporations do not have the time nor resources for such an involved study; however, they must base their decisions on rational and objective reasoning, which should solve the problems to be encountered prior to their occurrence and thus maintain, at their most efficient level, the corporation's operational capabilities.

Business exists in a constantly dynamic state. Therefore, considering its growth and change, virtually any corporation fits in this model or a derivative of it over its growth and change. Through the examination of any corporation's history, "typical" projections of its future surface. Along with the economic and political considerations of the

time, it is the individual character and policy of any corporation which determines its exact progress on this ladder.

Over time, corporations follow a definite pattern. Historically, the most successful ones have typically had the best locations and facilities to meet their needs at any point in time. For this reason corporations must take care in locating their offices.
II. PRESENT NATURE/CHARACTERISTICS
OF CORPORATIONS

Introduction

A corporation has an established structure which is the basis for the corporation's business. It is composed of many varying type people with specific demands, responsibilities, and personalities which when combined give a corporation its distinct character. Included in the following is an identification of the primary segments of corporations' structures and their respective roles.

Corporate Control

Typically, corporations are controlled by their stockholders, who utilize the election of the board of directors to exercise their control. The directors are the main policy body of the corporation and are the entity to which the chief operating officers are accountable. Generally, the chief operating officers maintain sufficient stock for a strong influence within the board of directors and are thus able to make basic decisions, which they then recommend, through the board, to the stockholders. Regarding the stockholders, the management and decision makers have a responsibility to operate the company in the stockholders' best interests. Day-to-day decisions are handled by the officers, with the
particular responsibilities of each established by the particulars of the corporate structure. In effect, the stockholders have the power of review. The usual operation is such that management's decisions become effective. Very rarely in the past have the stockholders done much more than rubber stamp the board of directors decisions, which are the largest investors' desires. However, because of increased accountability demand by the stockholders, this trend is presently shifting.

This is tempered and adjusted by the presence of financial institutions participating not only by means of direct loans but through underwriting, investment, and "recommendations." They are a somewhat different type of "stockholder," able to exert force in the immediate control of capital. The corporation has its responsibilities to the financial interest to not default or jeopardize their participation. Because the financial institutions in these instances "control the purse strings," they can directly influence corporate decisions. Thus, they frequently possess the ability to effect a corporation move to their financial center such as New York City. The corporation needs the bank's aid and constant attention, so by any means, it is not a one-way street. In many ways, reliance on the banking institution is a positive factor to the corporation. The historical concentration of clients in banking areas, alone, is an extremely positive attraction.
Decision Makers

In response to the policy of the company established by the board of directors the executives of a corporation are the primary decision makers. This gives them a great deal of latitude regarding the corporation's direction. Generally, so long as the corporation remains financially sound, their justified desires can be satisfied. At this level of the corporation there is the power for and the greatest number of incidences of the indulgence of individual whims. With the greater demand by stockholders for accountability of the corporation's leaders this is now shifting. There is increasing responsibility for all acts of the corporate leadership and an increasing emphasis upon objective decisions. There is thus less "shooting from the hip" by corporate leaders.

Historically, a corporation's character has been an extension of its leadership in carrying out, over time, policy and plans. The Bechtel Corporation is a world-wide engineering and construction company. It is known to very few people outside its trade industry, because the nature of the president, Stephen D. Bechtel, Jr., is one of a very conservative, low profile nature. His father created the company, and he also wished the company to have the highest respect and reputation in the profession but did not desire recognition outside of it. Their policy is to perform the best job possible without flamboyancy in its execution. Personal contacts, past achievements, and operations are the manner in which the corporation works.
In contrast, for its marketing success, a major oil company, will depend upon public recognition. It is no more or less competitive than the engineering and construction business but has a different type of leadership and a different type of product and service market.

From the surface, a corporation's dealings are not always predictable. When a corporation advances to "where the action is" rung on the ladder it can present a critical time element regarding contacts with other companies. Contacts with other companies can be a critical element to a corporation's success. Executives in a concentrated business area are inclined to see each other at lunches, civic meetings, or other places and times during which they are the primary participants. Also, they see each other at social functions, on the golf course, while playing tennis or at other recreational activities. Membership in clubs and associations expose them to each other on a personal basis. There are some vacation resorts or hunting areas, which cater to the executive, which carry with them price tags that basically make them exclusive to this type of individual.

By nature, when businessmen get together, they discuss their respective businesses. Many times, as a result, associations and other business transactions are entered into between companies based on the personal ties made between executives who are exposed to each other in these circumstances.

In the instance of a day-to-day exposure at executive clubs or restaurants, a corporation's location can be critical
to facilitate these kinds of interactions. Business growth or change can be made possible through executive knowledge and relationships outside the actual office. Over lunch, "deals," which will grow into ties between the two companies, can be inaugurated and set in motion. Because one executive knows another personally, sales, joint ventures, and programs for common good can be started with confidence in another company.

Employees

Employees of the corporate office operations are a very valuable resource; they are the fuel for the total corporate machinery. To maintain its system of business and regularity of standards, they are trained in particular functions within the office structure. Today, more consideration of employee impact factors such as accessibility to the office, are being considered. There is the significant desire to recruit and keep trained and trusted personnel, rather than suffer on a large scale, the disruption of employee turnover. With increased personnel mobility to environments of high amenity and convenience and thusly, the competition for them, the corporation is having to consider its location, relative to employees in other than strictly economical terms.

Community Position

The image of a corporation in a particular city or area can be extremely valuable or very damaging. A corporation must consciously pursue efforts to work with and within
the society or community in which it operates. It is an employer; but it also, must take its responsibility as a major entity and leader. In physical terms such as office space (office buildings), traffic generation, shopping, and eating requirements the corporation, as employer, exerts a great deal of physical shaping influence. The economic vitality of a community is enhanced by the dynamics of a company's presence but only if the corporation takes its responsibilities and makes decisions with the community environment in mind. The character of an area can be molded by a corporation; if it is an aggressive company, the area will reflect this. Likewise, a conservative company will be surrounded by a low profile community.

**Stimuli**

A company grows and changes; thus, it faces a location problem, impacted by responses to various stimuli, i.e., the market place, personnel factors, competition, time zone location, acquisitions, and financial considerations, all of which are to be considered in time frames, relative to long and short-term economics. In every instance, the location will be an integral component of the response.

The market-place stimulus is one of the most powerful affecting corporate location. A corporation must be responsive to its market, thus locating where its services or products are demanded. Therefore, a shift in the market area will dictate a relocation or branching where the business is active or potentially active. In terms of growth and change, the
location of raw materials, supplies, clients, financial resources and/or a shift in their localities can affect a change in a corporation's posture. Thus, there is an impact demanding consideration of location; a change in the nature of or addition to the market also will influence a corporation's location.

Tied to the market is competition: A corporation must be where it can successfully compete; in response, the structure of the business may have to adapt or change. In many cases, with a structure change comes a different requirement for space, which possibly manifests itself in the form of growth/size, configuration, addition, or relocation. A neglect of this consideration can be detrimental to the efficiency, effectiveness, and success of an operation.

An acquisition by a corporation can drastically change its structure. As a result of the above-mentioned factors, it will, by nature, affect the location requirements. The addition of a subsidiary in a different locale, state, or even country impacts a corporation's physical needs. A company must assess itself in physical terms every time it adjusts or realigns.

Some businesses are very dependent on interactive communications on a frequent basis such as telephone conversations. Depending on the distances involved, for example from coast to coast or overseas, the time zone location can be very critical. As a determinant of location decisions, a company must assess its requirements for the "window" of
communication. This also holds true for travel-time considerations.

Plain-dollar costs, associated with a location, must be examined. An evaluation of what is necessary and reasonable for a location must input the process. Does it make "dollar sense" to be dispersed or aggregated? These are the type questions and resulting values, which must be applied to the decision process. A change in physical arrangements could possibly make great impacts on a corporation's expenditures. All the activities of an operation are valued on an economic basis; and this should also be extended to input the value in relation to location, from office rental rates to transportation costs of personnel, et cetera.

External economics have an input into a corporation's health and thusly, its growth. The economy of an area may not be stable and contain the right dynamics for a corporate location or operation; they therefore adversely affect the headquarter's operation and image. Financial institutions and connections are a consideration, which determine a great deal of a corporation's growth. The incompatibility of an area in these relationships can severely hurt and shorten a corporation's economic base.

The recruiting, training, and retention of personnel, across the spectrum, from office boys to top executives, is a strong determinant in corporate policies. They physically influence the direction of an operation. Spaces conducive to work execution and accomplishment must be provided. In
addition to economic implications, amenities, services, and other locational factors, the location must be accessible to the work force. A bad location can be detrimental to employee retention as well as expensive in ancillary costs, such as transportation time expended.

Over a period of time, all the various stimuli to growth and change ultimately relate to dollars. However, the separation and analysis of the factors affecting growth, and the resulting organization projections and plans for future activity, add input which can be effectively interjected into the location process. With this "extra" information the potential for errors in the locating decision can be significantly reduced. The pitfall of being "locked" into a location, which will be restrictive or inappropriate in the future can be avoided if proper steps are exercised in the company's growth policy and planning decisions.

New York City

These criteria for location are among the most significant of those which should be considered; however, generally, they are not always followed, to the detriment of the corporations and the cities which they inhabit. The recent trend has been to relocate in attempts to escape problems or undesirable conditions, rather than for positive reasons. Today's decisions regarding location are frequently the result of a negative force in operation. This is compounded by the tendency of the corporate leaders to indulge their own desires, likes, dislikes, and whims. The recent
dilemma of corporate movings, growing, and relocations can be seen in an examination of New York City.

Since the early 1800's when New York City gained "the title" from Philadelphia, it has been the financial and business center of the United States. With its power, the city has had a build-up of images and "romance," unsurpassed by any other United States' city. The business activity has given the base for all its great urban liveliness and growth. Manhattan Island is the heart of New York and dominates the area; it has weathered the problems of wars and the Great Depression.

In the late 1960's New York experienced a tremendous office space squeeze and a massive building boom. By the early 1970's New York had added 40,000,000 square feet of office space. However, upon building completion, more than forty large corporations had moved from New York. With 1950 as an initial starting point the magnitude of this activity can be compared.

<table>
<thead>
<tr>
<th>Period</th>
<th>No. Companies Leaving New York</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-1964</td>
<td>5</td>
</tr>
<tr>
<td>1965-1967</td>
<td>5</td>
</tr>
<tr>
<td>1968-1970</td>
<td>29</td>
</tr>
<tr>
<td>1971</td>
<td>11</td>
</tr>
</tbody>
</table>

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8Ibid., p. 2.
These are major companies such as Shell Oil, American Can, U.S. Tobacco, Pepsico, Hooker Chemical, Continental Insurance, and other extremely large corporations.

The primary reasons for these and other corporations relocating, either completely or sizeable portions of their operations outside New York, are as follows: reasonable expansion room, key employee residence availability, improved living and working conditions, the ability to boost general productivity by removing city distractions, dwindling employment pool, attracting more skilled personnel, escape from city problems (taxes, high rent, living costs, inadequate housing, utility failures, pollution, minority strife, crime, transportation delays and failures, strikes, litter, decay, growing slums, welfare costs, political dilemmas), and attitudes.

Harder to define, but real factors contributing to some moves are the community, government and labor attitudes toward business. Some executives have judged the New York environment less than ideal in all three counts. They have concluded that some of New York's problems have such complex political and social over-tones as to defy early solutions. Hence, they have opted for areas where the problems do not yet exist or where they think community and government attitudes are more favorable to business.9

This list reads like a fairly comprehensive rundown of all urban problems, and corporations are shirking their responsibilities to be prime movers in solving them. They are only running to "virgin" areas—a negative solution but a very real one. There are attempts to rectify these problems

9Ibid., p. 6.
by public and private groups; but they are not being very effective, primarily due to a lack of leadership and support.

An indicative case of the above type move would seem to be Johns-Manville Corporation. W. Richard Goodwin is chairman of the board and chief executive officer of the company. He reportedly "despised and hated New York," and when it was the company's decision to relocate, the area selected was Denver. The question arises; was the move strictly in the company's best interest, or was it influenced by the fact that Goodwin was an avid skier?\(^{10}\)

Another example is General Dynamics Corporation. Colonel Henry Crown was the largest stockholder and offered the company presidency to David S. Lewis. At the time, General Dynamics was considering a move, and Lewis was a resident of St. Louis. Within one day Lewis and Crown in St. Louis made the decision to relocate and picked the site for the corporation headquarters, in Clayton, a St. Louis suburb.\(^{11}\)

Although these moves may work out very well for these companies, they appear to be "risky" ventures and would not seem to be based entirely on sound, reasonable, objective judgments. Men of this caliber would not think of selecting a new plant site or new product line without extensive research and analysis of all possible alternatives, yet they


\(^{11}\)Ibid., p. 69.
justify corporate relocation without sufficient criteria.

This is not a one sided argument. There are some sound reasons for remaining in New York. It is still the center for capital, sales, communications, international operations, culture, and entertainment. In addition, many business innovations are launched here. Civil rights conflicts in law are presently being tested in the courts, as are pollution and environmental problems. Moving to the suburbs can present difficulties also, especially, the extreme costs, property management problems, the lack of and development of services for employees, including transportation, eating, and parking.

Conclusion

Both cases have their merits and disadvantages, but the point is that there is not typically enough consideration given to the examination, analysis, and evaluation of all factors applicable to any particular corporation locational decision.

Based on the previously-discussed reasons a corporation must decide if and why to relocate, who and/or what part of the corporation should move, and how the move is to be accomplished. There are consulting firms for this kind of determination and recommendations. However, they do not typically and consistently attack all of the components of the problem of a relocation. Providing the decision makers with analysis and evaluation in an objective manner so as to facilitate the decision process with the elimination of
illogical moves, is what must be accomplished.
III. CONSIDERATIONS IN LOCATION

Introduction

The location or locations of a corporation's facilities should be determined by everything which impacts or is impacted by the way the corporation conducts its business. Four basic components are inherent in the locational decision making process. These are: (1) the geographical location, which deals with any determinants affecting the area, (2) the physical aspects of the facilities to be utilized which are those affecting the actual building, offices, and equipment (the immediate environment housing the operations of the corporation), (3) economic circumstances of the corporation, which include the examination of the financial characteristics of the business; and, (4) the timing of the entire location process, which is critical to its success or failure. Individually, any one of these components is a means of determining a location. However, the optimization of all four components is a necessity for a comprehensive basis upon which a valid decision can be made.

Corporation emphasis may be much heavier in one area, but a separate analysis of each component is pertinent to any decision. Following the analysis of all location-impacting factors, the particular bias of a corporation can be
interjected into the decision making process. No two com-
panies are identical; each one has its own unique character-
istics, which must be considered in location determination. 
However, the consequences of a decision based upon one com-
ponent may be very different from those based upon another 
component or upon a combination of components. If the 
decision to locate is based upon a single criteria, without 
the input of other factors, there is the potential for dis-
satisfaction with the resultant location. The decision of 
location is too important to be judged upon a single element 
of concern. It must be a comprehensive decision, which in-
cludes an understanding of all the affecting interrelations. 
This can only be accomplished through complete analysis of 
the four component sections.

Locational

Anything which impacts or is impacted by a company's 
location can be a potential detriment to the company. There-
fore, consideration of these factors must be carefully 
analyzed.

Employees

One of the most important things, which can potenti-
ally impact a corporation's location, is the residential 
locations of its employees. They are one of the corpora-
tion's most valuable assets. Upper management, middle man-
agement, staff, and clerical personnel must get to and from 
work each day and are universally impacted by its location.
People ideally live near their work, and corporations tend to locate where people live. The "chicken and the egg" characteristic of this appears to negate the concern for analysis of employee residences, but that is only superficial. The type of employees a company has is not necessarily a direct result or indicative of the company's facility location.

The competition for recruiting skilled personnel is keen. To avoid long transit time and expense each day, an individual would much rather work at a location close to his or her home. Commuting time could be used for personal activities, and the monetary savings would also be enjoyed. The appeal of working for one company rather than another can be greatly enhanced by its proximity to one's personal residence. Conversely, this can be a savings by the corporation in compensation for transportation costs and time, needed to induce employees to remain.

Following employee training, employee retention is the company's obvious intention. Due to value or rents of available housing, residential areas of a city are divided by availability to levels of income. Employees will live in districts in which housing costs fit both their incomes and tastes. The type of personnel a company employs will have an affect on their residential locations and thusly their access patterns to and from work. Means of transportation utilized can also be determined by income. Therefore, a relation of accessibility to various modes of transportation
servicing the corporate location can have a bearing on the hiring and retention of employees. Congestion and delays on the access patterns to and from the facility may cause frustrations and adversely affect attitudes, and these difficulties or inconveniences in getting to work can contribute to a large personnel turnover. This can be avoided if the location is maximized for the employees of the company. The type of employee to which a corporation caters will be the key personnel of their operation.

Clients

Another significant impact on a corporation's location can be the business locations of its clients or market for its products or services. Historically, to better facilitate the trading, selling, or exchanging of services, businesses have frequently concentrated their locations near their clients. Recently, with the increase of suburban officing and its life-style, there has been a trend toward less dense aggregations of businesses. This change in location has affected the manner in which some corporations, which have moved to the suburbs, conduct business. In some cases there has been a satisfactory result, but in other cases the results have been dissatisfying to the company and damaging to their operations. The contact on a day-to-day basis with clients is a consideration for which it is extremely difficult to establish a value. However, it is an essential aspect of some businesses. In many cases, growing ties or business between companies is a result of proximity
and exposure to each other. Taking a client to lunch or being able to "drop-in" on them can most efficiently happen when their location is quickly accessible.

Frequent travel between two businesses can be an expensive corporate item. The proximity of a business to others it deals with can be a critical link in the pursuit of successful operations. Long distances or difficulties in travel from one location to another can consume valuable work-day time and dollars. The business hours of the day, which are spent in travel are non-producing for the company and represent inefficiency. Services can best be offered a client when the time lag between request and delivery is minimized. Clients like to be "taken care of;" and this can best be facilitated with a location, which suits the nature of the business involved.

Business Relationships

Related to this type of impact is that of a company's other business relationships, such as attorneys, accountants, banks, investment bankers, investment brokers, advertising agencies, and public relations firms. The interaction between the corporation and these various firms is an integral part of conducting business. In some cases an association will extend, as in the case of the legal counsel, to being an executive committee officer and a member of the board of directors. Exchange between corporations and their business relations is mandatory for familiarity with the activity of the company, including paper transactions and record keeping.
Plans the company wishes to pursue will require contact with their consultants regarding such considerations as legal or tax consequences. This very often happens in a dynamic operation, and the inconvenience of distance is expensive. Telephone conversations will not necessarily suffice; personal contact is necessary. A corporation would have a very difficult and expensive time attempting to locate a great distance from these kinds of relationships.

Suppliers

Suppliers' locations impact a corporation's facilities location. If distances are long between origination and receipt of materials, transportation costs of supplies can become very expensive. Minimizing these costs should be a motivation in any corporation's policies. Additionally, some locations are not accessible to large equipment, such as heavy supply carrier tractor-trailers. Rerouting might be necessary to avoid restricted trucking areas or low clearances. Again, this can quickly become quite expensive. Shipping and receiving by means other than truck are common to some companies. To transport freight, many still depend upon trains or barges. Accessibility to the primary supply or transportation system can by necessity determine a location. Development of new transportation means can lead to the release of this company-imposed necessity. At this time, however, few new systems appear to be on the horizon. The present systems are still added to and expanded to meet corporate demands.
Institutions

Utilization of institutions such as libraries, courts, and public record institutions likewise can influence corporate location. Some companies, for example, law firms or real estate brokers may need access to these type facilities; and the time saved by being in close proximity can be substantial. For example, institutions typically do not have enough parking to accommodate all cars close to the buildings. In the search for a parking space, time can be wasted. This can be eliminated by a company locating within walking distance of an often-utilized institution. Even if other means of transportation are used, the time consumption is again a factor impacting the corporation's location.

Referral Potentials

One of the most nebulously defineable impacts is the location of business "referral potentials." Prospective clients exist in the business community but their location is not always known. Any company which is attempting to increase its clientele, should locate "where the action is." The value of "being at the right place at the right time" is not exactly quantifiable, but it is qualitative. A meeting, on a casual basis, with a group of businessmen can lead to the realization of potential mutual good. In order to facilitate this a corporation has a better chance if it is in an active area. Referrals from other clients can trigger new business opportunities, but a company must be accessible to capitalize upon them. For the pursuit of such business,
a growing company should maximize its location.

Conveniences, Amenities, and Services

The availability of convenience facilities and amenities can be both an asset and a determinant to location. As previously mentioned, company competition for employees is sharp. Their attitudes regarding employment with one company rather than another can be tempered by their accessibility to such considerations as shopping on their lunch hour or after work. They have to eat, and a shortage of area food service facilities can have a detrimental locational impact. At any facility adequate parking provisions should be available. Likewise, banking and savings associations are positive additions to any location. The ability to receive medical care without the necessity of lengthy travel, can be of corporational benefit. Proximity to hotels and motels, as well as "cultural" and entertainment centers, also enhance a location. The needs of a corporation and its personnel should be serviced in any existing location.

Image

Location can enhance a corporation's "image." Regardless of the type of image desired by a company, it impacts and is impacted by the location. The area in which a corporation locates should reflect that corporation's character. A manufacturing operation should have an image typical to the manufacturing industry. This could feasibly result in the locating in an industrial district, with the
manufacturing of products, unique to the company, emphasized. Insurance companies are distinctly different, and their image would likely be one of strength and stability. The "neighborhood" in which each of these companies should locate, should possess a quality compatible with the "image" desired.

Physical Facilities

Physical facilities are an integral part of a corporation's functioning. Every individual has a space in the building where the corporation is located; and they, in turn, are grouped to form departments. Typically, divisions would follow, being an aggregation of departments. Basically, in physical terms, these combined facilities comprise a corporation.

Space Requirements

Individual tasks require a certain amount of space, and in this space equipment or furniture is set to aid in the execution of the task. To optimize operations, rather than inhibit them, this equipment and furniture should fit into the spaces. The configuration of spaces, which should form departments are unique to each corporation and its structure. In relation to the rest of the company, some departments or divisions are unique, for example, a printing and reproduction department. It has certain unique equipment and space requirements. In response to a department's requirements the allowance for different equipment and furniture is not always considered. Make-shift adaption
actually can sometimes negate the efficiency of the department's operations. Corporations should be cognizant of and properly provide for varying requirements. Based upon the nature of each department and its percentage of total company involvement, they should be able to determine what kind of spaces are needed and in what portions. For a corporation this could dictate the specific kind or individual characteristics of a facility.

**Internal Relationships and Locations**

The location of individuals in relation to each other should facilitate optimum jobs functioning. The same applies to departments and on up the corporate structure. Relationships intradepartmentally and interdepartmentally should be such that they facilitate a smooth operation. In any corporation, organization of spaces and their functions should be the key to this situation.

**Expansion**

As the corporation experiences growth and change, expansions should occur in various departments or divisions. Throughout expansions, if locations relative to each department are not kept intact, the nature of both interdepartmental and intradepartmental relationships can be damaged. A company should plan its spaces in anticipation of growth, therefore avoiding relationship disruptions due to expansion actions.
Economic

The economic component impacting corporate location deals with actual facility costs. In a particular facility a corporation should know all the costs of occupancy. In addition to the rental rate there are escalations, which allow the landlord to pass on any increased utility costs or tax hikes; and the means of computing them can vary between buildings and landlords. Also, allowances a company may have for improving their space can vary widely between facilities. Effective costs can be quite different from the stated expenses and could be used to the benefit of the corporation. The relationship of personnel and their value to the cost of their facilities should be examined. Every lease or purchase is different and a corporation should find the best "deal" for their particular financial circumstances.

Timing

For a corporation to relocate there must be available physically acceptable facilities. The timing component can dramatically impact corporate location. The timing of a relocation can be tempered by several factors including the economic climate and government activity. There are both favorable and unfavorable times for relocation. Also, locations which may suit the corporation may not be sufficiently developed to handle them at a particular time but could possibly accommodate the corporation in the future. A corporation should make a decision on this type of option. Business dealings with other companies such as joint ventures or
partnerships can be reasons for waiting. This is an internal timing decision. Today's new planning techniques require the ability to review plans and make adjustments accordingly. Alternatives at any point can involve a timing decision to relocate.

The Decision

Any of the components stated above could be a sole determinant of a corporation's location. However, combined they would supply a much more comprehensive decision-making criteria. Inherent in the location process is one impact: The historical perspective and prejudices of the decision makers. The intent of an organized methodical relocation process is not to impair these individual prejudices, perspectives, and preferences but to allow the decision makers to be aware of their consequences.
IV. AN EXAMPLE METHOD

Introduction

An example method which can be applied to the previously stated rationale and logic follows:

This methodology is adaptable to any type of corporation. According to the importance established by the corporation of various standard components and their relative values to each other, adjustments are made in the valuing system. These standard components are applicable to any type of corporation, from service-oriented to material production. Regardless of the nature of the corporation's business, these are basic conceptual factors, which must be evaluated by their interrelated importance. A service corporation may value its clients' location far above institutional access, while a manufacturing company may value suppliers' locations or material locations far above any client location. These type values establish part of the guidelines from which to base the exclusion portion of the process and the selection of a physical area to be studied in detail. To the operator applying the technique which allows for reasonable and substantiated bias to be injected into the system, this set-up phase gives a better "feel" for the corporation.
Nature of the Corporation

The first step is to separate the company into operating areas. It is necessary to determine in what areas of the economy and business community they function and to what extent. The nature of the corporation, as it goes about its business, has a particular character and direction, for example, a service company which is engineering oriented. From this classification a further breakdown is pursued: It must establish company specialization or nonspecialization. An engineering company would have to specify what type of engineering work they do and for whom or what types of agencies, sector companies, or institutions. From this the specifics of the divisions can be characterized.

A clear understanding of the serviced areas is imperative. The character of a company which does a great deal of public sector work is much different from one which pursues private sector work. Potentially, shades in between or the combination of these type associations make for some unusual distinctions and basis for decisions. If careful consideration is not given to the delicacy and subtilty of multiple thrust companies, conflicts can possibly arise. Also, any affiliations with other companies or entities must be fully understood. In some cases parameters, which would otherwise be overlooked, must be included. Because of its extreme importance to the process, policy for the future of the corporation must be comprehended.

This area of information is obtained in the very
early stage of dealing with the corporation and is obtained from the upper level of the executive management. At this level the overall scope of the corporation's nature is clearly defined without the confusion of many similar sub-groups.

Preferences

Once the corporation's character is understood, consideration of anything which impacts or might impact a company's location should be considered. A matrix of all the areas affecting location is assembled. The upper management of the corporation judge each element's interrelated importance, which results in a preferential display of areas and specifics. Depending on the structure of the company, the matrix is filled in by top management personnel. This is monitored by the highest ranking executives, who have the overall operation insight to policy, growth and change. To accomplish the monitoring, a distillation of the various preferences on all the copies of the matrix is completed, which is verified by the leadership, as consistent with the corporation.

The ranking is done by assigning a value to each cell of the matrix. Values run from four to zero with four being the strongest rating and zero the weakest. The matrix is separated into areas of similarity, which allows for rapid distinction of highs and lows or extension into specific values for examinations. With the matrix filled out by several persons, a composite matrix can be formulated,
as for each department. From this a "total" company matrix can be derived. This furnishes the ability to review the various departments' approaches, relative to the overall operation. To get a composite matrix each cell is added across the completed matrices and a total realigned. The higher the total the more preference exhibited. For visually quick reference of areas, if desired for graphic reasons, shades can be assigned each value. Dark areas would indicate areas of large importance to the corporation.

The elements of the matrix are divided and listed as follows:

GROUP I--AVAILABILITIES/TIMING/NEEDS

1. Physically Acceptable Facilities
2. Nature of Business (in terms of physical needs)
3. Corporate Organization (in physical dimensions)
4. Long Range Timing
5. Short Range Timing

GROUP II--LOCATIONS

A. Residential
6. Upper Management
7. Middle Management
8. Staff & Clerical Employees

B. Business
9. Clients
10. Suppliers
11. Accountants
12. Attorneys
13. Banks
14. Investment Bankers
15. Investment Brokers
16. Advertising Agencies
17. Referral Potentials
18. Other

C. Institutions
19. Libraries
20. Government Offices
21. Courts
22. Schools/Research
23. Transportation Networks

GROUP III—TRAFFIC ACCESS PATTERNS

A. Residential
24. Private Auto
25. Car-pool
26. Bus
27. Other System (helicopter, train, etc.)
28. Bicycle
29. Walk
30. Frequency

B. Business
31. Auto
32. Bus
33. Walk
34. Other
35. Frequency

C. Institutions

36. Auto
37. Bus
38. Walk
39. Other
40. Frequency

GROUP IV—CONVENIENCES/AMENITIES

41. Parking
42. Shopping
43. Eating
44. Transient Resident (hotel, motel, etc.)
45. Banks
46. Medical
47. Cultural/Entertainment
48. Other

GROUP V—DOLLARS

49. Rent
50. Allowances
51. Commissions
52. Escalations
53. Maintenance
54. Equities
55. Expenses
56. Other Prejudices/Deals
57. Taxes
58. Cost of Living
GROUP VI—PREJUDICES

61. "Quality of Neighborhood"
62. "Image"
63. Historical Perspective
64. Politics
65. Other Deals

Figure 1 shows this matrix format.

An example of the type of use for which this matrix lends information would be the distinction of certain preferences. Certain commitments or deals interdepartmentally, or with other companies, which would have an important impact on the company, would not without this matrix, show their dominance. Where boundaries are defined, later in the process, more weight or bias would be attached to them. This is a means of uncovering and maintaining a corporation's character. The final evaluation of the preferences lies in the hands of the decision makers, but "putting everything possible on the table" provides for more informed decisions.

The subsequent procedure is to simultaneously pursue the four components.

**Location, Identification, and Plotting**

Regarding employees, the first action taken is to obtain a list of all employees and their residence location (additionally at which location they work, if multiple).
The appropriate managerial figure, typically the top personnel manager, is required to provide categories of employees. It is best if the divisions are based upon job type and income levels because usually, at this level there is the most common company denominator, the pay scale. Also on the employee list there should be an indication of key personnel. The category selection will be associated with several indexes. The needed indexes are: Revenue to expenses ratios (or billable production to pay hours), difficulty to recruit, difficulty to retain, and difficulty to train. The necessity of these indicators is for later qualifiers in conjunction with the preferences from the matrix for boundary determination.

All the employees are then plotted on a master map. Each category is color coded for differentiation. There is virtually no limitation on the number of categories, but care should be taken to make them distinct, not shaded groups. At the present time there is no known computer operation capable of this processing; the machines have trouble reading street addresses and plotting them, consequently, this is a manual task.

While this procedure is in operation, client locations are to be obtained from the corporation. Usually, the accounting department is the best place to obtain this information. Categorization is the reason for the use of the accounting department as base source. The type categories in which the clients are to be placed are based upon
regular quantitative billings or sales rated from extremely valuable to occasionally valuable. Also to be considered is the frequency of corporation travel trips made to and from the clients' offices. Approximately, five grades are adequate. Interjected in this plotting is another category of projected growth clients, which will become more valuable to the company. These also are plotted on the base map.

The operations people are the source for identifying related agencies' locations and their relative values. These values are based on frequency of utilization. Depending on the nature of the company, about three to five categories will suffice. An index required in this information is travel time associated with each agency. Again, color codes are used to plot these locations on the base map. Institutions can be considered in this segment if their utilization or number are quantitatively small.

Related and associated firms are also identified by the operations people. The frequency of contact is the rating base for this identification, with an index qualifier of the ratio of travel time to value. An example of this is the implication of a company's accountants or attorneys being closely located to facilitate undelayed frequent contact. Again, color codes are assigned to each level of the rating and plotted on the base map.

Another sector of the business to be plotted is "the competition." The determination of these are by the marketing/sales division. Generally, this type of
information is the most detailed in documentation, prior to the start of this whole process. Because of its familiarity and accuracy, it is best to use the established system of categorization. The display technique is identical to that of other divisions: plotting by color on the base map.

All these segments can be easily and graphically plotted on overlay material, one per overlay. Due to the progressive time element and for the facilitation of checking and adjustment, every marker used should be keyed to a master list. As a result, the end product is a visual display of all the locations of the connections and relationships.

This part of the method can be altered for a relocation process to a new city. Over the total city, housing costs are determined into zones. From this, correlated with the salary and numbers of types of employees there is a reasonable determination of residence location and thus, a parameter to area location. The other portions of the process resemble the same technique and are necessary input, identical to an in-city relocation.

Geocenters

Each category on the overlays is then considered separately to determine its "geocenter." This is a mathematical determination of the geographical centers of the selected locations. The base map is divided into equal area grids, the size being dictated by the range and size of the information and area. A half mile unit is adequate for
a metropolitan district like Houston but would not be of a fine enough grain for center city Philadelphia. Each grid unit is identified by its "x" and "y" coordinates, which are the numbers used in the geocenter arithmetic. To arrive at the coordinates of the geocenter the absolute average of each of the coordinates in the category is computed. This is done by adding all the x values and dividing by the number of x values. The same for y. The result is the geocenter of these locations.

From the matrix and information contained in the indexes, adjustments can be made in the geocenters by the use of the previously established preferences. This may be necessary if there are only a few extremely dispersed locations in a category. Possibly another case is the heavy importance attached to a few locations, which are potentially overpowered by large-volume categories. This is done through visual analysis substantiated by the earlier work.

Next, the mathematical determination of whole segments' geocenters is executed. Again, adjustments may be necessary.

The combination of geocenters continues until only one is the final result. This "composite geocenter" is the true center of all the locations put into the system. The basic area for location is beginning to be indicated.

This geocenter is only a center point at a single point in time. However, the corporation is dynamic rather than static in time. Employees move, especially apartment
dwellers. New personnel are hired; others retired or transferred; development adds to the city, and new services are located. However, the information is to be valid for decisions affecting the company for the next five, ten, or fifteen years. Therefore, the input to the process must include some future patterns emerging in the community. The real estate and development interests, banks, chamber of commerce, economic development commission and street and planning departments are the best barometers of the city's dynamics. Coupled with government information, a good "feel" for the activity patterns, over the next ten-to-twenty years can be obtained. With some form of basis for judgement, the composite geocenter can be adjusted to put the company in touch with future community development and thus location.

**Target Area**

A "target area" is identified by taking the final solution to the geocenter, with any adjustments included, and analyzing the presence of natural or artificial area boundaries. The particular pattern of the area will be a determination of the extent the boundaries will encompass. An area with little change in its character will be much larger than an area with many densely varied activities and forms. Limits of an area can be, for example, often used railroad tracks, congested arteries, topographical barriers, tax assessments, availabilities of potential sites, ownership lines, et cetera. Any constraint on an area must be taken into account. Time takes predominance over distance
now; but at this junction, even mental blocks must be considered. The target area must have definite, established boundaries from which the detailed area analysis will commence.

Physical Facilities

A parallel component to be analyzed is the physical determinants within a corporation. The physical requirements must be determined to coordinate the best fit of the corporation with its location. All the pieces of the corporation are examined and evaluated, then projections are made of future space requirements so the facilities will be of the greatest corporate advantage. This portion of the methodology is the primary development responsibility of a space planner.

Initially, the present corporation organization and operation is inventoried. This is done through physical inspection, interview, and documentation, which is then correlated with the corporate structure. Absolutely everything is inventoried and documented, from coffee pots, files, reproduction equipment, standard equipment, through "exotic" or unique equipment. Measurements, and operational requirements and peculiarities are recorded. Meeting with the upper management verifies all this as an accurate description of the corporation's structure and its correlation.

To determine the growth and changes they will experience in the future, a series of individual interviews with the heads of all departments is conducted. In terms of
physical changes, everything is projected over the next ten or fifteen years. Additions of new personnel and restructuring, which will require space, is not all that is questioned. All the equipment and necessities are analyzed; how does it work, what will be retained? What will be obsolete, what will be added in the next few years? What is the state of the art for certain equipment and will it affect the department, how will additional equipment be acquired and when? For later use, dimensions and operational characteristics and requirements are collected and cataloged. When all the departments have been queried to verify their fit with corporation policy and plans, the projections are reviewed for monitoring by the top management. This results in the resolution of management and staff needs with equipment needs in present and future space requirements. Thus, a basic "space program" results. For the future it is divided into individual departments and their subcategories, year by year. Therefore, at any point in time for programming, running totals are available.

With this information at hand, an analysis of the operation of these various company sectors is attacked. Again, the department leaders are interviewed to determine the relationships and interactions among themselves. This is done on a very detailed scale and is also monitored by the operations' people and top management. Any changes and/or additions, which will occur are discussed and recorded. The technique for valuing these activities is done on a
matrix by assigning values to the relationships based on affinities. A final distillation which displays all the affinities working throughout the corporation is the end product. Revisions are made in the space program as might be dictated by the "affinity matrix," which result in a very valuable double-barreled total for physical planning.

Performance Standards

Conceptual solutions are developed to satisfy the uniqueness of the corporation's operation. To devise the most efficient configurations and patterns over time, physical alternatives are explored, for example, a corporation with a need for a large number of executive offices. This would dictate a necessity for small office floors with high amenity values. Another case would be a corporation with requirements for testing facilities separate from but in close proximity to the offices. This presents a completely different set of criteria for physical facilities. The same holds true for many support services such as parking, research, processing, communicating, et cetera. In turn this affects the acceptability of one facility over another.

The revelations from these conceptual experiments leads to a development of "performance standards." When these are formulated they can be applied to any particular site or facility. All sites and facilities can be measured for the specific requirements of the corporation. With these at the disposal of the process, the evaluation of all possibilities can be conducted in more depth. Also, the
corporation can use them to specify facilities to be developed.

**Internal Economics**

A third thrust of analysis for a corporation must include an understanding of its internal economics. What is its history, present condition, and future economic situation? This is obtained from a checking of past annual reports, prospecti, and their corporate records. Then these have been charted, the top executives are questioned regarding vague or unclear areas. These areas are then updated and expanded. What the company is "willing" to spend or invest and what they should invest is discussed. To arrive at absolute dollar figures, breakdowns of cash flow, assets, liabilities, and their changing proportions are singled out. What this does is examine the company's present operation and proposed future operation. It gives a "budget" to the process to be applied to the system of evaluation. Often, through examination and resulting recommendations, aside from the total process, money can be saved. In some cases disproportions can be eliminated, as in the case of employee travel costs on company time. This economic profile is aside from the business character of the corporation, such as "contact" values et cetera, which are very difficult to trace. This deals with cold-dollar numbers.

**Area Details**

In conjunction with these performance standards,
details of the target area must be assembled. It will contain color-coded and plotted amenities, conveniences, banks, and services. All the transportation-associated factors will be indicated, as will the exact locations of all available sites and facilities. For records and referral, these will all be keyed to a master copy.

The amenity map is an overlay, with each category a distinctive color. Included on this will be eating facilities (divided by fast food, cafeterias, restaurants, and executive dining), clubs, health facilities, shopping, libraries, parks and plazas, museums, and physical characteristics. Not only is volume cited at these locations, but also areas of their concentration and their access.

Likewise, on another overlay, conveniences are mapped. They include specialized shopping, medical care, entertainment, and hotel/motel locations.

A third overlay is prepared, citing banking services, credit unions, counseling agencies, stock brokerage firms, auto repair facilities, florists, printing and reproduction, cleaning and laundry, and other ancillary convenience services.

All three of these divisions can be obtained from telephone books and from physical inspections.

Transportation considerations are cited on an aerial photograph of the area, using the same scale as the amenity maps. This gives a feeling for the grain of the area and its potentials for development, character, and concentrations.
Main and secondary arteries are highlighted, with specific attention given to good or to bad service. Bus stops, train stations, heliports, and taxi stands are identified. Train crossings or other potential delays on streets, such as school zones or signaled intersections, are located. For key time, i.e., "rush hour" in the mornings, mid-mornings, lunch hour, mid-afternoon, evening "rush hour," and late evening to spot any unusual benefits or delays in certain areas, first-hand inspection of the area is needed.

By outlining their sites, all available facilities in the area are to be located. Additionally, all available sites are to be indicated. This type of information is obtained by requesting all real estate brokers and agents to submit proposals within the designated area supplemented by inspection.

In these terms, statistics and totals of all the divisions are then compiled to provide a good area profile. From whatever reliable sources there are available, additional information, such as the economic health and potential of the area is gathered.

Site and Facility Information

In the area to be studied in detail, each individual site must be thoroughly analyzed. Primary is the exact location by legal description and address; if it is an undeveloped area, a check by survey may be necessary. Size, dimensions, and frontage must be considered, as well as specifics of access and proximity to transportation.
Determination of the price and proximity to comparables should be checked. This includes terms available, comparable market activity (past, present, and future) taxes, insurance, loans, and liens. Additional information should be gathered on the mineral rights ownership and air rights, and their availability. Any restrictions on the property must be uncovered, such as zoning or deed restrictions, A type standards for the area, easements and encroachments (pipe-lines, flood control, electrical), utility capacities, or other prohibitive conditions. Improvements should be inventoried and documented as should utility service, if any. Terrain, vegetation, soil types, slopes, and drainage are imperative knowledge. For comparison with the other standards determined in the study, the complete information on each property is catalogued in a file.

The same holds true for buildings or warehouses, with the addition of considerations such as structural inspections, "quality," equipment (HVAC system, plumbing, electrical), visibility, and any unique characteristics. Costs, income, expenses, rents, and any other dollar items are, obviously, to be taken into consideration. This type of information, coupled with the site information, a file on each building can also be composed.

The Decision

At this time another meeting with the corporate decision makers is held, and the preferences exposed in the study and the standards developed are applied to all
solutions. From this, the decision of corporate location has been given basis for the elimination of any illogical moves or costs.
V. CONCLUSION

Thomas H. Naylor, president of Social Systems, Inc. of Durham, N.C., found in a survey of 346 corporations that 73% were either using or developing a corporate planning model. The chief reason, cited by 78% of all the current users of models, was that they enabled the company to explore more alternatives in its planning.12

Corporations are at a point in time in which they must begin to change their attitudes and means of conducting business. The present economic tightness has caused the corporate leaders to re-examine their corporations' plans and operations. Instead of a single strategy for the corporation's policy over the next ten years, alternatives are having to be developed. These must contain flexibilities to deal with shifting economic, market, and social considerations. The very basic location from which a company operates should play a significant role in any of the alternatives planned by a corporation.

Locational criteria should be applied to any planning considerations. Unforeseen experiences could result in a corporation being caught in a location which is not at all suited to their operations. The inconvenience and expense associated with being located in an area of deteriorating conditions, or one which is long distances from related


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business connections or one without proper services could compound problems. However, an advantageous location could serve as an inspiration as well as a functional advantage.

The ability to fit, very efficiently, the particular facilities a corporation occupies, is a result of its evaluation of physical criteria for location. A result of good programming and planning can allow for the expansion or contraction of a company as various alternative plans are required. Characteristics of the company and their physical implications can and should be planned for in any number of scenarios.

With the economic uncertainties of today, compounded by constantly changing governmental regulations, a corporation should have strict control of its own internal finances. The maintenance of its physical location is an expense which can be controlled if the costs, and advantages and disadvantages, have been correctly analyzed. An understanding of the costs of being in a particular location should enable a corporation to control these items very tightly.

The timing of a corporate relocation is unique to each individual corporation. Availabilities of acceptable facilities might not be in the best location, or fit the economics of a company. Conditions of the corporation's business can indicate a relocation at times much different than its competition.

If the four stated criteria components are correctly analyzed by a specific corporation with its specific
requirements and plans in mind, and it then bases its loca-
tion decisions on the resultant indications, the result
should be the optimum location for the corporation. This
is the product of answering as many uncertainties as pos-
sible to eliminate as many chances for illogical decisions.
A rational and objective decision process based on the
criteria should net the best corporate location.
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**PEOPLE**

Stephen D. Bechtel, Jr., President, Bechtel Corporation, San Francisco, California.

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