CORPORATE REAL ESTATE ASSET MANAGEMENT IN THE UNITED STATES

by

Peter Read Veale

B.S., Wharton School of Business
(1985)

Submitted to the
Department of Architecture
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE IN ARCHITECTURE STUDIES

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

February, 1988

Signature of Author . . . . . .
Peter Read Veale
Department of Architecture
January 15th, 1988

Certified by . . . . . .
Ranko Bon, Ph.D
Associate Professor of Building Economics
Thesis Supervisor

Accepted by . . . . . .
Julien Beinart, M.C.P.
Chairman
Departmental Committee for Graduate Students

Corporate Real Estate Asset Management in the United States

by
Peter R. Veale

Submitted to the Department of Architecture on January 15, 1988
in partial fulfillment of the requirements for the Degree of
Master of Science in Architecture Studies

ABSTRACT

This research is an assessment of the management of buildings and land for large organizations -- both public and private -- that are not primarily in the real estate business. An investigation of the current management practices, priorities, planning horizons, motivations, and attitudes of managers for these assets was conducted by way of an indepth survey of senior real estate executives at 284 large U.S. corporations and institutions.

The research shows that despite their tremendous value, corporate real estate assets are often under-managed. The market value of a corporation's buildings and land typically represents 25 percent of total assets but ranges from 10 to 50 percent and in some cases is reported higher. Among those surveyed, less than half consistently evaluate their real estate assets independently, either as a cost center or profit center. One in five does not evaluate their real estate at all.

One of the most significant conclusions of the research is that large numbers of corporate real estate managers do not maintain adequate information on their real estate assets. One in four does not maintain a real estate inventory. Two out of three do not maintain a real estate management information system (MIS). One in four is uncertain of the market value of the organization's real estate and one in three is uncertain of the acquisition cost. Based on similar research conducted in 1981 by Harvard Real Estate Inc, the 1987 research suggests that little has changed over the six year span.

Statistical Hypothesis testing of the data using Chi-Square methods reveals that: 1) Profit centers do not indicate more effective management of buildings and land than cost centers (but that those who do not separately evaluate their real estate -- as either a cost or profit center -- are less effective than those who do), 2) Effective management of corporate real estate is unrelated to the size of the real estate portfolio (but directly related to management attitude), and 3) the use of computers in corporate real estate does not necessarily indicate effective management.

The research concludes with discussions of the role of information and general management in corporate real estate and examines the future of the field -- both as an emerging branch of management and an emerging academic discipline.

Thesis Supervisor: Ranko Bon, Ph.D.

Title: Associate Professor of Building Economics

ACKNOWLEDGEMENTS

I would first like to thank the many executives who provided their thoughts and comments during the research and who made this study possible. Hopefully, their collective efforts will contribute to a greater understanding of the field today.

This study, and previous research by the author, was made possible with funding from the Shimizu Construction Co., Ltd. I am grateful for their support. I am also indebted to the Laboratory of Architecture and Planning at MIT which has provided ongoing administrative and financial support throughout my stay at MIT. In addition, the research was conducted in cooperation with the International Association of Corporate Real Estate Executives (NACORE) who provided considerable logistic support. Their help was instrumental in the successful completion of the research.

The genesis of many ideas presented in this thesis were borne out of discussions and working sessions with countless individuals, too numerous to acknowledge here. The following individuals, however, are deserving of special recognition:

Dr. Ranko Bon for all of his help and his unerring sense of professionalism, proficiency, and punctuality in his role as thesis advisor and mentor at during my work at MIT, Dr. Robert Silverman (of Harvard University) for his invaluable advice and enthusiastic support during all phases of this study, Mike Joroff for a place at MIT without which I would surely not be writing this today, Rodrigo Brana (of too many degrees to list) for his contributions as a colleague and a sense of humor, Dr. Eric Dluhosch, for his ongoing support and work together during the past two and a half years, Professor Patrice Derrington (of Carnegie Mellon University) and Young Chai for their thoughts and comments on this and previous research efforts, Carl Fisher of GTE for sharing the results of his research at GTE, and Bonnie Hafner for her adminstrative assistance in the early going.

Finally, my fullest thanks go to Mary Dolden for her unlimited kindness, understanding, friendship and hot-coffee.

* *

This thesis is dedicated to my good friend Louis Eyre Keene, with no fixed address, who was certifiably nuts and right as rain.

Pete Veale

Cambridge.
January, 13th, 1988.

TABLE OF CONTENTS

LIST OF TABLES

Introduction

In April of 1987 the author, through the Laboratory of Architecture and Planning (LAP) at MIT, conducted a survey of senior real estate executives in America's largest corporations following a similar survey conducted by Harvard Real Estate Inc. (HRE) in 1981. The objectives of the MIT survey were as follows:

- To assess the current state of real estate asset management in U.S. corporations and to compare with the earlier findings of the HRE research.
- To investigate the underlying reasons for the current practices observed and to determine the motives and rationales behind decision-making in the field today.
- To construct a profile of the senior corporate real estate executive -- mapping out the full range of that individual's activities, concerns, planning horizons, priorities and attitudes.

This research is important for several reasons. To date, the management of buildings and land within large organizations has been largely under-researched. What studies have been conducted indicate that these assets may be under-managed. This survey is an attempt to investigate that claim and provide a comprehensive and critical assessment of corporate real estate asset management today. Second, while certain real estate management practices are known to exist in organizations today, the underlying motivations and rationales are not always entirely clear. While management inefficiencies can be identified and even measured, prescriptive remedies must proceed

from a clear understanding of the motivations behind the behavior. This survey is an attempt to ascertain some of those motivations and rationales. Finally, the results of the research will complement other research efforts currently in progress at the LAP and help guide future direction by identifying new inquiries worthy of investigation.

This introduction will first discuss the rationale for research in this area and the genesis of the MIT survey. Next, a brief background on previous survey work in the field is presented including a summary of the major surveys. The design of the MIT survey is discussed next, including its preparation and mailing. Finally, the structure of thesis itself is presented to guide the reader through its contents.

1. Background

Past work by the author and research members of the LAP has focused on the management of buildings and land for large organizations -- both public and private -- who are not primarily in the real estate business. Whether referred to as corporate real estate, physical facilities, real property, or just buildings and land, these assets typically represent one quarter of total corporate worth, and collectively, an estimated $.7 to $1.4 trillion (Silverman & Zeckhauser 1981). LaSalle Partners estimates that real estate accounts for 22 percent of the assets on the books of the Fortune 500 (Bennett 1987). Ibbotson estimates corporate real estate at 7 percent of total U.S. investable wealth, greater than the total of corporate bonds (3.4 percent) or government treasury bills (4.0 percent). (Conroy, Miles, & Wurtzebach 1986). Beyond the market or book value of these assets, are significant operating costs associated with maintaining them on a day-to-day basis. Total occupancy costs for corporations can range between five and eight percent of (pre-tax) gross sales, which can be upwards of 40 or 50 percent of net income (Bell 1987). The International Facility Management Association estimates the average churn rate in an organization at 30 percent with the direct cost of moving a single workstation between $200 and $300. The Harbinger Goup, authors of the Orbit II study estimate average churn rates in excess of 40 percent. Estimates of the average cost of relocating a single employee are as high as $15,000

(Bell 1987). The Institute of Real Estate Management estimates the median occupancy cost for downtown office buildings at $5.83 a square foot (IREM 1987) but this figure can go as high as $40 (Bennett 1987). Rates for heating and cooling alone for office buildings can reach several hundred dollars an hour (Wald 1985).

Collectively, the ongoing costs and appreciable value of buildings and land represents a substantial corporate asset and a vast management effort. In addition, the impact of the physical environment on organizational productivity and corporate mission is, while more difficult to measure, no less important than the cost or value of the real estate asset itself. (see Zahn 1987. Becker 1985. Margulis 1985. Marans 1985.)

a. Research Rationale

The main thrust of the research at MIT has centered on senior decision-makers responsible for buildings and land within the corporation. The work is focused less on the improvement of the individual components of corporate real estate -- i.e. space planning, property acquisition, building operations, capital budgeting, energy management, lease negotiation, etc. -- than on the improvement of upper management's ability to orchestrate these many components in an effective, proactive, and well understood fashion. The approach does not concern facilities management nor real estate proper, but rather the larger task of managing both from the perspective of senior corporate management. This approach has been labeled, at different times, Real Property Portfolio Management (RPPM) and also Corporate

Real Estate Asset Management (CREAM). Both terms may be referred to in this thesis. (The term "corporate real estate management" is used throughout to describe the full range of activities involved in RPPM or CREAM and, unless otherwise noted, is not meant in the traditional sense of formal real estate transactions only).

The work at MIT has been aimed at understanding and articulating the principles behind the effective management of large building portfolios and has, as one of its central objectives, the development of methodologies and systems for supporting corporate real estate decision-makers. Towards that end, the author has attempted to further understand the decision- making process and the decision-makers themselves through primary research. Hopefully, the results of this work can better inform the designers of methodologies and tools, such as future decision support systems, through a greater understanding of the needs, priorities, and practices of those who will use them.

b. Previous Research

In past ten years several primary research investigations have attempted, through surveys and questionnaires, to examine the business of managing a corporation's real estate and facilities. These studies each approach the topic from various vantage points; each concentrating on particular activities or dimensions and each seeking selected information for its own constituency of professionals or specialists. In general, however, relatively little work has been done to date which

takes a more holistic and top-down approach to the corporate real estate management process and which aims at a better understanding of the senior real estate executive within the organization.

Many studies were reviewed in preparation of the MIT study and, where appropriate, used in later comparative analyses. The purposes and origins of these studies range significantly. Cushman & Wakefield, for example, has engaged the firm of Louis Harris & Associates to poll and report upon the perceptions, opinions and plans of corporate real estate executives in a continuing series of Cushman & Wakefield Business America Real Estate Monitor studies. The information gathered, however, is less for the benefit of the real estate executives themselves than for the real estate industry that supports them -- brokerage firms, developers, leasing agents, consultants, etc. The International Facility Management Association (IFMA) has conducted several well-organized inquiries into the demographics, range of activities, and roles of facility managers in corporations today using its own membership of facility professionals as a source for data gathering. Several industry publications, such as Corporate Design & Realty, have polled their readership on their respective practices and attitudes. A few corporations, such as GTE, have themselves conducted polls of real estate managers in other firms to better inform the management of their own real estate. It is interesting to note that very few academic investigations have been conducted in this area and those that have been tend to be

singular in scope and intention.

The following table lists those surveys conducted in the area of corporate real estate and facility management which preceded the 1987 MIT survey:

Table A: Earlier Real Estate and Facility Management Surveys

Compiler	Year	Target Group	# Mailed	# Returned	% Resps.
Stevenson	1975	NACORE	205	107	52
Hubbard	1976	Fortune Industrials	500	111	22
Marling	1980	Fortune Double 500	1000	91	9
IDRC	1981	IDRC members	350 *	100 *	29
Harvard	1981	Fortune 800 NACORE non-profits	1377	300	22
GTE	1983	various large industrials	100	27	27
Real Estate Research Corp	1984	IDRC members	-	70 *	-
Farragher	1984	NACORE members	455	129	28
Corporate Design & Realty (CDR)	1986	CDR reader-ship	-	474	-
Cushman & Wakefield	1986	Dun & Brad-street (service and industrials	-	201	(telephone) interviews
IFMA	1986	IFMA members	1300 *	488	37 *
MIT	1987	Fortune 1000 NACORE non-profits	1898	284	15

* = Approximately

It is the opinion of the author that among the studies conducted within the last decade the HRE work is the most comprehensive and representative of senior management attitudes to date. The line of inquiry developed in that study appeared to be closest in approach to that which had been developing among the MIT research team since 1984. Thus, a follow-up of the 1981 HRE study seemed the most appropriate vehicle for conducting the 1987 MIT study.

c. Preparing the MIT Survey

The MIT survey was designed with two objectives. First, to reexamine those questions from the original HRE survey which were still deemed relevant in 1987 and to observe changes over the six year span. Second, to pursue a second line of questioning which would go beyond the mere observation of various conditions or decisions being made in corporations today and investigate the underlying reasons or rationales.

Dr. Robert Silverman, one of the two authors of the HRE study, acted as advisor throughout the survey conception, design, production and analysis. Where original questions were repeated, care was taken to phrase the question in its original form. Out of the 19 original questions, 8 were retained and another 11 new questions added. A slightly revised version of the survey was developed for non-profit organizations.

The four areas of inquiry were as follows: general background; organization; real estate performance and evaluation; and real estate decision making.

The 1987 MIT survey, like the earlier HRE survey, was conducted in cooperation with the International Association of Corporate Real Estate Executives (NACORE). Specifically, addresses and titles of the NACORE membership were made available as well as general clerical assistance when necessary. In addition, NACORE preceded the actual mailing of the survey with a membership-wide letter endorsing the study and urging its members to complete the survey. It is the author's belief that the NACORE support was very influencial in the success of the survey.

In addition to the NACORE membership, addresses and titles of the Fortune 500 and Fortune Service 500 were collected using the 1987 Standard and Poor Corporate Directory. Where available, the title of the senior real estate executive was used. In all other cases, either the Vice President of Operations or Vice President of Finance was selected as the target individual.

On June 1st, 1987, surveys were sent out to the following groups:

o The Fortune 500	500
o The Fortune Service 500	500
o Public Agencies	197
o Academic Oraganizations	34
o Non-Profit Institutions	4
o NACORE Members (not included in the groups listed above)	663
Total	1898

By August 1st, approximately 320 surveys were returned. Of that number, 295 were considered to be adequate (in terms of

number of answers completed) for inclusion in the analysis. An additional eleven surveys were dropped from the sample when it was discovered that the respondents were engaged in the real estate industry as a primary line of business (e.g. development, brokerage, asset management, etc.). The remaining 284 surveys were used in the analysis that follows. This represents a 15 percent response rate. Since many respondents elected to withhold their company name and address for reasons of confidentiality, it is not possible to determine individual response rates for the various groups listed above.

2. Structure of the Thesis

This thesis is arranged in three chapters. Chapter I -- "The Evolution of Corporate Real Estate Asset Management in the 80's: Stasis and Uncertainty" -- is an indepth presentation of the survey results. Similarities between the 1981 and 1987 surveys are first examined. Next, responses to the questions in the 1987 survey are presented in basic percentage form and, where appropriate, by cross tabulation with other survey responses. The individual findings are discussed in the broader context of real estate asset management as appropriate. Findings of earlier surveys are also referenced as appropriate.

Chapter II -- "Selected Research Hypotheses" -- is an exploration of several focused research hypotheses which were conducted using the data from the survey. These investigations are not meant to be all-inclusive of the full range which could be conducted nor are they necessarily the most critical issues

in the field today. They were selected subjectively by the author.

They are as follows:

H:I Profit centers are more effective in the management of buildings and land than cost centers.

H:II Effective management of corporate real estate is unrelated to the size of the real estate portfolio.

H:III The use of computers in corporate real estate indicates effective management.

Statistical tests -- chi square and hypothesis testing methods -- were employed utilizing the survey data to either support or reject each hypothesis. The results of the tests are presented followed by a discussion and interpretation of the results.

Chapter III -- "Conclusions: Towards Accountability and the Emerging Discipline of Corporate Real Estate Asset Management" -- addresses some broader themes that recur throughout the research in terms of implications for present day practice and future directions for the overall discipline of corporate real estate asset management. Two issues which surfaced throughout the survey -- information needs and general management -- are discussed indepth. The future of corporate real estate is discussed both as an distinct field of management and an emerging academic discipline. Finally, the management dimensions of a strategic approach to corporate real estate are examined and the implications for future research are discussed.

References to previous studies, articles, books, unpublished working papers, presentations, interviews, and project reports

are included parenthetically by author throughout the thesis. The full title and date of each reference may be found in the bibliography.

I. The Evolution of Corporate Real Estate Asset Management in the 80's: Stasis and Uncertainty

1. Introduction to the Survey Results

This chapter begins with a comparative analysis of the MIT and HRE surveys. The sections that follow provide a detailed discussion of the survey responses for each of the areas covered in the survey. These sections are arranged according to the four basic components of the survey: 1) The Nature of Corporate Real Estate, 2) Organizational Structures for Corporate Real Estate, 3) Real Estate Performance and Evaluation. and 4) Decision-Making in Corporate Real Estate. Individual survey results may be found as sub-headings under these four general survey components.

The survey questions are included in Appendix A together with a copy of the cover letter that accompanied the survey.

Before evaluating the results of this survey it is important to consider several points. First, the results presented in this thesis reflect only the answers reported by the real estate executives themselves and not necessarily the true state of reality. As such, the answers provided indicate management attitudes and do not necessarily correspond to actual management behavior.

Second, the completely random character of the sample cannot be assured. Similar to the 1981 HRE survey, a certain degree of self-selection -- with regard to the availability of data necessary to fill out the survey -- can be suspected. The HRE study reports the following:

"Those companies with the most organized real estate records would have found it easier to respond. The survey, therefore, almost certainly understates the lack of organized thinking about real estate in American corporations."

Finally, self-selection notwithstanding, the size of the sample provides a reasonable assurance of the data's reliability. For example, to obtain a 90% confidence interval for a given survey question -- e.g. what proportion of the respondents maintain a real estate inventory -- accurate to plus-or-minus .05 (using the most conservative estimation) a sample size of 271 is required. (Ott & Hildebrand 1983). Thus, if repeated samples are drawn from the population of American corporations, the true population proportion will fall within plus-or-minus .05 of the answer 90% of the time. (Ott & Hildebrand 1983).

2. The HRE and MIT Surveys Compared

Corporate real estate in 1981, as indicated by the HRE survey, represented a vast proportion of corporate assets which, by and large, went under-managed. That study highlighted the reluctance of companies to manage their buildings and land as separate and independent assets; the absense of adequate data and information on these assets; and the lack of diagnostic tools for guiding and evaluating real estate performance. The study concludes that the decision to manage corporate real estate effectively and efficiently appears to have more to do with the attitudes of top management than with the nature, size, value, or function of the properties themselves.

Today, in 1987, the state of corporate real estate remains much the same. The MIT survey -- a wholly independent study on a random sample of U.S. firms a full six years later -- confirms the findings of the previous study and raises the logical question: Why does corporate America continue to under-manage its real estate assets?

Table B is a comparison of selected dimensions from both surveys which illustrate the degree of similarity between the two.

Table B: Comparison of MIT and HRE Surveys

	1987 MIT SURVEY	1981 HRE SURVEY
o SURVEYS MAILED	1898	1377
o USABLE RETURNS	284	300
o RESPONSE RATE	15%	22%
RESPONDENTS BY INDUSTRY TYPE:		
HEAVY MANUFACTURING	12%	22%
LIGHT MANUFACTURING	13%	14%
RETAIL/WHOLESALE	17%	25%
FORESTRY/MINING/CONSTRUCTION	4%	4%
BANKING/FINANCIAL/INSURANCE	20%	15%
TRANSPORTATION	6%	5%
UTILITIES	8%	3%
OTHER BUSINESS ACTIVITIES	21%	7%
% WITH REAL ESTATE INVENTORY	64%	66%
% WITH REAL ESTATE MIS	26%	20%
% HAVING A REAL ESTATE UNIT	86%	80%
% REPORTING TO THE PRESIDENT	20%	20%
% "CLEARLY EVALUATING REAL ESTATE PERFORMANCE INDEPENDENTLY"	39%	40%
% "CLEARLY NOT EVALUATING REAL ESTATE PERFORMANCE INDEPENDENTLY"	47%	40%

% INCONSISTENT IN EVALUATING REAL ESTATE PERFORMANCE	14%	20%
% CHARGING INTERNAL RENTS	67%	65%
% ACCOUNTING FOR REAL ESTATE ON A PROPERTY-BY-PROPERTY BASIS	51%	60%

The charactaristics of the 1987 respondents closely match those of the 1981 survey. Several differences may be attributed to the influence of the overall economy and business climate in the time elapsed between the two studies. For example, reported revenues and total assets increased slightly over the period as the answers were not adjusted for inflation. The decrease in percentage of manufacturing concerns responding may parallel an overall decline in the manufacturing sector during the 1980's. (see Cohen & Zysman 1987. Sabel, Herrigel, Kazis, & Deeg 1987.).

Correspondingly, the increase in banking, insurance, and financial service firms is likely to reflect the growth of these service sectors while the increase in "other business" may reflect the increase in merger and acquisition activity (i.e. a larger portion of "other businesses" are conglomerates or multi-service corporations who were unable to respond to the SIC classifications provided).

While some improvement can be noted, for example in the areas of charging fair market internal rents or establishing a real estate unit, the net improvement is not sufficient enough to overcome even modest allowances for sample error between the two surveys (i.e 5% to 10%). Thus the following conclusions are drawn: 1) there is little to suggest that things have improved

significantly since 1981, and 2) the similarity of the survey results strengthens the validity of each.

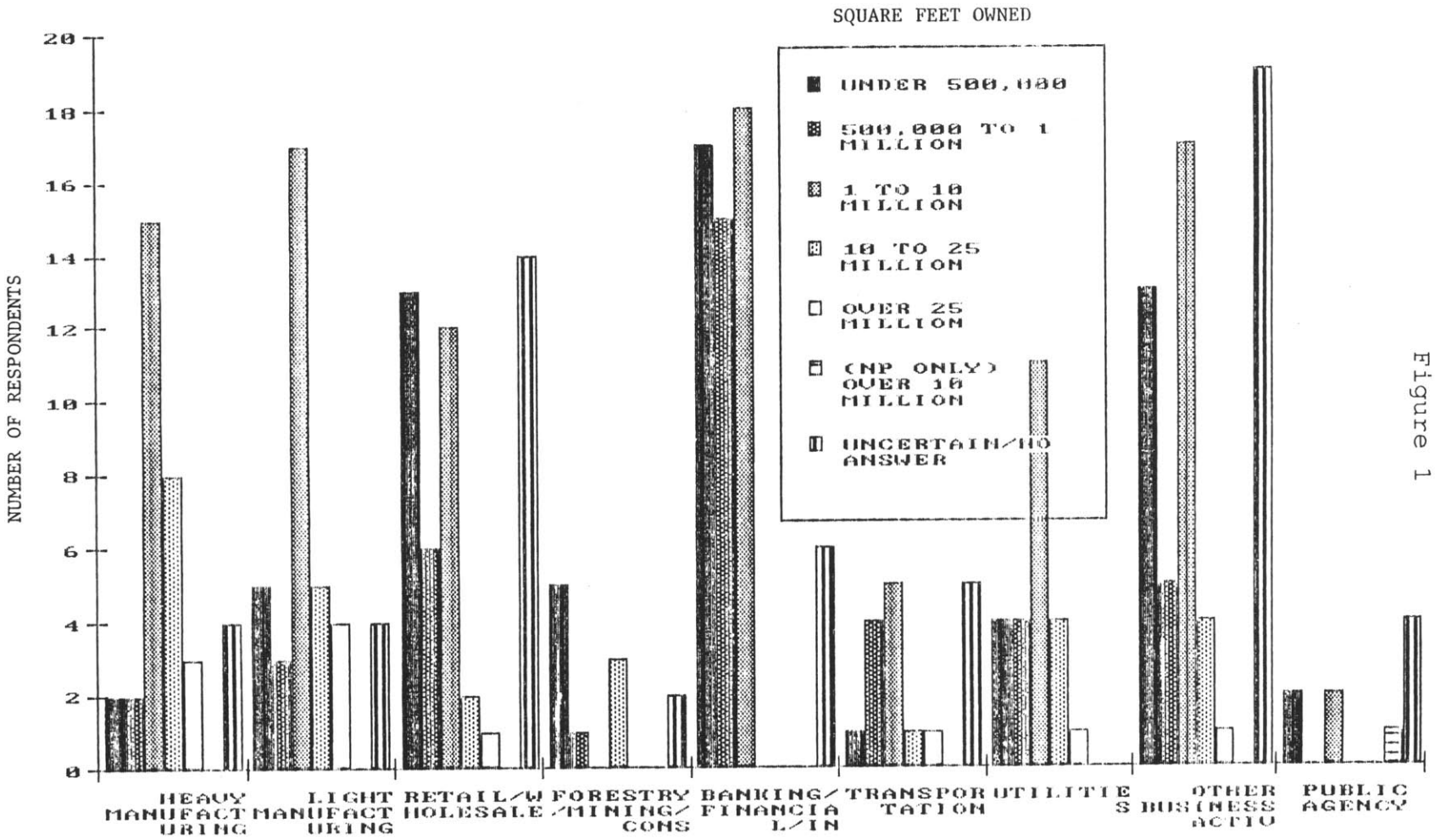
3. The Nature of Corporate Real Estate

a. Size of Real Property Portfolios

The size of real property portfolios was evaluated by both square foot area and number of sites, ranging from less than 500,000 square feet to over 25 million and from less than 25 sites to over 5000. The largest proportion of corporations responding (33%) owns between 1 and 10 million square feet, within 100 to 500 sites (35%), and leases less than 500,000 square feet (26%). Roughly one-half of all corporations reporting lease out at least some portion of their owned space. The survey results point to a full 15% who are leasing out between 500,000 and 25 million sqaure feet of their own space annually.

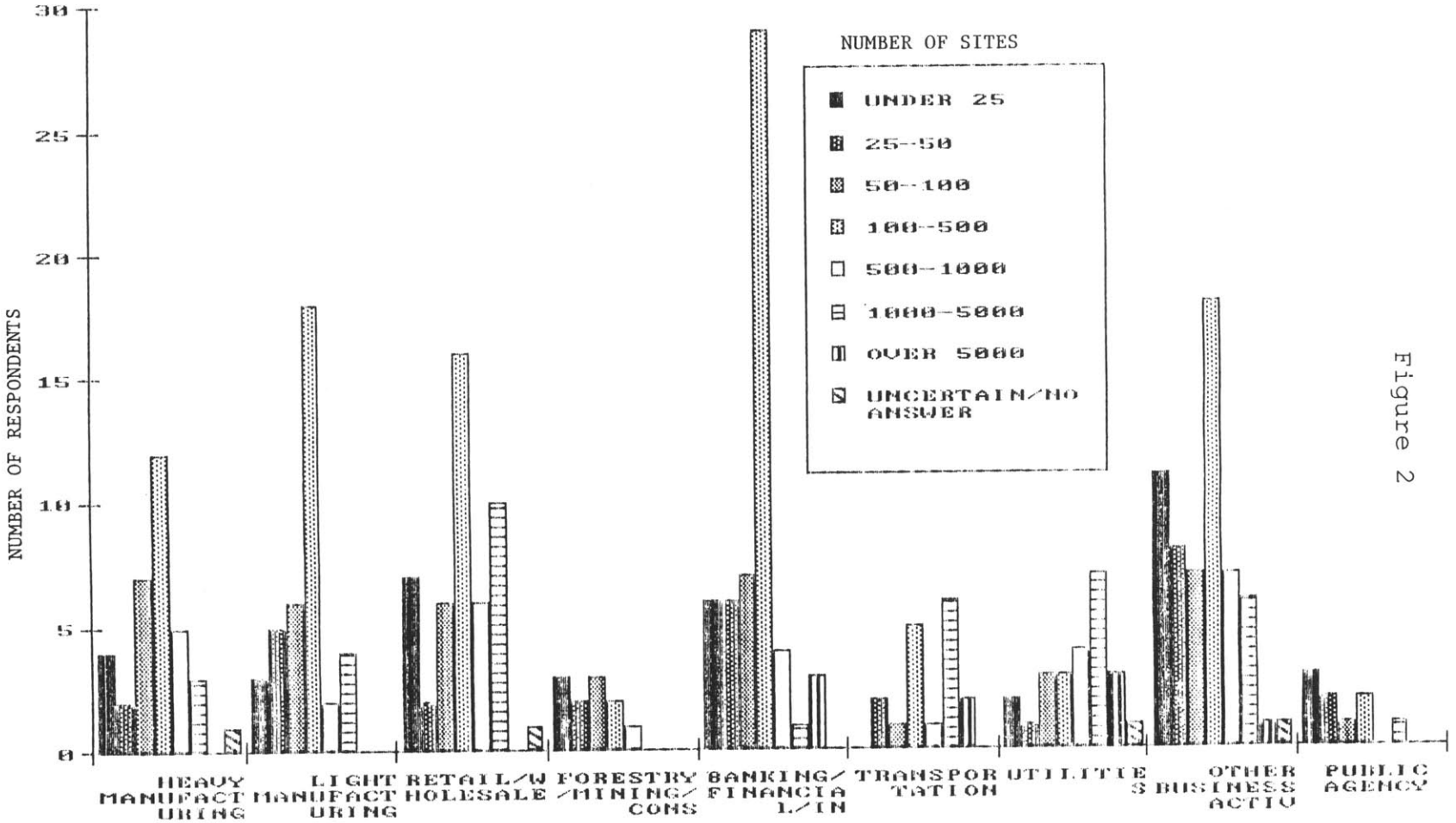
Figure 1 charts the industry group of the respondent by number of square feet owned and occupied. For the most part, the larger area portfolios are found within the manufacturing, transportation and utility sectors while the smaller square foot portfolios are found within the retail and wholesale; banking, insurance, and financial services; forestry, mining, and construction; and "other" business sectors.

When number of sites is the criterion, however, the larger portfolios are found within the banking, insurance, and financial services; retail and wholesale; transportation and utility sectors. Figure 2 charts the industry group of the respondent with number of sites.



RESPONDENT BY INDUSTRY TYPE

Figure 1

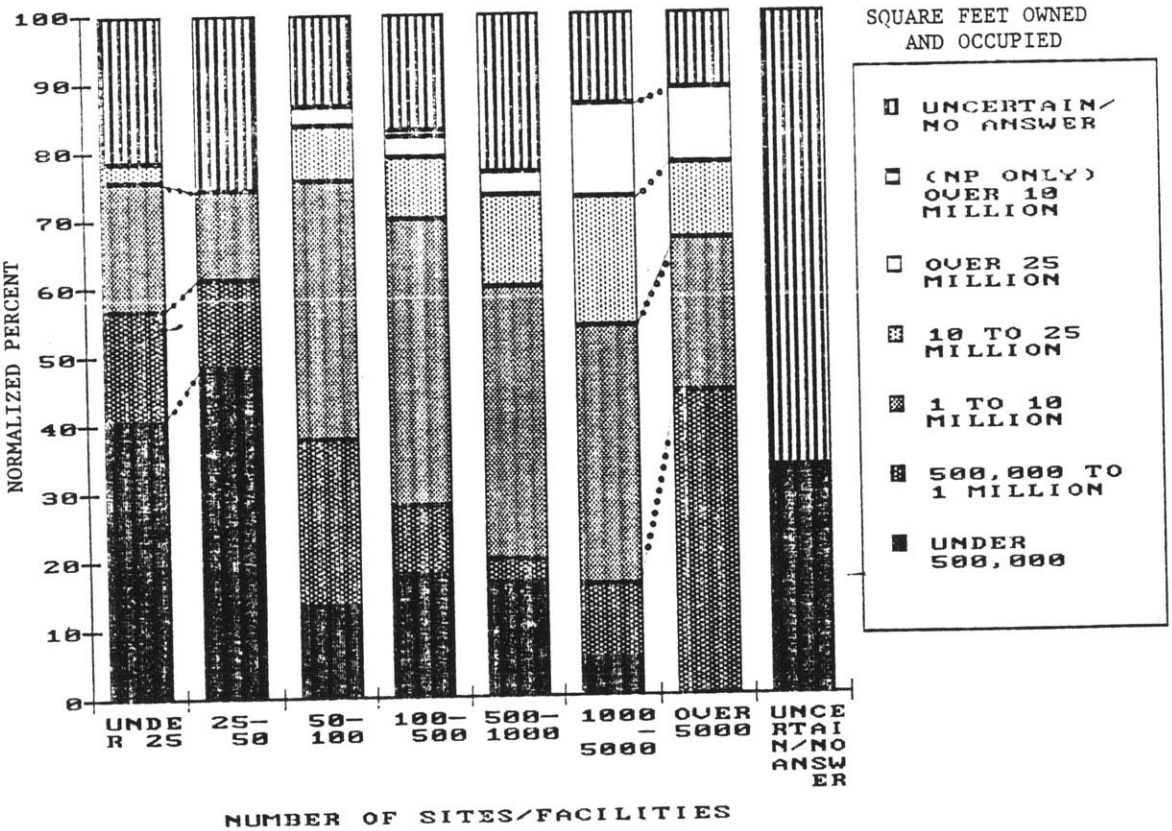


RESPONDENT BY INDUSTRY TYPE

Figure 2

In general, as portfolios increase by number of sites they increase in area. The survey data shows, however, the inverse of this relationship for portfolios over 5000 sites and under 25. These two non-conforming tails of the overall distribution are populated at one end by mostly banking and retail firms housed in a high number of small square-foot spaces and manufacturing firms housed in a small number of high square-foot spaces. Figure 3 illustrates this phenomenom.

Figure 3



NUMBER OF SITES / FACILITES COMPARED TO NUMBER OF SQUARE FEET OWNED

b. Value of Real Property Portfolios

While corporate real estate can be safely estimated at approximately one-quarter of total corporate assets, this ratio varies dramatically. Disregarding both the upper and lower limits of the survey results (where a range or mid-point cannot be specified) and those cases where the respondents claim to be uncertain, approximately one-third of the survey fell into increments ranging from $250,000 to $5,000,000 as the market value of their real property. This value is based on the current fair market value estimated by the respondents and not the depreciated value of real estate currently held on the books. These respondents report the market value of their real estate as a percentage of total corporate assets as follows:

45% -- less than 20% of total assets
25% -- at least 20% of total assets
20% -- at least 50% of total assets
13% -- greater than total assets

Thus, while one quarter of total assets is adequate justification for ongoing and effective management of these assets, in general, management should not be entirely settled on that figure since we can see that a full third (of the group shown above) reports their real property at 50% of total assets or greater.

Among industry groups the higher (fair market) value real estate portfolios may be found in the manufacturing, forestry/ mining/ and construction, transportaion, utility, and public agency sectors. The retail/wholesale and banking/insurance/ financial service sectors, as a whole, report significantly

lower real estate value. This latter group, however, also reports the highest total assets of all industry groups. A probable explanation may be found in the fact that most large banks, financial groups, and insurance companies hold sizable and valuable real estate properties as a part of their investment portfolio which may not show up in this survey. As is typical in the industry, corporate real estate assets (those which actually house the business) are managed separately from investment properties and typically by a different management group with entirely different performance expectations. Thus, the executives responding (on in-house real estate) may not have included that value of investment properties in the survey.

Figure 4 charts the fair market value of real estate holdings by industry group. It is interesting to note that, from an industry standpoint, real estate represents a much greater proportion of total assets in heavy manufacturing and the forestry/mining/construction industries than for the banking/insurance/financial service industries. According to K. Philbrick, director of real estate for a large consumer products firm, manufacturers are not interested in ownership or appreciation as much as cost control. "For the most part, they're only interested in putting a roof over their heads and controlling expenses, not making money on their real estate." (Lelen 1987).

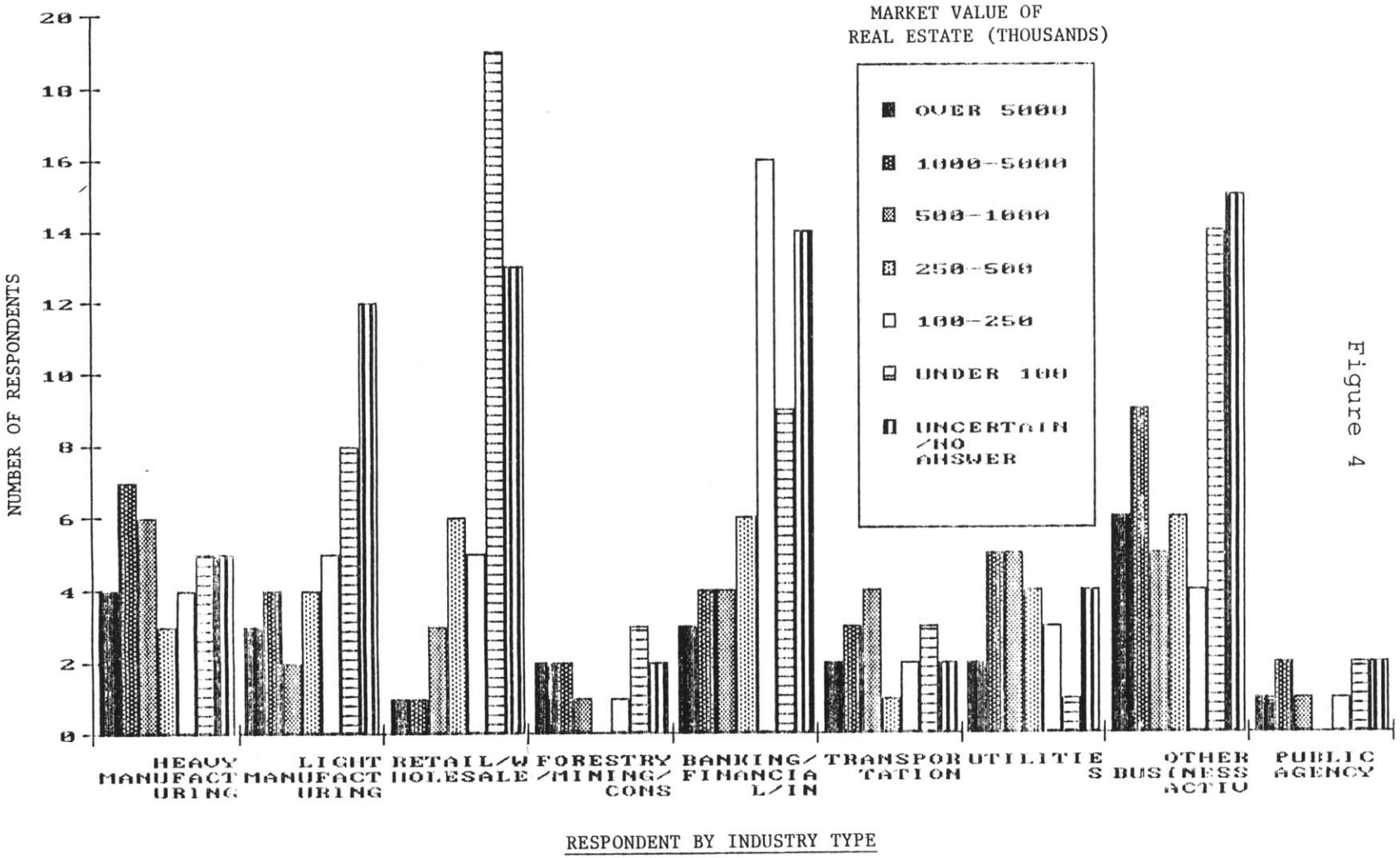

MARKET VALUE OF
REAL ESTATE (THOUSANDS)
OVER 5000
1000-5000
500-1000
250-500
100-250
UNDER 100
UNCERTAIN /NO ANSWER
NUMBER OF RESPONDENTS
0
2
4
6
8
10
12
14
16
18
20
HEAVY MANUFACTURING
LIGHT MANUFACTURING
RETAIL/WHOLESALE
FORESTRY/MINING/CONS
BANKING/FINANCIAL/IN
TRANSPORTATION
UTILITIES
OTHER BUSINESS ACTIV
PUBLIC AGENCY
RESPONDENT BY INDUSTRY TYPE

Figure 4

4. Organizational Structures for Corporate Real Estate

a. Form of Real Estate Unit

Approximately 86% of those responding to the survey reported having a formal real estate unit in place. This percentage is up slightly from the 80% level reported by HRE in 1981. Approximately one half of these real estate units were formed within the last ten years.

Most real estate units take the form of a department within the corporation. Approximately 15% of the respondents have taken the step of forming a separate real estate subsidiary, consistent with the 1981 survey and previous studies:

	Department	Subsidiary	Both
1981 HRE	80%	14%	6%
1983 GTE	76%	19%	8%
1986 CDR	88%	12%	-
1987 MIT	82%	13%	5%

The survey data shows, however, the decreasing likelihood for these subsidiaries to be found in firms with large portfolios:

Area (in million)	under .5	.5-1	1-10	10-25	over 25
DEPT/SUBS RATIO (%)	19	15	13	5	0

Number of Sites	under 25	25-50	50-100	100-500	500-1000	1000-5000	over 5000
DEPT/SUBS RATIO (%)	30	32	15	14	15	11	16

This phenomenon may be the result of sampling error, in as much as the original surveys were sent directly to the (parent) corporations themselves and thus may not have actually reached the subsidiaries. The overall drop may, however, reflect the fact that non-consolidated subsidiaries may find it increasingly difficult to meet the criteria for non-consolidation with large portfolios; specifically, that the subsidiary be non-essential to the parent corporation and its business be largely unrelated to the parent. Thus, the non-consolidated subsidiary with an increasingly large business from the parent is obligated to maintain an increasingly large segment of unrelated business. (see Bunyan, Czerwinski, Kitts, & Rossi 1986). Consolidated subsidiaries, on the other hand, are not bound by these restrictions. In any event, the more important question to be posed is: how many of those firms who have not organized a subsidiary (85%) continue to maintain and manage their real estate on the books of their operating divisions? Since the survey questions did not go into sufficient detail to provide any answer, this question remains as an area for further research.

b. Reporting Structure

The job title of the senior real estate executive within the organization varys considerably, as does the level of importance attached to the position within the hierarchy of the corporation. Of those responding to the survey, 37% were vice presidents; 22% managers; 16% directors; 10% presidents; and the remainder, a variety of specialists, associates and assistants.

Organizational structure and responsibility vary widely across industries and individual companies. While roughly half of the real estate units in the sample report to either the president or executive vice president, the rest report to any number of individuals within the organization: general counsel, director of corporate engineering, vice president of purchasing, CFO or controller, vice president of administration or corporate services, vice president of tax, and others.

One in four firms responding has its formal real estate functions (i.e. acquisition, divestiture, development, etc.) reporting to a separate vice president than its facility management functions. This may be seen as a potential source of conflict. Where separate reporting structures did occur, approximately 31% reported inadequate communication and coordination between the two groups. For those whose manage their real estate for profit this percentage grows to 57%. Evidence for the high percentage among profit centers may be found in two possible explanations: It may be argued that the higher priority given to development activities and lower priority given to operational concerns (which was evident throughout the survey for profit centers) may have put the real estate function at greater odds with the facility management function. Alternatively, it may be argued that profit centers that are demanding greater effeciency and accountability from the corporation's real estate are more likely to encounter resistance and difficulties along the way than those who do not. That is, it is only during the process of increasing management

effectiveness that the true impediments become known.

c. Activities Reported

Leasing continues to be the predominant activity among real estate groups, followed by property management, acquistions, divestiture, and development. This is consistent with the 1981 HRE findings wth the exception of property management which was reported in 1981 as the third most predominant activity. This is also consistent with the 1986 CDR survey which ranked major responsibilities, in descending order of significance, as space leasing, asset deployment, and facility management. In general, the overall thrust of real estate activities is normally acquisitive, emphasizing addition over subtraction. The following percentages apply:

	MIT	HRE
Leasing	75%	96%
Property Management	64%	75%
Acquisitions	61%	80%
Divestiture	52%	64%
Development	45%	56%

Respondents to the survey reported line units engaging in real estate activities in varying degrees. Line units were reported to engage in activities of capital budgeting, site selection, identification of new real estate needs, design decisions, and identification of surplus property 25% of the time or more. They were reported to be less involved with real estate record keeping, property mangement, disposal of surplus properties, acquisition, construction supervision, lease approval, financial analysis of projects, and tax evaluation (less than 25% of the time).

5. Real Estate Performance and Evaluation

a. Evaluation Method

The survey reveals that less than half of all firms responding clearly and consistently evaluate their real estate as an independent asset. For those who do, they are twice as likely to operate as a cost center. The following percentages apply:

-- Profit center (only) 12%
-- Cost center (only) 26%
-- Both cost and profit center . . . 5%
-- Mixed response / no separate evaluation . . . 61%

Tables C lists the motivations or rationale for operating as a cost center.

Table C: Rationale for Cost Center

Not in the real estate business	57%
Facilitate cost recovery through cost of goods sold	28%
Equal allocation of real estate expenses thru overheads	27%
Top management resistance	21%
Ease of use	20%
Real estate unit not sufficiently profitable by nature	15%
Unavailable mgmt expertise/manpower to manage for profit	13%
* "other"	13%

* = other rationales include: cost of doing business; reduce cost of rent & occupancy; strategic plan; geographic location to materials & customers; better utilization of real estate portfolio; central management; sale of product

For those who manage their real estate as a cost center the claim that "we're not in the real estate business" was cited as the single most important rationale for the cost approach. Also

cited, but not as frequently, were reasons of facilitating the recovery of real property expenses through the cost of goods sold of the company's main products and a more equal allocation of real estate expense across line operations through overheads. (It should be noted that the claim "we're not in the real estate business" was usually accompanied by other reasons, such as the ones just mentioned). Thus, while cost centers display a clear bias in their view of the corporate real estate mission, it can be seen that these firms do provide some rational and pragmatic foundations for their choice to operate from a cost basis. (For more on the role of corporate real estate in development and the real estate industry see Thompson 1986, Bogorad 1984, Behrens 1982, Brown 1979, and Sigafoos 1976). Nevertheless, it is interesting to note that very few firms (15%) reported that their real estate units were not "sufficiently profitable by nature" as a rationale for the cost approach.

Table B lists the motivations or rationales for operating as a profit center.

Table D: Rationale for Profit Center

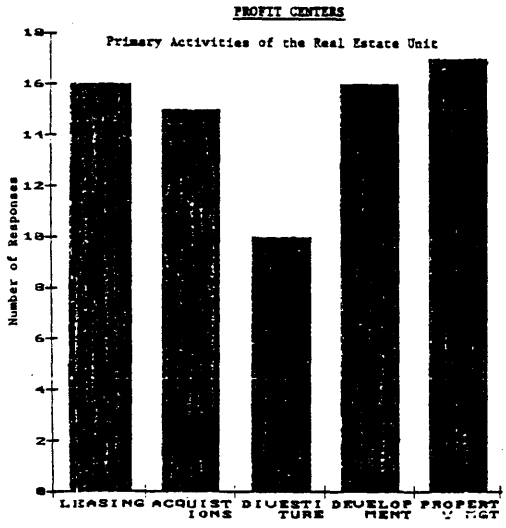
Generate revenue for overall corporate needs	66%
Increased efficiency of real estate resources	43%
More effective evaluation of property performance	37%
Generate revenue for other real estate needs	26%
Tax purposes	20%
Invest idle corporate funds	17%
Induce competition with the market place	9%
* "other"	9%
Induce competition with other properties	3%

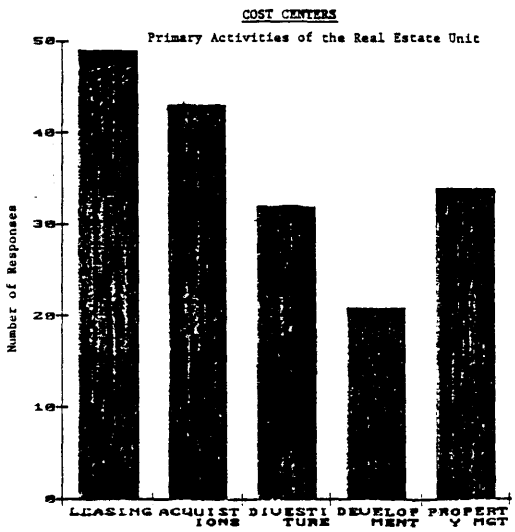
* = other rationales include: to attract qualified workforce; creation of value; enhance community relations; diversification of resources; residuals and shelter; reduce occupancy cost for line units; etc

For those who manage real estate as a profit center, using real estate assets to generate revenue for overall corporate purposes appears the be the most popular rationale or motivation. The second most frequently cited motivations -- increased efficiency of resources and more effective evaluation of property performance -- seem a far cry from "being in the real estate business."

Profit centers in the sample displayed noticeably different management priorties from the cost center firms. Table E presents the primary activities reported by both groups.

Table E: Primary Activities of Profit and Cost Centers





For the most part, profit centers report higher involvement with development activities and less with leasing, acquisitions, and divestiture than cost centers. These differences may be also be seen in Table F which lists the various real estate responsibilities cited for both the real estate unit and the line units with the organization.

Table F: Real Estate Responsibility of Real Estate Unit and Line Unit

Responsibilities of the "Real Estate Unit"		
Responsibility for Activity	Profit Center	Cost Center
Real Estate Recordkeeping	60%	77%
Property tax evaluation	37%	31%
Capital budgeting for R.E.	77%	69%
Financial analysis of R.E. projects	80%	71%
Identification of new R.E. needs	86%	64%
Site selection	89%	92%
Lease approval	80%	93%
Design decisions	71%	76%
Construction supervision	54%	63%
Acquisition of new property	89%	91%
Identification of surplus property	80%	71%
Disposal of surplus property	89%	89%
Property or facility management	83%	71%
Average Real Estate Unit Responsibility	75%	73.7%

Table F Continued ...

Responsibility for Activity	Responsibilities of the **"Line Unit"** Profit Center	Cost Center
Real Estate Recordkeeping	14%	11%
Property tax evaluation	11%	7%
Capital budgeting for R.E.	20%	29%
Financial analysis of R.E. projects	11%	20%
Identification of new R.E. needs	26%	36%
Site selection	20%	33%
Lease approval	23%	29%
Design decisions	26%	36%
Construction supervision	17%	25%
Acquisition of new property	14%	25%
Identification of surplus property	29%	41%
Disposal of surplus property	14%	5%
Property or facility management	17%	24%
Average Operating Line Unit Responsibility	18.6%	24.7%
Average "other staff" Dept. Responsibility	24.6%	22.6%
Average Outside Consultant Responsibility	5.8%	4.6%

The differences in management practices between profit and cost centers will be discussed in detail in Chapter II.

b. Inventory and MIS

Uncertainty over amount of buildings and land, owned and leased, remains significant among the corporations surveyed. Approximately 19% of the respondents were unable to specify area owned while 24% were unable to specify area leased. This seems consistent with the findings that one in four firms does not maintain a real estate inventory. Additionally, firms seem more likely to know the market value of their real estate (24% were

uncertain) than the original acquisition value (41% were uncertain).

Beyond maintaining an inventory of real estate assets, approximately two-thirds of the firms surveyed do not maintain any separate management information system for the ongoing management and control of these assets. The reasons for this lack of data vary. Table G lists the most frequently cited barriers for the survey sample.

Table G: Barriers for Developing Real Estate Inventory / MIS

Not cost justifiable	21%
Insufficient funding or manpower	21%
Unfamiliar with available inventory/MIS systems	13%
Insufficient power vested in real estate group	13%
Real estate function too decentralized	9%
Difficult to effect change in the organization	7%
* "other"	7%
Cannot convince top management	4%
Resistance to new procedures by real estate staff	2%
Resistance to new information technologies by staff	1%

* = other barriers include: other corporate MIS priorities supercede real estate; resistance to use by division staff; too small to need -- only 90 properties; etc.

While firms of all sizes reported insufficient funding and manpower as a primary barrier for developing and operating these information systems, smaller firms cited problems of justifying cost; unfamiliarity with available systems; and insufficient power vested in the real estate function. Larger firms, on the other hand, cited problems with the real estate function being too decentralized and difficulties with effecting change in a large organization.

c. Real Estate Accounting

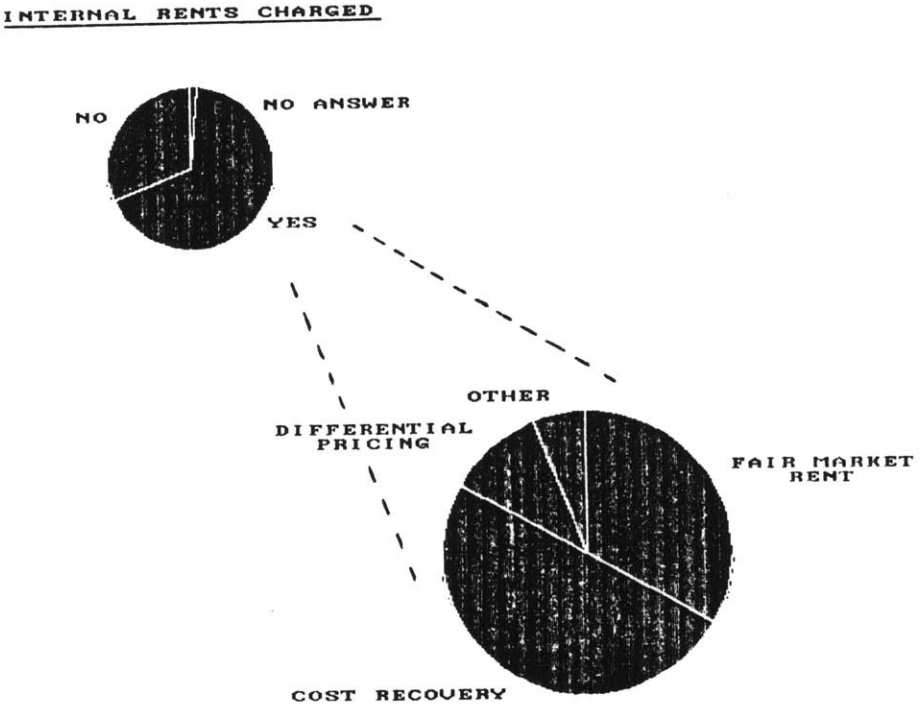
Approximately two-thirds of all corporations report charging

some form of internal rent to their departments, divisions or line units. This ratio (67%) has changed little since 1981 (65%). Where internal rent is charged, the following methods are likely to be employed:

Cost recovery	42%
Fair market rent	34%
Differential pricing by occupant type	11%
Other	6%

Over all, only 23% of the corporations responding charge fair market rent to their departments. Other bases for imputing rent vary widely including averaged rents within geographic area, cost of capital equivalent, actual cost plus facilities mangement overhead, and averaged rental and operating cost for all properties. Figure 5 displays the survey response.

Figure 5



Property-by-property is the most popular accounting method (51%), yet a full 28% account for their real estate operations by category of property or in a pool. Another 23% do not separately account for real estate operations at all. Thus, at the corporate accounting level, only one-half of the organizations surveyed bother to match individual real estate expenses to actual properties. Obviously at some level in the organization these expenses are budgeted, allocated, and recorded. However, the survey data seems to suggest that, at least in the aggregate, these expenses are not consistently accounted for on an individual basis. Some latitude should also be given to the respondent's interpretation of the question "How does your company account for its real estate operations?" and various forms of accounting that may be employed. For example, cases where pooled accounting was cited might involve pooled real estate funds or budgets and common procurement procedures for several properties, yet the actual record-keeping process may be conducted on a property-by-property basis. In any event, a full 23 percent of the respondents report "no separate accounting for real estate" and presumably are unable to account for real estate expenses in any kind of consolidated or organized fashion.

d. Real Estate Investment Analysis and Return

Rate of return on investment is the most popular method of analyzing real estate investments among survey respondents. This method and net present value calculations (both before and

after tax) appear to have grown in use since 1981. As noted in the HRE study, the popularity of these methods is likely to be due to the increasing use of the hand-held calculator and desk-top computer.

When asked how the after-tax return on real estate (net income plus appreciation) compared with the company's overall return, the following was reported:

Real estate returns are generally higher	21%
Real estate returns are generally the same	7%
Real estate returns are genreally lower	12%
Real estate returns are not calculated	60%

Thus, while the kinds of financial analysis that would allow a comparison of returns is rarely conducted, it would appear that -- where the information is available -- real estate is generally equal to or greater than overall corporate returns. It may be argued, however, that only those managers who are in a position to realize a significant returns on their real estate -- by way of market position, resources available, and decision-making authority -- will have an incentive to calculate returns. Still, given the overall economic climate during the past decade and the well-documented record of real estate investments relative to other capital investments, it seems that corporate real estate operations are, by nature, at least competitive with, if not more lucrative than, overall corporate operations. (see Conroy, Miles, & Wurtzebach 1986. Fogler 1984. Zerbst & Cambon 1984.). As indicated in a 1983 Goldman Sachs study, during the period of 1974 to 1983 institutional real estate outperformed common stocks, long-term bonds, and the

consumer price index, increasing some 3.6 times in value (Yee 1986).

6. Decision Making in Corporate Real Estate Asset Management

a. The Corporate Real Estate Executive Profile

Much has been researched and written on the mechanics associated with individual corporate real estate activities. For example, it is possible to learn from various journals in the field today -- Industrial Development, Facilities Design & Management, Corporate Design & Realty, Buildings, Journal of Property Management, Real Estate Review, Building Design & Construction etc. -- about various lease negotiation techniques, real estate financing alternatives and space planning methods. To date, however, little work has been done which focuses on the real estate executive himself and not just his responsibilities. A better understanding of his world -- his habits, his needs, his priorities, his horizons, and his attitudes -- can ultimately improve upon the design of systems and techniques which support him and his decision making process.

Table H lists the mean weekly hours that the senior real estate executive spends on various activities and their normalized 40-hour week equivalents.

Table H: Mean Hours Spent Weekly by Senior Real Estate Executive
(normalized percent of 40 hr week in parenthesis)

PORTFOLIO TRANSACTIONS (ACQUISITION, DIVESTITURE, LEASING,ETC)			
	- LEASE NEGOTIATION	5.1	(9%)
	- PROJECT REVIEW OF NEW CONST./DEVMT	4.1	(7%)
	- ANALYSIS OF REAL ESTATE INVESTMENTS	3.6	(6%)
	- SITE SELECTION & ACQUISITION	5.2	(9%)
	- DISPOSITION OF SURPLUS PROPERTES	4.4	(7%)
*	- OTHER ACTIVITIES (20%)	1.5	(2%)
	TOTAL:	23.9	(40%)
ONGOING CUSTODIANSHIP OF EXISTING PORTFOLIO			
	- FACILITY MANAGEMENT	4.4	(7%)
	- SPACE PLANNING	2.7	(5%)
*	- OTHER ACTIVITIES (10%)	0.7	(1%)
	TOTAL:	7.8	(13%)
FINANCIAL, LEGAL, ENVIRONMENTAL, ETC.			
	- REVIEW & PREPARE CAPITAL/OPS BUDGETS	2.4	(4%)
	- LEGAL ISSUES	2.9	(5%)
*	- OTHER ACTIVITIES (20%)	1.5	(2%)
	TOTAL:	6.8	(11%)
GENERAL MANAGEMENT			
	- ADMINISTRATION OF REAL ESTATE DEPT.	8.4	(14%)
	- LIAISON WITH OTHER DEPTS (TENANTS)	5.0	(8%)
	- REPORTING TO SENIOR MANAGEMENT	3.6	(6%)
*	- OTHER ACTIVITIES (50%)	3.7	(6%)
	TOTAL:	20.7	(35%)

* = OTHER ACTIVITIES REPORTED TYPICALLY BROKE DOWN INTO THE FOLLOWING AREAS PROPORTIONALLY:

PORTFOLIO TRANSACTIONS	20%
PORTFOLIO CUSTODIANSHIP	10%
FINANCIAL/LEGAL/ENVIRONMENTAL	20%
GENERAL MANAGEMENT	50%

As the survey responses indicate, the senior real estate executive is likely to spend his week on a variety of activities, not all of which are real estate. A full one-third of executive time is reportedly spent on general management, i.e. administering the real estate department; liaison with other departments within the corporation, and reporting to senior management. Another third is spent entirely on transactions to the building portfolios, i.e. site selection and acquisition, project review of new construction and development, negotiating leases, disposition of surplus properties, etc. The remainder of time is likely to be spread among activities of facility management, space planning, financial, legal, environmental, etc.

The majority of corporate real estate decision-making takes place in the two to ten year planning horizon. Over half of those surveyed reported "seldom" or "never" looking beyond the ten year mark. Interestingly, two groups emerged from the survey results: 22% who "seldom" or "never" plan beyond the five-year range and 16% who "seldom" or "never" plan before the five-year range.

A closer look at these two groups reveals that there are very few differences between the organizational structures or industry types. The main differences noted were primarily in attitude and seniority. Specifically, those with the longer planning horizon tend to be more senior. They report less discomfort with uncertainty and unpredictability of future real estate markets and space needs, greater exposure to overall corporate strategy and planning, and greater access to

information and methodology for evaluating the physical performance and use effectiveness of their buildings. It was also noted that the longer range decision-makers report a consistently greater number of real property information systems in place and a consistently greater number of computer applications for maintaining them. (Attitudes of managers and computers in corporate real estate will be discussed in later sections).

At the level of the senior real estate executive, decision making for real estate is likely to be based upon or driven by operational factors deriving from the mission of the company as a whole. These include new space needs, program requirements, relocation decisions, new office technologies, etc. Table I lists the primary and secondary basis for real property decision-making reported in the survey.

Table I: Primary and Secondary Decision Basis

Primary Decision Basis		Secondary Decision Basis	
Operational factors	58%	Situational factors	36%
Occupancy costs	35%	Occupancy costs	28%
Profit potential	32%	Other	22%
Situational factors	12%	Operational factors	19%
Other	7%	Profit potential	18%

The next most frequently cited basis for decision making is occupancy cost (e.g. reducing or limiting space overhead, operating expenses, debt service, lease payments, and overall corporate occupancy cost). Ranked third in priority is investment or profit potential (e.g. increasing return on

investment, enhancing value of fixed assets, improving financial position of overall portfolio, etc.). Fourth in priority are situational factors (e.g. unforeseen or unplanned events or occurrences which demand immediate management attention, such as emergency roof repairs, behind-schedule construction, lease expirations, labor strikes, etc.).

Although rated fourth as a "primary" basis for decision-making, situational factors rank first as a "secondary" basis for decision-making. Thus it appears that corporate real estate, as in any other field of management, is likely to be involved in putting out many small fires.

These findings are supported by the 1986 Cushman & Wakefield study which reported that "large majorities of both the CEO's and the real estate executives say their real estate decisions are usually based on operational factors rather than a concern with the investment potential of the property." From this perspective, it is not hard to see why many managers claim they are not in the real estate business. Clearly, the mission of the real estate unit is driven by the mission of the overall corporation.

As one might expect, a higher occurrence of profit or investment-driven decision-making was reported among profit centers than for cost centers. Correspondingly, a higher occurrence of operationally-driven decision-making was reported among cost centers than for profit centers.

b. Decision Support

The impact of computers in American business has not left

corporate real estate unaffected. Computers were present in decision-making for buildings and land, at least to some degree, in most of the organizations surveyed. The most frequent applications were found in real estate inventory and investment analysis. The respondents were as likely as not to employ computers in project management, maintenance management, and CAD drafting and design. The least frequent application was found in CAD-based facility management.

The low use of CAD-based facility management systems (39%) may reflect the relative youth of such systems on the market today. (see Kimmel 1987). Alternatively, this figure may result from the fact that many of the real estate departments responding to the survey operate separately from the facility management group and thus may not be fully cognizant of computer use in that area. (As mentioned earlier, approximately one out of four firms has these two functions reporting to separate vice presidents).

Regardless of computer use, corporations report having systems in place, manual or otherwise, for maintaining information on the following functions:

Lease Commitments and action dates	88%
Identification of surplus or under-utilized properties .	69%
Utilization and current capacity of existing properties	69%
Tracking square foot costs by facility	57%
Physical condition and performance of buildings	55%
Identification of changes in market value of real estate	30%
Identification of opportunities for improved financing .	25%

Most significantly, however, only 29% of the respondents report analyzing and preparing the information from the above systems for top management review on any scheduled basis (i.e.

quarterly, semi-annually, or annually). Approximately 47% prepare reports only ad hoc. Another 23% do not report at all.

Duties, responsibilities or performance criteria for corporate real estate were reported to be defined through:

	General Policy & procedures	Standards /Formulas /Threshods	as necessary	discretion of line unit
Capital Budgeting	54%	14%	14%	6%
Lease Commitments	47%	13%	21%	8%
Property Acquisition	41%	13%	33%	5%
Property Disposition	40%	6%	39%	6%
Overhead Accounting	36%	11%	23%	11%
Preventive Maintenace	35%	12%	21%	18%
Space Allocation	34%	17%	26%	11%
Energy Use	25%	12%	24%	22%
Development Projects	25%	13%	36%	6%

The president or CEO was found to be involved in the decision- making process for real estate "sometimes" or "often" approximately three-quarters of the time (and seldom or never one-quarter of the time). The final decisions on real estate financing are made by the president approximately 32% of the time -- about as frequently as by the treasurer or controller. The real estate unit itself cited decision- making authority on financing only 15% of the time and the line unit less than 6%.

c. Management Attitudes

Effective management of corporate real estate is likely to depend on the attitudes of the decision maker. In an effort to gauge these attitudes the survey respondents were asked to evaluate several statements, indicating their level of agreement or disagreement. Table J lists the responses.

Table J: Corporate Real Estate Executive Attitudes

"Uncertainty and unpredictablility of future real estate markets economic conditions, and organizational space needs greatly reduces my capacity to effect optimal real estate solutions"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
9%	25%	36%	21%	6%

"Diversifying real property portfolios -- by lease/own ratios, lease term and maturation, captial financing vehicle, etc. -- can significantly reduce finacial risk"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
18%	46%	12%	2%	18%

"I have regular exposure to, and a firm understanding of, overall corporate strategic plans and objectives from which to base real property decisions"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
34%	40%	13%	6%	3%

"Future flexibility -- in terms of commitments, location, building design and use, etc. -- is a top priority in evaluating real estate alternatives"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
36%	38%	14%	4%	5%

"I do not have sufficient information or methodology available to clearly evaluate the physical performance or use effectiveness of my buildings"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
7%	24%	30%	31%	6%

"Real property decision making, on average, plays a critical part in the overall performance of my organization"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
30%	33%	20%	10%	5%

"Responsibility for real estate assets are delegated too far down in my organization"

Strongly Agree	Mostly Agree	Mostly Disagree	Strongly Disagree	No Comment
3%	9%	27%	55%	3%

The survey data reveals that while most of the real estate executives (57%) feel that uncertainty and unpredictability (of future real estate markets, economic conditions, and corporate space needs) does not inhibit their decision making, another 34% feel that it does. However, a greater number are agreed on the need for future flexibility in real estate decisions (74%). As one real estate manager for a large manufacturing firm comments, "with environmental concerns and regulatory approval, the real estate planning cycle can be as long as two or three years. But our product life cycle has shrunk in some cases to less than a year. Adaptability is a must." (Gage 1987). Accordingly, Bob Waterman suggests that the best strategy is to "build flexibility into facilities so that planners can be prepared for sudden changes in business plans and missions." (Facility Planning News 1987).

While the majority of respondents agreed that diversifying real property portfolios -- by lease/own ratios, lease term and maturation, capital financing vehicle, etc. -- reduces financial risk (64%), nearly one-fifth of the survey responded with "no comment." In general, the survey respondents displayed the greatest uncertainty over this attitude statement. It is also quite likely that while many of the respondents may agree with the statement, considerably few actually employ methods of diversification.

It is interesting to note that nearly all of the executives responding felt that responsibility for real estate assets was <u>not</u> delegated too far down in their organizations. Van

Merkensteijn maintains that the narrow view of facilities and real estate, taken by the corporation as a whole, result in under-valued assets and a precluded possibility of creative change and growth. "Both effects follow when responsibility for the physical environment is delegated too far down in the corporation, where middle managers and operational staff have neither the information necessary to make well-informed strategic choices nor the authority to implement them" (Van Merkensteijn 1986). The strong negative response to this question might be the result of executives regarding the question as an indictment of their own positions within the organization as being "too far down."

Whether managers have the "necessary information to make well-informed strategic choices" is less clear. One-third of the respondents do not feel they have adequate information to evaluate the physical performance or use effectiveness of their facilities. One-quarter of the respondents maintain that they do not have regular exposure to overall corporate strategy and planning. Adequate representation and involvement of the real estate function in senior corporate-level decision-making is a critical connection. Without adequate exposure strategic plans, corporate real estate must assume a reactive posture which is costly and time-consuming. (see Levy & Matz 1987. Veale 1987.).

Approximately two-thirds of the respondents felt that real estate played a critical role in the overall performance of their organization. Here again the subjectivity associated with

the respondents view of their own role in the organization may bave skewed the results. The larger question is: how much of the perceived value of real estate in the organization stems solely from the managers own attitudes and how much stems from the role which real estate actually does play in the organization? This question will be addressed later in Chapter II.

II. Selected Research Hypotheses

This chapter will begin with an introduction to the research hypotheses that were selected followed by an explanation of the testing methodology which was used to evaluate them. Next, each of the hypotheses is discussed in separate sub-sections. For each hypothesis, a general background is provided, the results of the tests are presented, and an interpretation of the test results is offered.

1. Introduction to the Hypotheses

The information gathered by the 1987 MIT survey not only provides a basic picture of real estate management practice today but also constitutes a rich database from which further research can be conducted. Accordingly, three focused research hypotheses were formed and subsequent analysis and manipulation of the data was applied in an attempt to support or reject them. As previously noted, these hypotheses are not meant to be all-inclusive of the full range which could be conducted nor are they necessarily the most critical isses in the field today. They were selected subjectively according to 1) research areas of interest to the author and 2) the sufficiency of data to fully test them.

The first hypothesis concerns the comparison between organizations that conduct their real estate activities as a profit center and those who operate as a cost center. Intuitively, one might suspect that the accountability and bottom-line responsibility associated with operating as a

profit-loss center would result in a more effective real estate operation. (The term "effective" will be discussed and defined for testing purposes the section that follows). This hypothesis will attempt to substantiate that suspicion.

The second hypothesis again concerns effectiveness of real estate operations; this time from the perspective of portfolio size. The 1981 HRE study reported little relation between the size of the portfolio and management effectiveness and concluded that the attitudes of management were the more likely determinants. This hypothesis will attempt to support the claim that organizations who effectively manage their real estate are not structurally different -- in terms of size -- from those who do not.

The last hypothesis concerns the use of computers in the real estate and facilities decision making process. Intuitively, one might suspect that greater numbers of computer systems would be found in organizations who effectively manage their real estate. Thus, the presense of computers in real estate operations might be indicative of effectiveness. The hypothesis will attempt to support that claim.

The survey data was applied to each of the three research hypotheses. Where the data was sufficient to support it, the hypothesis was accepted. Where the data was insufficient, the hypothesis was rejected. It should be noted that where a hypothesis was rejected it should not be construed as meaning that the opposite is true, merely that the hypothesis itself can not be supported by the research data with any reasonable degree of certainty.

2. Hypothesis Testing Methodology

a. Dimensions of Effectiveness

All three hypotheses are concerned with the notion of "effectiveness". Unlike measures of "efficiency" which are easier to quantify -- such as how many, how much, how often, etc. -- measures of effectiveness are likely to involve some degree of subjectivity. Webster's Ninth New Collegiate Dictionary defines effective as "producing a decided, decisive, or desired effect". The terms "decided" and "decisive" are both derived from the act of deciding which Webster's defines as "to arrive at a solution that ends uncertainty ...". For the purposes of this thesis, then, the term effective shall be used to mean incorporating decided, decisive and deliberate methods or management structures for reducing uncertainty and arriving at desired real estate solutions.

It is difficult to determine from the survey whether the desired effect was achieved since the survey identifies 1) the methods employed by the respondents and not the actual results, and 2) the perceptions of the respondents and not the actual behavior or practice. Thus, for the purposes of the research, a greater emphasis was placed on those information systems and management processes which **support** the real estate decision and not necessarily the real estate decision itself. To this end, eight dimensions of the survey were identified as indicative of effective management and selected for use in the hypothesis testing. These eight dimensions are not intended to represent the most critical dimensions available (in general) for

evaluating real estate asset management but rather represent the best dimensions that were available given the survey structure. They are as follows:

- The use of property-by-property accounting methods
- The presense of a formal, organized real estate unit
- The use of management information systems for real estate operations
- The use of internal rents charged to departments
- The comparison of real estate returns to overall corporate returns
- The frequencies of reporting real estate information to senior management
- The exposure of real estate executives to overall corporate strategy and planning
- The reported availability of information and methods for evaluating real estate performance and use

Admittedly, the selection process reflects the subjective judgement of the author. Consideration was given to those dimensions which would not be greatly affected by "non-management" factors, such as size of the organization or number of facilities. For example, the probability of real estate reporting to the president or CEO was not selected as a dimension as this is likely correlate highly with the size of the organization and the relative accessibility of the president or CEO. In the case of evaluating real estate returns, however, a basic assumption is made that the performance of real estate assets is a function of management effectiveness. It may be argued that events outside of the control of management may influence or impact the rate of return, however, for purposes of

this research, the reported rate of return is considered as a "management" factor and included in the testing.

In addition, those dimensions which were likely to be dependent or structurally linked to the choice of either a cost or profit center approach were not included. For example, the use of internal rents was one dimension selected; however, the actual method employed (i.e. fair market or cost recovery) was not observed.

It is important to note that the survey data for these dimensions reflect only the answers reported by the real estate executives themselves and not necessarily the true state of reality. As with much of the survey data, the answers provided indicate management attitudes and do not necessarily correspond to actual management behavior.

b. Statistical Tests

A basic review the frequencies and descriptive statistics of the survey responses could provide answers to all of the research hypotheses if one were willing to restrict the conclusions to the 284 corporations surveyed. (Norusis 1986). The purpose of the statistical testing for the hypotheses, however, is to ascertain the degree to which certain relationships in the survey sample can be inferred for the entire population of corporations in America. The testing for inferences about the larger population in general proceeds from the premise that the survey sample is indeed representative of the total population. This premise seems reasonable if one defines the population as those organizations which are large

enough to merit a distinct and recognized management effort for providing and maintaining space, buildings, and land. The survey sample is well-rounded in terms of industry type, size and location. A wide range of company assets and sales volume for the respondents was observed. In fact, since most of the sample characteristics of the 1987 survey bear close resemblence to the earlier HRE survey -- an independent sample gathered six years earlier -- it may be argued that the sample is highly representative of the target population. As noted previously, however, a certain degree of self-selection with respect to the respondent's ability to complete the questions is probable and thus the complete random nature of the sample cannot be assured.

Testing the thee main research hypotheses involved the statistical evaluation of the eight effectiveness dimensions. These eight dimensions were structured into separate hypotheses (or sub-hypotheses) and individually evaluated to determine their probability of holding true for the entire population of U.S. corporations. The results of the eight tests were then applied in the evaluation of the larger, main research hypothesis. A basic "success rate" is presented which simply indicates the combined percentage of sub-hypotheses which held up to the statistical tests. This rate is by no means statistically significant in itself but, as will be shown later, is useful in comparing the results of the tests. Additionally, this rate does not attempt to weight the eight individual tests in any meaningful fashion. Given the subjectivity associated with the selection of the effectiveness dimensions and the

variance associated with the interpretation of the survey question by the respondents, attempts to further quantify the test results by weighting schemes were not considered to be useful by the author. Rather the eight tests, considered broadly and collectively, provide an reasonable approximation of the relationship holding for the population.

The hypothesis testing was carried out using the SPSSPC+ statistical computer package. General testing techniques were conducted in accordance with procedures contained in Statistical Thinking for Managers, by Ott and Hildebrand (1983). The basic strategy embodied in the hypothesis testing is to support the research hypothesis by contradicting the null hypothesis (Ott & Hildebrand 1983). Since the majority of the survey data is nominal and non-parametric, or distribution free, the chi-square goodness-of-fit test was employed to evaluate the null hypothesis and its probability of holding true for the estimated population. A rejection region was specified using a 10% level of significance, which is the probability of observing a type I error. Such an error may be considered as the risk of rejecting the null hypothesis when, in fact, it is true (Ott & Hildebrand 1983). Table K illustrates the process.

After the Chi-square statistic has been computed and the appropriate rejection region determined, the null hypothesis was either accepted or rejected. To measure the weight of the evidence for rejecting H:0 the p-value was evaluated. This value may be defined as the probability that a difference at least as large as the one observed between the two samples under consideration would have arisen if the means were really equal

Table K: Chi-square Testing Method

H:1 = Research hypothesis: Profit centers use property-by-property accounting methods more (or less) frequently than cost centers.

H:0 = Null hypothesis: Profit centers do not use property-by property accounting methods more (or less) frequently than cost centers.

To test hypothesis estimate p using:

Profit group = (22) out of 35 using method
Cost group = (43) out of 75 using method

where p = probability that a firm uses the method then

$$p = \frac{22 + 45}{35 + 75} = \frac{67}{110} = .591$$

Separate possible categories	Compute expected number for each category e (i)	Observed number for each category a (i)	* compute contribution to Chi-square
Profit/Use Method	(35)(.591) = 20.68	22	.083
Profit/No Use Method	(35)(1-.591) = 14.31	13	.121
Cost/Use Method	(75)(.591) = 44.32	43	.039
Cost/No Use Method	(75)(1-.591) = 30.67	32	.057
		Chi-square =	.301

$$* = \frac{(e\ (i) - a\ (i))^2}{e\ (i)}$$

For 1 degree of freedom at 90% level of confidence, go to Chi-square distribution table and observe critical value or reject region = 2.7055. So accept null hypothesis if Chi-square is less than or equal to 2.7055. Calculated Chi-square is .301 so accept (H:0) null hypothesis and conclude that profit group does not use method more frequently than cost centers.

(from Leake 1984).

(Norusis 1986). The smaller the p-value, the greater the weight of evidence for rejecting H:0 and the lower the risk of a type I error.

To measure the strength of association between variables or degree of predictability, modal prediction was evaluated using lambda calculations. The lambda measure states the error reduction as a proporation of the error rate when the predictor variable is unknown. Lambda can range from 0, indicating no predictive value, to 1.00 indicating perfect prediction (a 100% error reduction). When statistical independence holds, there is, by definition, no predictability and lambda = 0 (Ott & Hildebrand 1983.)

Where the chi-square results of the hypothesis test were observed to be greater than the rejection region by a small margin, the condition for two-tailed hypothesis testing was relaxed and one-tailed measures were employed as appropriate. For example, in the test shown in Table K, the two-tailed null hypothesis is that there is no difference between the profit and cost groups (in the property-by-property accounting method) in either direction. This may be stated as the hypothesis that profit centers do not use the method more often than cost centers or that profit centers do not use the method less often than cost centers. Alternatively, the one-sided hypothesis is that there is no difference in the one direction of concern (i.e. only that profit groups do not use the method more than cost groups).

To run these tests it was necessary to collapse the

categories of several variables into discrete values. In testing for Proportional Reduction in Error (PRE) for example, two-by-two matrices were structured. For example, in evaluating statements on attitudes towards information and methods (dimension 8) the categories of "mostly agree", "strongly agree", "mostly disagree", "strongly disagree", "no comment", and "no answer" were recombined into "agree" and "disagree".

As previously noted, the SPSS/PC+ program was employed in all statistical testing as well as the computation and comparison of basic percentage statistics. Figure 6 shows the SPSSPC test results for the same example used in Table K.

The actual testing of the three research hypotheses is presented in the remaining three sections of this chapter.

Figure 6

Page 2 1987 MIT Survey -- Hypothesis H:1 1/2/80
PROFIT CENTER VS. COST CENTER BY ACCOUNTING METHOD

Crosstabulation: PROF PROFIT CENTERS
By REACCTG3 ACCOUNTING: PROPERTY BY PROPERTY

Count / Exp Val / Row Pct / Col Pct / Tot Pct / Residual / Std Res / Adj Res	REACCTG3 0 (NO)	REACCTG3 1 (YES)	Row Total
PROF 0.0 COST CENTER	32	43	75
	30.7	44.3	68.2%
	42.7%	57.3%	
	71.1%	66.2%	
	29.1%	39.1%	
	1.3	-1.3	
	.2	-.2	
	.5	-.5	
PROF 1.00 PROFIT CENTER	13	22	35
	14.3	20.7	31.8%
	37.1%	62.9%	
	28.9%	33.8%	
	11.8%	20.0%	
	-1.3	1.3	
	-.3	.3	
	-.5	.5	
Column Total	45 40.9%	65 59.1%	110 100.0%

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.< 5
.11604	1	.7334	14.318	None
.30121	1	.5831	(Before Yates Correction)	

Statistic	Symmetric	With PROF Dependent	With REACCTG3 Dependent
Lambda	.00000	.00000	.00000
Uncertainty Coefficient	.00212	.00220	.00204
Somers' D	.05225	.04957	.05524
Eta		.05283	.05283

Statistic	Value	Significance
Phi	.05283	
Contingency Coefficient	.05225	
Kendall's Tau B	.05283	.2924
Kendall's Tau C	.04793	.2924
Pearson's R	.05283	.2936
Gamma	.11481	

Number of Missing Observations = 0

3. Hypothesis I: Profit Centers are More Effective in the Management of Buildings and Land than Cost Centers

a. General Backround

The total survey sample may be broken out by "method of real estate evaluation" in the following groups:

o PROFIT CENTER (ONLY)	12%	(35)
o COST CENTER (ONLY)	26%	(75)
o BOTH PROFIT & COST CENTER OR "DEPENDS ON PROPERTY"	14%	(41)
o NO SEPARATE EVALUATION	19%	(55)
o NO ANSWER	27%	(78)
TOTAL RESPONSES		284

With regard to the classifications of "profit center" and "cost center", some lattitude should be given to the interpretation of these terms by the respondent and various number of accounting structures which are identified as such. For example, some profit centers reported in the survey may actually develop, finance, and hold title to the corporation's properties, such as non-consolidated subsidiaries. Others may only operate a profit center only relative to operating costs. The GTE study (1983), for example, found that nearly one-third of the profit centers responding did not generate enough profit to support the overhead for all real estate services provided. That study also reported the sources of financing for real estate/construction projects of the respondents as follows:

76%	Parent
38%	Operations
38%	Externally
30%	Sale/Leaseback
19%	Joint Ventures
11%	Real Estate
8%	No Response

While the GTE sample was not large enough to be statistically significant, it nevertheless illustrates the many variations in use by corporations.

Since the format of the survey questions does not allow for a clear definition of real estate costs and revenues, it may be helpful to refer to basic accounting notions. Garrison (1982) provides the following definitions:

- A COST CENTER is any responsibility center that has control over the incurrence of costs. A cost center has no control over the generating of revenue.
- A PROFIT CENTER is any responsibility center that has control over both cost and revenue.
- A INVESTMENT CENTER is any responsibility center that has control over cost and revenue and also has control over investment funds.

It is likely that the group who identified themselves as profit centers in the sample may also contain some number of investment centers, as defined above.

To investigate the research hypothesis survey respondents who claim to operate solely as a profit center (35 total) were extracted from the main sample as were those who claim to operate solely as cost center (75). The responses of these two groups were first compared across all survey dimensions and the significant variances noted.

The comparisons showed that while profit centers performed slightly higher in some areas, cost centers performed slightly higher on others. In the final analysis, the combined ratings tended to balance out. Neither group emerged as clearly dominant. Although the smaller sample size of the profit group

is likely to exhibit greater variance, it can be safely stated that profit centers did not clearly and consistently appear as more effective in the management of their real estate than cost centers.

It was noted, however, that both groups, for the most part, performed higher than the overall sample mean. A third group was examined to account for the disparity: those firms who specified in the survey that they did not evaluate their real estate assets separately from overall corporate assets (55 in total). This group clearly and consistently rated lower than either the profit or cost groups. Table L highlights some of the more significant comparisions between these three groups.

Table L: Comparison Between Method of Real Estate Evaluation

	PROFIT CENTER	COST CENTER	NO SEPARATE EVALUATION
	(% OUT OF 35)	(% OUT OF 75)	(% OUT OF 55)
% OF RESPONDENTS IN MANUFACTURING (HEAVY & LIGHT)	17%	25%	39%
% OF RESPONDENTS IN BANKING/INSURANCE/FIN. SVCS	26%	24%	12%
% OF RESPONDENTS UNDER 500,000 SQ/FT OWNED	37%	21%	19%
% OF RESPONDENTS OVER 10 MILLION SQ/FT OWNED	0%	19%	19%
% OF RESPONDENTS OVER 1 MILLION SQ/FT LEASED	29%	48%	34%
% UNCERTAIN OF SQ/FT OWNED	14%	16%	25%
% UNCERTAIN OF SQ/FT LEASED	37%	20%	21%
% UNCERTAIN OF ACQUISITION COST OF REAL ESTATE	34%	39%	44%
% UNCERTAIN OF MARKET VALUE OF REAL ESTATE	26%	20%	28%
% UNCERTAIN OF MARKET VALUE OF LEASEHOLDS	46%	35%	53%
COMBINED UNCERTAINTY:	31%	26%	34%
% WITH FORMAL REAL ESTATE UNIT INPLACE	91%	92%	72%
% WITH REAL ESTATE FUNCTIONS REPORTING TO DIFFERENT VP THAN FAC. MGMT FUNCTIONS	31%	27%	39%
% INDICATING INSUFFICIENT COMM-UNICATIONS & COORDINATION BTWN THESE TWO FUNCTIONS	57%	22%	15%
% CHARGING FAIR MARKET RENT TO ITS INTERNAL DEPT.S	37%	19%	16%
% ACCOUNTING FOR REAL ESTATE ON PROPERTY-BY-PROPERTY BASIS	63%	57%	35%
% WITH NO SEPARATE ACCOUNTING METHOD FOR REAL ESTATE	14%	19%	39%
% WITH REAL ESTATE MIS INPLACE	48%	39%	23%
% WITH REAL ESTATE INVENTORIES	74%	73%	79%

	PROFIT CENTER	COST CENTER	NO SEPARATE EVALUATION
% WITH REAL ESTATE RETURNS LESS THAN TOTAL CORP RETURNS	26%	29%	40%
% WHO DO NOT CALCULATE REAL ESTATE RETURNS	14%	45%	65%
% WHO DO NOT CALCULATE REAL ESTATE RETURNS	4%	28%	68%
** (% OF TOTAL SURVEY)			
% WHOSE DECISIONS ARE DRIVEN BY:			
- INVESTMENT OR PROFIT POTENTIAL	57%	23%	14%
- OCCUPANCY COSTS	31%	45%	40%
- OPERATIONAL FACTORS	31%	67%	70%
- SITUATIONAL FACTORS	11%	13%	16%
% WITH SYSTEMS INPLACE (MANUAL OR OTHERWISE) FOR:			
- UTILIZATION ANALYSIS	77%	65%	63%
- LEASE DATES/COMMITMENTS	80%	88%	88%
- IDENTIFYING SURPLUS PROPERTIES	69%	65%	74%
- TRACKING SQ/FT COSTS	60%	55%	56%
- IDENTIFYING CHANGES IN MARKET VALUE	51%	24%	26%
- IDENTIFYING IMPROVED REAL ESTATE FINANCING	37%	24%	25%
- MONITORING PHYSICAL CONDITION	63%	51%	60%
TOTAL:	62%	53%	56%
% PREPARING INFORMATION FM ABOVE SYSTEMS TO TOP MGMT ON ANY SCHEDULED BASIS	32%	32%	16%
% WHO CLAIM TO "HAVE EXPOSURE TO OVERALL STRATEGIC PLANS"	66%	80%	61%
% WHO CLAIM NOT TO HAVE "SUFFICIENT INFO OR METHODS TO EVALUATE BUILDING PERFORMANCE"	14%	35%	42%
% WHO CLAIM THAT "REAL ESTATE PLAYS A CRITICAL ROLE IN MY ORGANIZATION"	74%	67%	49%

Table L suggests that those who do separately evaluate their real estate assets, on either a cost or profit basis, are more likely to have 1) a formal real estate unit in place, 2) property-by-property (vs. pooled or category) accounting for their properties, 3) fair market rents charged internally, 4) a separate management information system for real estate, 5) less uncertainty over amount of space owned and leased, and 6) greater estimated returns on real estate assets (over those who do not separately evaluate their real estate holdings).

b. Statistical Test of the Hypothesis

The sample data shows that, among the organizations polled in the survey, profit centers are no more "effective" than cost centers and that those who do not separately account for their real estate are less effective than either profit or cost centers. The question can be raised, however, as to whether or not this observation in the sample survey can be inferred for the entire population of corporations in America with a high degree of confidence. Alternatively stated, what is the probability that the differences between these groups (that were noted in the survey sample) would be found again in an entirely new and random sample? (Norusis 1986).

To test this, individual research hypotheses (H:1) and null hypotheses (H:0) were formed across each effectiveness dimension for 1) the profit center group vs. the cost center group, and 2) the profit center group vs. the "no separate evaluation" group.

The eight effectiveness dimensions may be stated in the form of the following research (H:1) hypothesis:

1. Profit centers use property-by-property accounting methods for their real estate more frequently than cost centers.

2. Profit centers are more likely to have an organized real estate unit than cost centers.

3. Profit centers are more likely to have a management information system for their real estate than cost centers.

4. Profit centers charge internal rents to their departments more often than cost centers.

5. Profit centers are less likely to report lower returns on real estate (relative to overall corporate returns) than cost centers.

6. Profit centers report to senior management on real estate information (on a scheduled basis) more often than cost centers.

7. Profit centers have greater exposure to overall corporate strategy and planning than do cost centers.

8. Profit centers have greater information and better methodology to evaluate the performance of their real estate than do cost centers.

Table M lists the results of the individual tests as well as the overall success rate for all eight hypotheses considered.

Table M: Profit Center vs. Cost Center

Test run	Chi-square	P-value	one-tail test	Conclusion
1. Property-by-property accounting method	.30121	.5831	-	Accept H:0
2. Real Estate unit in place	.01037	.9109	-	Accept H:0
3. Management Information system for Real Estate	.96222	.3266	-	Accept H:0
4. Internal rents charged to depts.	.88160	.3478	-	Accept H:0
5. Real Estate returns less than corp. returns	.05567	.8135	-	Accept H:0
6. Scheduled mgmt review of system reports	.00359	.9522	-	Accept H:0
7. No exposure to corp. strategy and plans	1.42972	.2318	-	Accept H:0
8. Insufficient info or methods to evaluate	4.28266	.0385	-	**Reject H:0**

Success Rate = 1/8 = 12.5%

In only one out of eight tests did the profit centers behave differently that cost centers. Specifically, cost centers are more likely to report that they have insufficient information and methodology to evaluate their facilities. In all other cases, cost centers displayed no difference in behavior.

The same eight hypotheses were formulated and tested for comparison between profit centers and the "no separate evaluation for real estate" group. The results of these tests are listed in Table N as well as the overall success rate.

Table N: Profit Center vs. No Separate Evaluation

Test run	Chi-square	P-value	one-tail test	Conclusion
1. Property-by-property accounting method	6.38503	.0115	-	**Reject H:0**
2. Real Estate unit in place	5.21521	.0224	-	**Reject H:0**
3. Management Information sytsem for Real Estate	7.30834	.0069	-	**Reject H:0**
4. Internal rents charged to depts.	1.76618	.1839	.0919	**Reject H:0**
5. Real Estate returns less than corp. returns	.63879	.4241	-	Accept H:0
6. Scheduled mgmt review of system reports	2.96231	.0852	-	**Reject H:0**
7. No exposure to corp. strategy and plans	.19335	.6601	-	Accept H:0
8. Insufficient info or methods to evaluate	7.70215	.0055	-	**Reject H:0**

Success Rate = 6/8 = 75%

Six out of eight tests showed that profit centers did behave differently than those who do not separately evaluate their real estate. In all six cases, the differences reflect more

effective behavior on the part of the profit centers.

These tests both provide strong evidence to reject the overall research hypothesis -- that profit centers are more effective by nature -- and conclude that both profit and cost centers are more effective in the management of corporate real estate than those who do not separately evaluate their real estate at all.

c. Interpretation of the Results

The practice of matching every dollar of real estate cost against its associated dollar of real estate revenue is an accounting choice -- not necessarily a mark of efficiency. Profit centers can lose money and cost centers can be profitable. It may be that the choice to operate as a cost center reflects less a resignation to under-utilize the value of the asset so much as a deliberate choice to channel and account for that value in ways the corporation sees fit; e.g. in the subsidy or reduction of occupancy cost to certain line units. For example, the author and the LAP research team have worked closely with one organization (the U.S. Army) which has aggressively pursued a policy of providing space to its tenants at rates well below market rent. (See Bon, Dluhosch, Joroff, Brana, & Veale 1986).

Where profits are sought from tenants outside of the organization, clearly not all corporations may be in an equal position to realize appreciable profits from their real estate (especially industrial properties). That is likely to depend on the property holdings, market opportunities, risk profile, and

capital base of the organization in question.

Where profits are sought from corporate tenants inside the organization, it may be argued that, in some cases, profits appearing on the books of the real estate group may, in fact, show up as reduced operating margins for the line units. However, as Wilbur points out, if the line units are not paying fair market rent then "the cost of what's being manufactured isn't being accurately calculated because the real estate department is subsidizing the manufacturing." (Wilbur 1987).

It may be argued that the practice of charging fair market rents results in a more efficient allocation of space. Bon argues that the market price for space can provide "the best indication of how scarce space is in a particular area at a particluar time" and may also be used as a standard since it is difficult to come up with other reasonable standards. Bon also maintains that if corporate real estate units are not competitive with the market, their internal clients should have the option to go outside of the organization. (Bon 1988). While these arguments may hold true for a large number of corporations, it is also true that for other corporations their interal clients are "captive customers" with no market alternatives. As Granoff maintains, many assets are so unique that market prices are not readily available. Granoff provides the following illustration:

"Consider the problem, however, of estimating the value of land on which Ford Motor Company's River Rouge plant is located. The tract of land comprises several square miles,

and the industrial influence of the plant is felt for many miles around the plant. Whatever value (or lack of it) the surrounding land has is attributable to the activities of Ford. It would be impossible to determine the value of the land either by looking at other recent offers (the plant is of such enormous value that it is reasonably certain that there have been few serious offers) or by looking at the sales prices of surrounding land (the Ford land determines the value of the surrounding land, not the other way around)."

These considerations by no means refute the value of charging fair market rents to corporate tenants where appropriate, but rather emphasize the nature of deliberateness, choice, and intention in the decision to account for real estate. More at issue here is the clear presence of a well defined strategy for productive use and control of the asset.

To be sure, the benefits of a profit orientation are well founded and are gaining considerable popularity in recent industry literature. (see Brown 1987. Bogorad 1984. Behrens 1982.) It is worth noting, however, that these new profit centers are most likely to be centrally organized within the corporation and thus many of the benefits which are praised may stem, in part, from the necessary organizational restructuring -- i.e. centralized management and reporting, effective policy promulgation, consolidated accounting, organized evaluation of performance, central repository of real estate expertise and service, etc. -- and not necessarily the profit orientation itself.

It would seem hard to argue with existence of profit centers where they are feasible (and are, in fact, profitable) since as the survey results point out, the motivation is usually to generate revenues for the overall corporation. As Robert Brown, Director of Real Estate for Rockwell International Corporation points out, "no mission of the corporate entity is better understood or more critically judged than profit performance. Hence the real estate unit should also be judged on the basis of its contribution to profit performance, and it should be directly accountable to top management on the same basis as other operating units." (Thompson 1986).

Certainly where reasonable and appropriate opportunities for profit exist they should be pursued but where the profit orientation poses a rigid or inflexible criterion and the larger mission of the organization stands to be lost, it seems reasonable that firms should choose a different approach. It might be viewed as the difference between **Profit** -- that which exists to generate profit -- and **Profitable** -- that which is capable of generating profit.

Perhaps lost in the profit vs. cost comparison, though, is the actual delivery of service by the real estate unit. What the survey results do not gauge are the more difficult to measure, yet more important issues associated with any real estate organization, i.e.: How responsive is the unit to the corporate clients? How well do they perform their service? Do they provide quality and innovative real estate solutions to corporate space needs? Do the corporate facilities enhance or

improve corporate productivity? Are the corporate occupants satisfied with the real estate solutions?

* * *

CONCLUSION: REJECT RESEARCH HYPOTHESIS. DATA DOES NOT PROVIDE ENOUGH EVIDENCE TO SUPPORT THE CLAIM THAT PROFIT CENTERS ARE INHERENTLY MORE EFFECTIVE.

SURVEY DATA SUPPORTS, HOWEVER, THE GENERAL CLAIM THAT -- PROFIT OR COST CENTER -- THOSE WHO SEPARATELY EVALUATE THEIR REAL ESTATE ARE MORE EFFECTIVE THAN THOSE WHO DO NOT.

4. Hypothesis 2: Effective Management of Corporate Real Estate is Unrelated to the Size of the Real Estate Portfolio

a. Background

The 1981 HRE research examined the relationship between a corporation's decision to manage its real estate effectively and company size or the size of real estate held. That study found no correlation between these variables and how a company handles its real estate. This relationship was studied again in 1987, specifically, on how the size of the real estate portfolio relates to real estate management and performance.

Early analysis involved evaluating both tails of the sample distribution, both large and small, for all companies by area and again by number of sites. The four groups were: 1) all companies under 500,000 sqaure feet (21% of the survey), 2) all companies over 10 million square feet (13% of the survey), 3) all companies under 25 sites (13% of the survey), and 4) all companies over 1000 sites (16% of the survey). The responses of these four groups were compared across every survey dimension and significant variances noted. Table 0 highlights some of the more significant camparisions.

The data in Table 0 show, if anything, that smaller portfolios are better managed than large portfolios. Smaller portfolios appear more apt to know how much real estate they own, how much it is worth, to calculate real estate returns, to report on the status of their real estate to senior management on a more frequent basis, and to have greater exposure to overall corporate strategy and planning. These observations generally held true

Table O: Comparison by Portfolio Size

- o UNDER 500,000 SQ/FT 21% (61)
- o OVER 10 MILLION SQ/FT 13% (37)
- o UNDER 25 SITES 13% (37)
- o OVER 1000 SITES 16% (46)

	UNDER 500,000	OVER 10,000,000	UNDER 25 SITES	OVER 1000 SITES
% OF RESPONDENTS IN MANUFACTURING (HVY & LT)	11%	54%	19%	15%
% OF RESPONDENTS IN RETAIL/WHOLESALE	21%	8%	19%	22%
% OF RESPONDENTS IN BANKING/INSUR./FIN. SVCS	28%	0%	16%	9%
% OF RESPONDENTS IN UTILITIES	7%	14%	5%	22%
% OF RESPONDENTS IN TRANSPORTATION	2%	5%	5%	17%
% OF RESPONDENTS IN "OTHER" BUSINESS	21%	13%	30%	15%
% UNCERTAIN OF SQ/FT OWNED	-	-	22%	13%
% UNCERTAIN OF # OF SITES	2%	0%	-	-
% UNCERTAIN OF ACQUISITION COST OF REAL ESTATE	33%	49%	30%	48%
% UNCERTAIN OF MARKET VALUE OF REAL ESTATE	21%	27%	16%	17%
% UNCERTAIN OF MARKET VALUE OF LEASEHOLDS	13%	27%	19%	22%
COMBINED UNCERTAINTY: (ACQ. & MKT VALUE ONLY)	22%	34%	22%	29%
% WITH FORMAL REAL ESTATE UNIT INPLACE	82%	84%	73%	94%
% REAL ESTATE AS A SUBSIDIARY	15%	3%	16%	4%
% WITH REAL ESTATE REPORTING TO PRESIDENT	31%	3%	27%	15%
% W/ REAL ESTATE FUNCTIONS REPORTING TO DIFFERENT VP THAN FAC. MGMT FUNCTIONS	20%	30%	16%	15%
% INDICATING INSUFFICIENT COMMUNICATIONS & COORD-INATION BTWN TWO FUNCTIONS	27%	10%	20%	22%

	UNDER 500,000	OVER 10,000,000	UNDER 25 SITES	OVER 1000 SITES
% W/ NO SEPARATE EVALUATION OF ITS REAL ESTATE	11%	30%	16%	11%
% CHARGING FAIR MARKET RENT TO ITS DEPARTMENTS	36%	13%	35%	22%
% COST ACCOUNTING ON PROPERTY-BY-PROPERTY BASIS	54%	49%	54%	63%
% WITH NO SEPARATE (COST) ACCOUNTING FOR REAL ESTATE	21%	22%	30%	4%
% W/ REAL ESTATE MIS	33%	73%	16%	54%
% W/ REAL ESTATE INVENTORY	74%	73%	81%	83%
% W/ REAL ESTATE RETURNS LESS THAN OVERALL RETURNS	20%	50%	28%	21%
% WHO DO NOT CALCULATE REAL ESTATE RETURNS	34%	65%	39%	35%
% WHOSE DECISIONS ARE DRIVEN BY:				
- INVESTMENT OR PROFIT POTENTIAL	46%	13%	51%	33%
- OCCUPANCY COSTS	33%	54%	27%	46%
- OPERATIONAL FACTORS	41%	62%	40%	61%
- SITUATIONAL FACTORS (SECONDARY)	31%	43%	22%	46%
% WITH SYSTEMS INPLACE (MANUAL OR OTHERWISE) FOR:				
- UTILIZATION ANALYSIS	61%	73%	76%	76%
- LEASE DATES/ COMMITMENTS	79%	92%	68%	98%
- IDENTIFYING SURPLUS PROPERTIES	52%	73%	40%	91%
- TRACKING SQFT COSTS	54%	60%	59%	61%
- IDENTIFYING CHANGES IN MARKET VALUE	38%	24%	27%	33%
- IDENTIFYING IMPROVED REAL ESTATE FINANCING	28%	24%	24%	28%
- MONITORING PHYSICAL CONDITION	51%	46%	57%	61%
TOTAL:	52%	56%	50%	64%
% PREPARING INFORMATION FM ABOVE SYSTEMS TO TOP MGMT ON ANY SCHEDULED BASIS	20%	27%	19%	33%

	UNDER 500,000	OVER 10,000,000	UNDER 25 SITES	OVER 1000 SITES
MEAN HOURS SPENT WEEKLY ON:				
- LEASE NEGOTIATION	6.0	3.9	4.0	3.5
- SITE SELECTION & ACQUISITION	6.0	3.7	8.2	5.1
- DISPOSITION OF SURPLUS PROPERTES	2.0	6.0	4.8	4.7
- ADMINISTRATION OF REAL ESTATE DEPT.	6.2	13.2	6.3	11.0
- REPORTING TO SENIOR MANAGEMENT	3.0	4.5	3.2	5.4
% WHO CLAIM TO **NOT TO HAVE** "EXPOSURE TO OVERALL STRATEGIC PLANS"	8%	27%	16%	22%
% WHO CLAIM **NOT TO HAVE** "SUFFICIENT INFO OR METHODS TO EVALUATE BUILDING PERFORMANCE"	25%	41%	19%	28%
% WHO CLAIM THAT "REAL ESTATE PLAYS A CRITICAL ROLE IN MY ORGANIZATION"	61%	54%	51%	78%

for both area and number of sites. It should be noted, however, that the differences observed were not consistently large and that in some management areas (e.g. MIS) large portfolios rated higher.

Based on the observations found in Table O, then, the underlying issue in the analysis is whether or not large portfolios -- due to the greater workload, bureaucracy, decentralization, etc. -- are less effective in managing their buildings and land than small portfolios. Farragher found that only 15 percent of the 129 NACORE members surveyed in 1984 agreed that large real estate properties produce better returns than small properties. (Farragher 1984). Decentralized management associated with some large organizations may also inhibit real estate effectiveness. Bell points to the growing trend towards decentralization in U.S. corporations and the potential conflict it poses. He states that "the need to decentralize operating authority conflicts with the need to maintain coherent, systematic, professional management of the fixed asset side of a business". (Bell 1987).

b. Statistical Test of the Hypothesis

The sample data suggests that there may be differences between large and small portfolios among those firms that were surveyed. Again, the larger question is: can this observation be inferred for the entire population of American corporations with a high degree of confidence? What is the probability that the differences between these groups (that were noted in the survey sample) would be found again in an entirely new and

random sample? (Norusis 1986).

As before, the same eight critical dimensions were selected for comparison between the groups. Individual research hypotheses (H:1) and null hypotheses (H:0) were formed across each dimension and the same statistical tests were employed. Again, the basic strategy was to support the research hypothesis by contradicting the null hypothesis.

In this case, the full range of values was observed for the square feet owned and number of sites variables -- and not just the high and low tails. Collapsing the categories of values for the variables was not necessary. The results of the tests, therefore, can be considered for the whole range of portfolio size and not just the very large and very small.

The eight dimensions used in the test can be stated in the form of the following research (H:1) hypothesis:

1. Small real estate portfolios use property-by-property accounting methods for their real estate more frequently than large portfolios.

2. Small real estate portfolios are more likely to have an organized real estate unit than large portfolios.

3. Small real estate portfolios are more likely to have a management information system for their real estate than large portfolios.

4. Small real estate portfolios charge internal rents to their departments more often than large portfolios.

5. Small real estate portfolios are less likely to report lower returns on real estate (relative to overall corporate returns) than large portfolios.

6. Small real estate portfolios report to senior management on real estate information (on a scheduled basis) more often than large portfolios.

7. Small real estate portfolios have greater exposure to overall corporate strategy and planning than do large portfolios.

8. Small real estate portfolios have greater information and better methodology to evaluate the performance of their real estate than do large portfolios.

Table P lists the results of the hypothesis testing for all categories of "square feet owned".

Table P: By Square Feet Owned

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	One-Tailed Test	Conclusion
1. Prop-by-prop accounting	4	7.779	5.9036	.2065	-	Accept H:0
2. Real Estate Unit	4	7.779	.5966	.9634	-	Accept H:0
3. MIS for Real Estate	4	7.779	1.7662	.7787	-	Accept H:0
4. Internal Rents	4	7.779	.7342	.9470	-	Accept H:0
5. Real Estate returns low	4	7.779	5.0250	.2847	-	Accept H:0
6. Scheduled mgt reporting	4	7.779	5.5963	.2314	-	Accept H:0
7. No exposure corp strategy	4	7.779	8.0132	.0911	-	**Reject H:0**
8. Insufficient info/methods	4	7.779	4.0302	.4019	-	Accept H:0

Success Rate = 1/8 = 12.5%

The tests show that in only one out of eight tests did small area portfolios indicate greater effectiveness than large. Specifically, the larger area portfolios are likely to report having less exposure to corporate strategy and planning than small.

Identical hypotheses were formulated and tested for all categories of "number of sites". The test results as well as the overall success rate, are listed in table Q.

Table Q: By Number of Sites

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	one-Tailed Test	Conclusion
1. Prop-by-prop accounting	6	10.644	7.7191	.2594	-	Accept H:0
2. Real Estate Unit	6	10.644	17.4872	.0076	-	**Reject H:0**
3. MIS for Real Estate	6	10.644	25.7048	.0003	-	**Reject H:0**
4. Internal Rents	6	10.644	4.1139	.6613	-	Accept H:0
5. Real Estate returns low	6	10.664	1.9235	.9266	-	Accept H:0
6. Scheduled mgt reporting	6	10.664	8.1956	.2241	-	Accept H:0
7. No exposure corp strategy	6	10.664	6.8285	.3370	-	Accept H:0
8. Insufficient info/methods	6	10.664	3.7584	.7093	-	Accept H:0

Success Rate = 2/8 = 25%

In only two out of eight tests did small portfolios (by sites) display different behavior than large. Specifically, large portfolios are more likely to have an organized real estate department and a management information system for real estate.

d. Interpretation of the Results

The tests show that, from a statistical standpoint and based on sample observations, one cannot conclude that in general management effectiveness is related to size. More to the point, it cannot be proven conclusively with the survey statistics that size is directly correlated with effectiveness. This is not to say that such a correlation does not exist, only that it does not show up in the tests. Also, this does not mean that for certain individual dimensions such a correlation exists -- in

some cases it does -- only that for all dimensions considered collectively and for the hypothesis statement considered as a whole, there is insufficient evidence to support a general conclusion.

Perhaps the larger question to be raised is: How can we account for the presence of effective real estate management in one organization and not another? A review of the organization and management structure of the 57 corporations who do not separately evaluate their real estate may be useful since it has been shown under the previous research hypothesis that this group is clearly less effective than either the cost or profit groups. A close analysis of the data, however, shows that these 57 companies are not structurally different than the entire 284 companies surveyed. In fact, the decision (or lack of decision) to not separately evaluate the real estate and facilities of the corporation does not correlate significantly with any survey variable.

The reasons for under-management of real estate assets may be found in similar findings reported in the 1981 HRE study. That study found no correlation among demographic survey variables and how companies manage their real estate and suggested that the decision to manage real estate effectively may have more to do with the attitudes of top management than with company size or the quantity, value or geographic dispersion of the properties. "The more aggressive firms are structurally similar to passive companies, suggesting once again that the combination of people and opportunities is the critical factor ... ". Similarly, the 1987 survey results seem to point to the same

phenomenom.

To test this theory, the same eight critical dimensions of effectiveness (which have been shown to be unrelated to portfolio size) were evaluated against the attitudes of the real estate executive completing the survey. Specifically, executives were asked to evaluate the following statement: "Real property decision-making, on average, plays a critical part in the overall performance of my organization". The range of those who agreed or disagreed with this statement were tested against each of the eight dimensions. Table R lists the results of the test.

Table R: "Real estate plays a critical role in my organization"

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	One-Tailed Test	Conclusion
1. Prop-by-prop accounting	1	2.705	1.9301	.1647	.0823	**Reject H:0**
2. Real Estate Unit	1	2.705	35.9082	.0000	-	**Reject H:0**
3. MIS for Real Estate	1	2.705	7.1478	.0075	-	**Reject H:0**
4. Internal Rents	1	2.705	.6020	.4378	-	Accept H:0
5. Real Estate returns low	1	2.705	.0200	.8873	-	Accept H:0
6. Scheduled mgt reporting	1	2.705	6.5302	.0106	-	**Reject H:0**
7. No exposure corp strategy	1	2.705	15.2761	.0001	-	**Reject H:0**
8. Insufficient info/methods	1	2.705	14.7645	.0001	-	**Reject H:0**

Success Rate = 6/8 = 75%

The tests show that while area is statistically related to the variables in only 12.5% of the tests, and number of sites related in only 25% of the tests, attitudes on the importance

of real estate in the organization proved to be related to management effectiveness in 75% of the tests. Thus, those managers who are employing more effective methods for managing real estate assets are likely to feel that real estate plays an important role within their organizations. Conversely, less effective managers are also likely to feel that real estate does not play an important role in the organization.

A logical question may be raised at this point. For those who feel that real estate plays a critical role in the overall performance of their corporations, what percentage may be attributed to pure sentiment, attitude, or perception on the part of the manager and what percentage may be attributed to the role that real estate plays for that company in actuality? Do the majority of these managers come from organizations or industries where real estate is, in fact, a critical component of overall corporate success? Or, alternatively stated, is there some rational justification for under-management of real estate in some organizations or industries and not in others?

To answer these questions, those executives who responded positively to the statement were separated from the survey sample and cross tabulated with type of business activity. If perception of the real estate function is, in fact, related to the true role it plays in the organization, then this group should be distributed mostly within those industries which are most real estate intensive (i.e. retail, banking, etc.).

Table S compares the industry type of those who claim that real estate plays a critical role in their organization with the industry type of the entire sample.

Table S:Industry Type of "Real Estate Plays a Critical Role in My Organization" Compared to Entire Survey

Business Acitivity by ...	"Real estate plays a critical role in my organization"	Total Survey
Heavy Manufacturing		
Primary	9.0%	12.0%
Secondary	1.1%	1.8%
Light Manufacturing		
Primary	12.4%	13.4%
Secondary	3.4%	5.6%
Retail / Wholesale		
Primary	21.3%	16.9%
Secondary	1.7%	1.8%
Forestry / Mining / Construction		
Primary	3.9%	3.9%
Secondary	3.4%	3.9%
Banking / Financial / Insurance		
Primary	18.5%	19.7%
Secondary	.6%	1.8%
Transportation		
Primary	7.3%	6.0%
Secondary	1.1%	1.1%
Utilities		
Primary	6.7%	8.5%
Secondary	.6%	.4%
Other Business Acitivity		
Primary	21.9%	20.8%
Secondary	6.2%	5.6%
Public Agency		
Primary	3.4%	3.2%
Secondary	- %	- %

Table S shows that, with minor exception, the distribution by industry type is exactly that of the total random sample. While retail/wholesale and heavy industry showed 4% and 3% variation respectively, nearly all other categories remained within one percent of the total survey percent. This finding by itself is important. It shows that perceptions of real estate's role and value in the organization rests primarily with the attitudes of the managers themselves. It becomes even more important when considered together with the fact that it is the attitudes and perceptions of the manager which may largely determine the degree to which real estate assets will be managed.

In summary, the decision to manage real estate in an efficient, accountable, and consistent fashion appears to be unrelated to portfolio size. There seems to be some evidence, however, that as portfolios grow in size and complexity so does the job of managing them. Rarely did managers of large porfolios in the survey seem to be doing a better job than managers of small ones. Still, hypothesis testing showed that a direct correlation between size and under-management cannot be stated with a significant degree of statistical confidence.

Management attitude, on the other hand, appears to be directly related to management effectiveness. Specifically, those who believe in the value and importance of the real estate function within the organization are likely to be strong managers of that function. And finally, management attitude which places a high degree of value and importance on corporate real estate does not appear to be structurally related to the

size or type of business, or the qauntity or value of real estate held.

* * *

CONCLUSION: ACCEPT RESEARCH HYPOTHESIS. DATA PROVIDES SUFFICIENT EVIDENCE TO CONCLUDE THAT EFFECTIVE MANAGEMENT OF CORPORATE REAL ESTATE IS UNRELATED TO THE SIZE OF THE REAL ESTATE PORTFOLIO.

THE SURVEY DATA FURTHER SHOWS THAT EFFECTIVE MANAGEMENT OF CORPORATE REAL ESTATE IS DIRECTLY RELATED TO MANAGEMENT ATTITUDE.

5. Hypothesis 3: The Use of Computers in Corporate Real Estate Indicates Effective Management

a. Background

The advent of computer systems and new information technologies in the facilities and real estate business over the last decade has been well-documented. (see Kimmel 1987. Brainerd 1985. Urbanczyk 1984. Young 1983. Gottfried 1982.). Many programs are now available for CAD-facility management, lease analysis, building maintenance management, space and real estate inventory, capital investment analysiS, and more. That corporate Amercia is rushing out to absorb the new technology is clear. The successful implementation and ongoing use of such systems, however, is not entirely evident. Successful applications abound in the literature. (see Hamiliton 1986. Ebert 1984. MacEachron 1984. Hannon & Davey 1983.). Yet the behind-the-scenes story of computers in corporate real estate today may not be complete. How such systems are selected, implemented, deployed, evaluated, and managed by the users on an ongoing basis will tell more than the glossy circulars and spec-sheets that can be found on the market today.

The design and performance of the individual systems themselves is of a secondary concern here. Certainly, when used as designed such systems are likely to greatly increase management effectiveness and improve the overall performance of real estate assets. At issue, instead, is the actual deployment and management of computers within the decision-making process

for corporate real estate.

While an entire survey can be devoted to this area, the data from the 1987 MIT survey can begin to provide some interesting observations. For the purposes of this study, the following question may be raised: Does the presence of computers in the corporate real estate provide a reliable indication of effective management?

b. Statistical Test of the Hypothesis

To answer this question, information gathered in the survey on computer use was tabulated and analysed in conjuction with the results of the earlier research hypotheses. Specifically, the test proceeds from the earlier conclusions that 1) the method of real estate evaluation (i.e. cost centers and profit centers vs. no separate evaluation) is directly related to management effectiveness, and 2) the size of the real estate portfolio is not directly related to management effectiveness.

First, computer use was compared between profit centers and those with no separate evaluation and between cost centers and those with no separate evaluation. If the hypothesis holds, computer use among these groups should vary significantly. Table T is a cross-tabulation of computer use with method of real estate evaluation.

Table T: COMPUTER USE BROKEN OUT BY METHOD OF EVALUATION

	PROFIT CENTER	COST CENTER	NO SEPARATE EVALUATION
% USING COMPUTERS ("SOMETIMES" OR "OFTEN") IN:			
- INVESTMENT ANALYSIS	83%	64%	60%
- FACILITY MANAGEMENT	29%	37%	42%
- DRAFTING & DESIGN	31%	41%	49%
- PROJECT MANGEMENT	54%	51%	54%
- MAINTENANCE MANAGEMENT	43%	44%	44%
- REAL ESTATE INVENTORY	80%	76%	70%
TOTAL:	53%	52%	53%

Table T shows that, among the organizations surveyed, computer use did not vary on average between those who separately evaluate their real estate and those who do not.

Next, computer use was evaluated by size of portfolio, both in terms of area and number of sites. Again, if the computer use hypothesis holds, there should be little relation between computer use and size. Table U is a cross-tabulation of computer use with size of real estate portfolio.

Table U: COMPUTER USE BROKEN OUT BY SIZE OF PORTFOLIO

	UNDER 500,000	OVER 10 MILL.	UNDER 25 SITES	OVER 1000 SITES
% USING COMPUTERS ("SOMETIMES" OR "OFTEN") IN:				
- INVESTMENT ANALYSIS	59%	81%	46%	91%
- FACILITY MANAGEMENT	22%	57%	24%	59%
- DRAFTING & DESIGN	34%	59%	32%	63%
- PROJECT MANGEMENT	39%	70%	51%	74%
- MAINTENANCE MANAGEMENT	31%	62%	35%	56%
- REAL ESTATE INVENTORY	64%	74%	43%	96%
TOTAL:	41%	67%	38%	73%

Table U shows that computer use on average varied significantly between large and small the real estate portfolios. Together, Table T and Table U suggest that computer use, for those who responded to the survey, is unrelated to method of real estate evaluation and is directly related to size of the portfolio. As with the previous hypotheses, the underlying question is: can this observation in the sample survey be inferred for the entire population of corporations in America with a high degree of statistical confidence?

To test this, the same statistical testing methods used in the previous hypotheses were employed to evaluate comparisons of computer use between the following groups: 1) No separate evaluation vs. profit center, 2) No separate evaluation vs. cost center, 3) all ranges of size by square feet owned, and 4) all ranges of size by number of sites.

Tables V and W present the comparisons of the first two groups (comparing computer use with method of real estate evaluation).

Table V: Computer Use by Profit Center vs.No Separate Evaluation

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	(w/ computer use variable dependant) Lambda	Conclusion
1. Real Estate Invest. anal.	1	2.705	8.4227	.0037	.0000	**Reject H:0**
2. CAD-facility management	1	2.705	.1900	.6629	.0000	Accept H:0
3. CAD-drafting & design	1	2.705	.2315	.6304	.027	Accept H:0
4. Project Management	1	2.705	.7049	.4011	.0000	Accept H:0
5. Maintenance Management	1	2.705	.4848	.4862	.0000	Accept H:0
6. Real Estate Inventory	1	2.705	2.5984	.1070	.0000	Accept H:0

Success Rate = 1/6 = 15%

Table W: Computer Use by Cost Center vs. No Separate Evaluation

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	(w/ computer use variable dependant) Lambda	Conclusion
1. Real Estate Invest. anal.	1	2.705	.0001	.9902	.0000	Accept H:0
2. CAD-facility management	1	2.705	.5170	.4721	.0000	Accept H:0
3. CAD-drafting & design	1	2.705	.4418	.5062	.0526	Accept H:0
4. Project Management	1	2.705	.1224	.7264	.0000	Accept H:0
5. Maintenance Management	1	2.705	.0476	.8272	.0000	Accept H:0
6. Real Estate Inventory	1	2.705	.2008	.6540	.0000	Accept H:0

Success Rate = 0/6 = 0%

The data shows that those who do not separately evaluate their real estate claim to use computers at least as often as those who do. In 11 out of 12 tests there was no appreciable

difference in computer use between cost centers, profit centers, and the "no separate evaluation" group. Collectively, the method of real estate evaluation as a predictor variable for computer use has very little power of prediction.

Tables X and Y present the comparisons of computer use with portfolio size, both area and number of sites.

Table X: Computer Use by Square Feet Owned

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	(w/ computer use variable depandent) Lambda	Conclusion
1. Real Estate Invest. anal.	5	9.236	7.3376	.1967	.0000	Accept H:0
2. CAD-facility management	5	9.236	16.3443	.0059	.1809	**Reject H:0**
3. CAD-drafting & design	5	9.236	10.9361	.0527	.1711	**Reject H:0**
4. Project Management	5	9.236	13.3367	.0380	.0114	**Reject H:0**
5. Maintenance Management	5	9.236	18.6833	.0022	.2452	**Reject H:0**
6. Real Estate Inventory	5	9.236	8.2428	.2208	.0000	Accept H:0

Success Rate = 4/6 = 66%

Table Y: Computer Use by Number of Sites

Test run:	Degrees of Freedom	Reject Region	Chi-square	P-value	(w/ computer use variable dependant) Lambda	Conclude:
1. Real Estate Invest. anal.	5	9.236	24.5960	.0004	.0256	**Reject H:0**
2. CAD-facility management	5	9.236	19.6702	.0032	.1442	**Reject H:0**
3. CAD-drafting & design	5	9.236	17.4100	.0079	.1818	**Reject H:0**
4. Project Management	5	9.236	10.3246	.1116	.0000	**Reject H:0**
5. Maintenance Management	5	9.236	4.9814	.5462	.0660	Accept H:0
6. Real Estate Inventory	5	9.236	30.2748	.0000	.0357	**Reject H:0**

Success Rate = 5/6 = 83%

The data shows that the use of computers in corporate real estate is clearly related to the size of the portfolio in question. This correlation held for 9 out 12 tests conducted. Both area and number of sites as predictor variables show moderate powers of prediction.

c. Interpretation of Results

The test results bear out the following:

- The use of computers is not related to method of real estate evaluation; but method of real estate evaluation is directly related to management effectiveness.
- The use of computers is directly related to the size of the real estate portfolio; but the size of the real estate portfolio is not related to management effectiveness.

That computer systems should be observed more frequently in large portfolios might be explained in several ways. First, it may be argued that the larger numbers and higher orders of magnitude associated with large real estate holdings require the use of automated systems for maintaining information. The sheer size of the portfolio makes manual operations cumbersome and inefficient. That argument, however, assumes a deliberate and conscious attempt on the part of management to better manage the real estate portfolio and the survey results, it may be argued, show that such intentions are no more likely to be present in large portfolios than small. Alternatively stated, if large portfolios cannot be expected to be more effective in the overall management of their real estate activities than small portfolios, why should they be expected to be more progressive in maintaining information on these activities? To be sure, the author and the research team at MIT have observed both large organizations who have deliberately and proactively developed reliable systems and large organizations who have experienced protracted and unsuccessful implementations of such systems. (see Dluhosch, Bon & Veale 1987. Derrington 1987.).

It seems likely to assume that as companies grow in size so will the budget for administration and management of buildings and land. While it seems that these budgets are rarely deemed adequate by the managers themselves, they are sure to be larger -- in absolute terms -- than those allocated for small companies. Thus, at some point economies of scale will allow for purchase of a computer system in the large firm which is

otherwise unaffordable in the small firm. Additionally, smaller firms without a formal real estate unit are likely to have their various real estate functions scattered across the line units and various staff units in an ad-hoc and fragmented fashion. Centralized management of information under such conditions might not be considered cost effective.

But even where computer systems exist, there is no guarantee that they will be put to good use or that they will greatly improve upon the management system in place. Firms who do not consistently and separately evaluate their real estate assets are just as likely to use computers as those firms that do. It could be argued that where real estate assets are structurally under-managed through existing policy and procedures, the implementation of computer systems will only automate the under-management. Again, the issue is not the quality or design of the systems themselves but rather the strategic deployment of such systems in existing decision-making environments.

It should be noted that the survey results measure only the number of applications and not the type or level of sophistication of the systems themselves. It seems likely that the pattern of computer use will parallel the overall corporate real estate delivery process and thus will be somewhat fragmented and insular. The format of the survey questions makes no distinction between a collection of individual micro systems and a larger macro system which attempts to integrate many of the smaller systems in a true MIS structure.

It is apparent that the computer systems by themselves will

not ensure more effective management. Despite the increasingly large number of computerized management systems available for real estate and facilities, a fundamental question remains: what to do with the information these systems provide?

Typical of most new technology, there is no real consulting corps or generally recognized body of industry standards to support them. The users themselves are not entirely settled on the role of these systems within the organization. One V.P. of Facilities Management, in a recent industry trade show, reported that his system knows where every chair in his organization is and exactly when to change every belt on every air-handler, but poses the following question: Are we buying something that will help us manage our facilities or are we buying something that will make us manage information? (Gross 1987).

* * *

CONCLUSIONS: REJECT RESEARCH HYPOTHESIS. DATA DOES NOT PROVIDE ENOUGH EVIDENCE TO SUPPORT CLAIM THAT THE USE OF COMPUTERS IN CORPORATE REAL ESTATE DEPARTMENTS NECESSARILY INDICATES EFFECTIVE MANAGEMENT.

THE USE OF COMPUTERS APPEARS TO BE DIRECTLY RELATED TO THE SIZE OF REAL ESTATE DEPARTMENT AND NOT THE EFFECTIVENESS OF THE REAL ESTATE DEPARTMENT.

III. Conclusion: Towards Accountability and the Emerging Discipline of Corporate Real Estate Asset Management

Approaches to the management of corporate buildings and land vary significantly from company to company, both in terms of diversity and level of sophistication. When observed in the aggregate, however, several trends or conditions begin to emerge which can be discussed in the larger context of corporate real estate management as a whole. This concluding chapter will attempt to go beyond the symptoms of management difficulties which were evident in the survey and begin to examine the underlying causes and possible remedies.

Sections One and Two of this chapter will discuss two issues which surfaced throughout the survey -- information needs and general management. Section Three will examine the future of corporate real estate both as an emerging field of management and an emerging academic discipline. Finally, Section Four will discuss the dimensions of a strategic approach to corporate real estate asset management in terms of the implications for present day practice and future development of the field.

1. The Importance of Information in Corporate Real Estate

One of the most significant conclusions of the 1987 MIT study is that large numbers of corporate real estate managers do not maintain adequate information on their real estate assets. One in four does not maintain a real estate inventory. Two out of three do not maintain a real estate MIS. One in four is uncertain of the market value of the organization's real estate and one in three is uncertain of the acquisition cost.

Informed decision making and awareness were issues that cut into nearly every dimension of corporate real estate management examined in the survey. In general, under-management is a better descriptor of the situation than mis-management -- i.e. it is not that these assets are necessarily managed poorly, by way of faulty judgement, but rather that, in many cases, they are not managed to their full potential. Thus, the real focus is on the opportunity costs associated with management actions not taken and not the out-of-pocket costs associated with current courses of under-management.

It is difficult to determine the full potential of effective management for corporate real estate where little is known and little record is kept. For example, well over half of the survey could not answer if returns from their real estate assets were greater, less, or equal to overall corporate returns, since many do not calculate separate real estate returns. Furthermore, of those who do, only one-third report returns which are less than overall returns. Yet among the firms reporting lower returns, over half operate as neither cost center nor profit center, which raises the question: how much of that lower return is a function of the nature, use, and location of the real estate itself and how much is a function of under-management? Could these returns be effectively increased with the right management?

Only half of all corporations bother to match individual real estate costs with actual properties or buildings for accounting purposes -- the rest either pool expenses (28%) or do not separately account for real estate at all (23%). Thus, the true

measures of real estate performance are hard to assess if the asset is never evaluated or monitored over time. Correspondingly, it is difficult to assess the performance of the decision-makers responsible for these assets if the full potential of their decisions is not known. In this light, it is not surprising that things have remained relatively unchanged since 1981. It seems unlikely that upper management would press for improved "fuel economy" of its real estate assets if the mileage and fuel consumption are never recorded. As John Dowling points out, "Most C.E.O.s do not know how much they are spending on space. If they did, they would make real estate a much higher priority than they do." (Taylor 1986).

To be sure, many firms in the survey claim significant activity in the area of gathering and maintaining real property information. As previously noted, roughly two-thirds claim to have on-going systems (manual or otherwise) for maintaining information on lease dates and commitments, identification of surplus properties, and utilization and current capacity of existing properties. Systems are also maintained, to a lesser degree, for tracking square-foot costs by facility, evaluating the physical condition and performance of buildings, and monitoring changes in market value. More revealing, however, is the fact that only 29 percent prepare the information from these systems for top management review on any scheduled basis (i.e. quarterly, semi-annually, annually). A full 23 percent do not report at all.

This parallels the conclusions of the research hypothesis conducted on the use of computers within the real estate

function. Specifically, the mere presence of these information systems and technology does not necessarily imply the effective and successful use of them.

The 1981 HRE survey revealed that "few firms have developed the information base needed for setting informed policies, suggesting that important real estate decisions are made in a data vacuum, or not at all." That study also concludes that the decision to manage real estate effectively appears to rely primarily on the attitudes of management. These two elements -- attitude and uncertainty -- are not unrelated. The 1987 survey respondents were asked to evaluate statements concerning first, the effect of uncertainty and unpredictability on real estate decision-making and, second, whether they felt they had sufficient information and methodology available to clearly evaluate the use effectiveness and physical performance of their properties. Table Z is a cross tabulation of the responses to these statements.

Table Z: Uncertainty vs. Availability of Information

		"I DO NOT HAVE SUFFICIENT INFORMATION OR METHODOLOGY TO CLEARLY EVALUATE THE PHYSICAL PERFORMANCE OR USE EFFECTIVENESS OF MY BUILDINGS"	
		"STRONGLY AGREE"	"STRONGLY DISAGREE"
"UNCERTAINTY AND UNPREDICTABILITY OF FUTURE REAL ESTATE MARKETS, ECONOMIC CONDITIONS, AND ORGANIZATIONAL SPACE NEEDS GREATLY REDUCES MY CAPACITY TO EFFECT OPTIMAL REAL ESTATE SOLUTIONS"	"STRONGLY AGREE"	66%	22%
	"STRONGLY DISAGREE"	33%	78%

The data clearly shows that those who claim to have adequate data and information available to them do not feel that uncertainty or unpredictability reduces their capacity to effect optimal real estate solutions. Those who do not have adequate information, however, felt strongly that uncertainty and unpredictability inhibits their decision making.

Two management attitudes that are prevalent in corporations today are "real estate is a necessary cost of doing business" and "we're not in the real estate business". (Silverman & Zeckhauser 1983). While there is certainly some merit to their origins and the various dimensions of their continuing debate, the opportunity exists for using these rationales to account for inefficient management of real estate assets. These attitudes need to be brought into perspective with the larger mission of the corporation. Payroll expenditures, for example, (which are typically the greatest ongoing corporate expenditure above rent and occupancy cost) are unquestionably a "necessary cost of doing business." Similarly, large corporations who may be likely to influence labor markets they are "not in the employment business" per se. Yet, while personnel departments do not operate as profit centers, they -- like all corporate staff, ancillary, and support functions -- are bound by the larger organization to provide their service as efficiently and effectively as possible.

Profitable or not, accountability is the central issue. A leaner, more productive support function enhances the ability of the overall corporation to realize profits. And accountability is clearly dependent on information -- the kind of ongoing,

reliable, timely, and relevant information which has been found to be lacking in many American companies.

2. The Importance of General Managment in Corporate Real Estate:

In most organizations the real estate asset manager is likely to be considered a specialist. (see Yee 1986. Holleran 1987.). There is evidence in the survey to suggest that, especially as the organization grows in size, this person will be increasingly saddled with general management obligations and that, as the task of managing an organization's buildings and land grows in complexity, this person may need to seek solutions of a more general management nature.

The survey examined the full range of activities that the senior corporate real estate executive is likely to engage in over the course of a week and found that "administration of the real estate department" was the single greatest commitment of time (nearly twice as great as the next largest commitment). Overall, general management activities -- administration of the real estate department; liaison with other departments (tenants) in the organization, reporting to senior management, training, purchasing, etc. -- accounted for roughly one-third of all weekly activities.

As the organization grows, the real estate group is likely to experience its own share of bureaucratic growing pains. Executives for portfolios under 500,000 sqaure feet reported a weekly mean of 6 hours spent administering the real estate departments. That figure jumps to 13 hours for those who manage

portfolios over the 10 million mark. Also, as previously noted, large portfolios are likely to cite the decentralization of the real estate mission and difficulties in effecting change in a large organization as significant barriers to implementing management information systems.

Regardless of size, the majority of decision-making in corporate real estate is driven by operational concerns deriving from the overall mission of the company. Operations were cited nearly twice as often, (58%), as either occupancy costs, (35%) or profit potential (32%). Among secondary bases for real estate decision-making, situational factors were the most frequently cited -- i.e. those demands or concerns which stem from unplanned events or occurrences (such as emergency roof repairs, behind-schedule construction, lease expirations, labor strikes, etc.) which demand immediate management attention.

The operational priorities and administrative workloads of the real estate staff, as well as many of the management difficulties observed in the survey, are not unique to the real estate function. Yet much of the literature of corporate real estate over the last decade tends to be transaction or project oriented, prescribing certain real estate ventures -- sale-leasebacks, equity leases, master-limited partnerships -- and other well-intended projects aimed at enhancing corporate real estate. In a sense, however, transactions and deal-making are to corporate real estate asset management what recruiting and head-hunting are to human resource management. It may be argued that ultimately it will not be real property <u>projects</u>, but

rather an improved real property process that will help American business turn the corner.

How, then, can the real property process be improved? For many organizations what may be needed is not yet another computer option or new financing acronym but instead a solid grounding in general management principles, such as:

- Cost Accounting
- Management reporting
- Long range planning
- Inventory and control
- Management by objective
- Personnel management
- Risk Analysis

To be sure, the business of corporate real estate will remain corporate real estate. However, many useful management tools and decision-making models may be borrowed from the traditional management disciplines. In addition to enhancing the real estate function, a greater understanding of these areas will also allow for a greater understanding of the corporation as a whole -- perhaps one of the most important tools that a corporate real estate-decision maker can have. The HRE study, in noting that most recruiting for the real estate staff is done within the company itself, points out that "senior management, it appears, often values knowledge of overall corporate objectives, a solid reputation as a team player, and established associations with the firm's other executives more than real estate expertise".

3. The Future of Corporate Real Estate Asset Management:

Beyond the level of the individual organizations and issues of information needs and general management, lies the larger issue of corporate real estate as a separate and recognized field of management. The inconsistent and company-specific approach to managing real estate assets which is found in many corporations today is perhaps indicative of the evolution of this field as an emrging discipline. That this new area should appear unorganized and, for the better part, uncharted may stem from the fact that primary contributions to the field to date have come from industry practitioners and thus tend to be primarily empirical and anecdotal, lacking well-grounded theories. While a large number professional organizations and their magazine publishing arms have risen to meet the challenge and capture the latent market, none can claim sole ownership of this new discipline. While developers in soft markets seek new business in real estate management, and architects seek to enlarge their role in facility management, and a cadre of professional facility managers seek to enlarge their role in asset management, none can claim to be heir apparent to the emerging discipline of corporate real estate asset management.

The question remains, however, why hasn't a well recognized body of knowledge and theory evolved? Several answers to this question are likely to be offered. First, some will say that the entrepreneurial instinct and seat-of-the-pants management style of the real estate industry does not lend itself well to any kind of formal knowledge base. Others may argue that the

the number of differences in activities, priorities, and approaches between corporate real estate entities prohibits the development of a common body of knowledge.

a. A Developing Field of Management:

A more compelling argument may be found in the "step-child" status that is often bestowed upon real estate groups within corporations. While some of the high-finance and ribbon-cutting activities of development and new construction are more prone to recognition and perhaps prestige, the less visible and less glamourous duties of corporate real estate -- maintenance management, furniture inventory, property tax review, tenant services -- continue to be under-recognized and at times under-valued. Although the situation is changing, for many years positions on the real estate staff were never considered "career" destinations and thus departments were inordinately populated with passed over managers or other less-than-top caliber people. As Holleran points out, "In years past, real estate executives often had little or no stature within the corporation because real estate was not considered significant. Many were selected from the ranks of relatively low-level managers whose careers had come to a dead end." (Holleran 1987. also see Yee 1986.). Such a situation is not likely to breed dynamic new, management thinking.

The low priority status attached to the real estate and facilities functions within the corporation can also been found in the management consulting sector which, presumably, prescribes state-of-the-art management practices to corporate

America. A review of 37 top management consulting firms (members of the Management Consulting Club of Harvard University) showed that despite claims to be offering strategic and progressive consulting in all management dimensions, consulting services for corporate real estate are never offered. During the summer of 1985, the members of the Management Consulting Club were surveyed and asked, among other things, to describe, in their own words, their business by type of consulting work, type of client, and current areas of expansion. (Management Consulting Club of Harvard University 1986). Out of 37 responses -- ranging from a few paragraphs to a few pages -- the activities of corporate real estate, facilities management, building operations, corporate space planning, or physical plant management were never mentioned or even alluded to. Commercial real estate and construction service were referenced by one firm as client industries but the in-house management of buildings and land -- which is required by all companies in all industries -- was never addressed.

Even if corporate real estate is considered a "secondary" management concern, it is suprising that the management consulting sector has not been quicker to not address it. While the broad fields of strategic management, finance, operations, organizational development, marketing, and management information systems continue to be the consulting mainstays, many firms are branching into well-defined sub-fields such as productivity, telecommunications, R & D management, policy development, mergers and acquistions, management education, etc.

b. An Emerging Academic Discipline:

If corporate real estate is considered a step-child in the world of business, it is an orphan in the world of business education. The management of an organization's buildings and land receives very little, if any, representation in business school curriculum or research. A review of the course cirriculum of the nation's top ten business schools (according to a rating by U.S. News & World Report; America's Best Colleges and Professional Schools, 1987) bears this out: Wharton; one course. Tuck; one course. Harvard; two. University of Chicago; none. Sloan; none. Stanford; two. In nearly all cases, the focus is the same -- financing and investment. Rarely is the perspective of the corporation taken and rarely is the scope beyond development or investment concerns. At Columbia, which offers two specific courses, it is clearly stated that the studies are in preparation for "careers in real estate divisions of commercial banks and insurance companies and in construction and development firms." In Stanford, courses in "Commercial Development of Space" and "Estate Planning" are not talking about real property -- but rather "outer space" and "personal estates" and trust funds.

These findings are consistent with findings by Holleran who states that most university courses "have a somewhat limited applicability to the corporate real estate operation, as most of the programs are heavily oriented toward finance ... aimed at brokerage and real estate development." (Holleran 1987).

Nearly all business school programs break down into 1) the

Core curriculum and 2) Specialities or Concentrations. Real property is found at neither of these levels but is instead offered as an elective or "other" course at the same level as such courses as Agribusiness, Tax Policy, Futures Markets, and Strategic Management in Health Care.

Business schools aim to provide a rich and well-rounded exposure to the many elements of modern business. It may be argued, then, that all organizations share a set of common business concerns; a set of common denominators which can be found in any organization regardless of the product or service. They are: People, Places, Information, and Money. That is, some group of people must come together with a common objective under some roof or at some location to exchange information of some kind for the ultimate purpose of economic exchange or compensation of effort.

We know that the management of people is well addressed in business schools under the headings of human resources, labor relations, general management, personnel management, organizational behavior, etc. Money management is also well represented within the disciplines of finance, economics and accounting. The management of information is a fast growing area and hot topic in business school with courses offered in decision science, management information systems, operations research, organizational communications, decision modeling, etc.

To be sure, the formal field of facility management is gaining at least some visibility in some universities (Cornell, Auburn, Texas A & M, Michigan State) usually within the architectural schools (Official Statement on Facility Managment

by IFMA, 1986). But while some of the hands-on and trade-specific activities involved with facilities management may seem appropriate for these curriculums, developing the more comprehensive field of corporate real estate asset managament in professional architectural schools makes no more sense than teaching the field of management information systems out of engineering schools for computer science. That corporate real estate should recieve so little attention in business schools is revealing since they all claim to be providing a solid grounding in the full range of the basic business fundamentals. And the results of this survey, and others, clearly show that a company's buildings and land represent a substantial corporate asset and a vast management effort.

But perhaps the most telling evidence of the low priority with which both business and schools together treat real estate is found in the executive education programs that are offered in major universities today. These programs, like the business school curriculum, do not address real estate, facilities, space, buildings, or land. Most revealing of all, however, is the enrollment in these programs. It is reasonable to assume that a corporation's decision to take a manager out of his daily responsibilities and subsidize a several month period of training and non-productive time to the firm is an indication of that manager's perceived value or importance to the firm. It also seems reasonable to assume that managers sent to such programs are, for the most part, being prepared for upper slots in the organization and that their current positions can be

considered as somewhere on the track to the top. Thus, if corporate real estate managers are to be considered as important to the firm and on the legitimate corporate career path then an equal number of these managers should be found attending executive education programs as other corporate line and staff managers.

A review of the enrollment for the past 15 years at the MIT Sloan School Executive Education Program reveals the following: out of 1100 attendees in the last 30 classes there have been only two "Contruction Managers" and one "Manager of Facilities Planning". It should be noted, also, that the construction managers were from a mining company and an oil company and thus may not have necessarily been involved in the construction of buildings. That the managers of corporate real estate and facilities are not selected for such programs seems evident of the lower priority in which they are held by the organization.

4. Real Estate and the Corporate Mission: Beyond Deal-Making and Towards a Strategic Approach:

What appears to be lacking -- both in business schools and in business itself -- is a well-organized and comprehensive approach to managing a corporation's real estate assets -- a strategic approach that begins to provide a basic framework for connecting its many elements (physical plant maintenance and repair, leasing, space planning, project management, housekeeping and tenant services, development and acquisition, furniture inventory, capital budgeting, etc.); an approach for prioritizing real estate demands and guiding overall policy and

direction; and an approach that can inform, support, and improve the actual decision-making process in the field today.

Such an approach is not aimed towards developing universal strategy or generic methods for use by all. There are no uniform real estate solutions. As shown in the survey, decision-making is most likely to driven by the operational concerns of the overall corporation and these concerns will vary considerably. The corporate real estate mission is derived directly from the larger corporate mission. It seems unreasonable, then, to prescribe blanket real estate solutions, such as reorganization into a profit center, without a greater understanding of the posture or position of the organization in question.

It seems more likely, on the other hand, for companies to pursue strategic real estate responses which are in concert with the existing corporate space needs and existing real estate market opportunities. For example, young, high growth firms in "high transaction" industries and "hot" real estate markets might pursue landbanking, equity-leasing, or joint partnership. Older more established companies in the "low transaction" industries and "cold" markets may instead concentrate on keeping operating and occupancy costs down. The full range of such stragetic responses -- together with the methods for evaluating, selecting, implementing and monitoring them -- represents a rich area for future research in the field. Mapping out the decision making domain, positioning the decision maker, and evaluating the strategic alternatives might be one of many techniques that can be developed.

In evaluating the future of the corporate real estate as a field of management, it may be worth considering the historical evolution of strategic management into a well-recognized business activity. Strategic management came into popularity during the early 70's and reached its peak during the early 80's by introducing a formal, systematic, and analytical side to business strategy. With the advent of portfolio matrices, strategic business units, and market differentiation techniques came a whole new consulting base, popularity in the business schools, and a new management function and profession. (Horwitch 1987).

At its peak, however, strategic management began to come under attack and doubts appeared as to the long-run influence and fundamental worth of the approach. At the crux of the criticisms was the issue of developing strategy separate from operations. Decisions made from detached and abstract strategic management models were not alway successful in reality. Corporate mission and purpose became less clear with the new strategic venturism. (Horwitch 1987). Subsequent literature in the field (e.g. Peters & Waterman, In Search of Excellence, 1984) advised corporations to "stick to what you know best".

By comparison, corporate real estate asset management is evolving into a recognized management activity which stands in need of a more formal and systematic approach. In the development of such an approach it may be helpful to consider the evolution of strategic management and avoid evolving into a discipline "unto itself". The corporate mission and operation

must be the backbone behind any set of management principles or theories which are developed for corporate real estate management.

What does the future of this emerging management discipline look like? Ultimately, effective real estate management means moving beyond reactive and decentralized decision-making which is fragmented across the organization towards a proactive, comprehensive, and portfolio-wide decision-making process which is well supported by adequate and timely information and the commitment of upper-management.

Moving beyond the dimensions of general management discussed earlier, the formal field of corporate real estate asset management will be concerned with such areas as:

- Organizational Strategy (for real estate departments)
- Fixed Asset Investment Strategy
- Corporate Space Management and Planning
- Life-Cycle Physical Management of Buildings
- Real Estate Accounting and Reporting
- Work Poductivity and the Physical Environment
- Buildings Operations Management
- Strategic Acquisition, Development and Disposition

With the successful integration of such concerns -- together with sound management practices and reliable information and decision-support systems -- the corporate real estate manager can develop a pro-active approach which involves:

1) Maintaining up to date and exact knowledge of all buildings, land, leases, and physical assets.

2) Establishing real property strategy and operational priorities for guiding ongoing real property decisions and policy within the organization.

3) Knowing what management tools are available for evaluating and guiding real property performance.

4) Knowing when and where to deploy management tools for what kinds of real estate decisions.

Eventually, a thorough understanding of the entire range of real estate tools and methods available to the decision-maker -- in the form of alternative deal structures, administrative procedures, information and reporting systems, organizational structures, decision-support technologies, analytical models, etc. -- together with a thorough understanding of appropriateness and consequences of deploying such tools, may ultimately represent the first draft of "The Principles of Corporate Real Estate".

* * *

BIBLIOGRAPHY

Becker, Franklin D. (1985), "Work in its Physical Context: The Politics of Space and Time," Proceedings: (The Architectural Research Centers Consortium) Workshop on the Impact of the Work Environment on Productivity. (published in 1986) The Architectural Research Centers Consortium, Inc., Washington, D.C.

Behrens, Alfred H. (1982), "Managing Corporate Real Estate as a Profit Center", Industrial Development, July - August 1982, Vol. 151, No. 4, pp.4-8.

Bell, Michael A. (1987), "The Importance of Sound Fixed Asset Management," Industrial Development, January / February 1987, Vol.156, No.1, pp.11-13.

Bennett, Robert A. (1987), "Corporate Boon: Real Estate," The New York Times, August 20, 1987, pp.D-1.

Bogorad, Leonard (1984), "U.S. Corporations in Real Estate", Industrial Development, September - October 1984, Vol.153, No. 5, pp. 135-137.

Bon, Ranko; Dluhosch, Eric; Joroff, Michael; Brana, Rodrigo; Veale, Peter (1986), "Real Property Strategic Assessment: Task one -- Problem Identification", for the Construction Engineering Research Laboratory, U.S. Army Corps of Engineers; MIT, Cambridge Massachusetts.

Bon, Ranko (1987), written comments on thesis draft, December 31, 1987, Cambridge, Massachusetts.

Brainerd, Howard R. (1985), "Computer-Aided Drafting/Design Can Greatly Enhance Facility Planners' Effectiveness," Industrial Development, May / June 1985, Vol. 154. No.3, pp. 7-11.

Brown, Steve (1987), "Corporations are Realizing Real Estate's Potential; Tax Changes and Overbuilding Ripen Opportunites," National Real Estate Investor, March 1987. pp.63-77.

Bunyan, Robert; Czerwinski, Frank; Kitts, Martin; Rossi, John (1986), Pros and Cons of a Real Estate Subsidiary, The International Association of Corporate Real Estate Executives, (transcript from a NACORE workshop; 13th Annual Symposium and Exposition, April 14th, 1986)

Cohen, Stephen S.; Zysman, John (1987), "The Myth of a Post-Industrial Economy," Technology Review, February / March 1987. pp.54-61.

Conroy, Bob; Miles, Mike; Wurtzebach, Charles (1986), "A Practical View of Real Estate and Modern Portfolio Theory," Industrial Development, May / June 1986, Vol.155, No.3, pp.11-20.

Conroy, Bob; Miles, Mike; Wurtzebach, Charles (1986), "Institutional Real Estate Investment," Industrial Development, July / August 1986, Vol.155, No.4, pp.5-10.

Cushman & Wakefield, Inc. (1986), Business America Real Estate Monitor, (conducted for Cushman & Wakefield by Louis Harris and Associates, Inc.). The first of four quarterly surveys.

Derrington, Patrice A. (1987), "The Use and Lack of Use of Property Evaluations for Facilities Management," working paper for the Laboratory of Architectural and Planning, MIT, Cambridge, Massachusetts.

Dluhosch, Eric; Bon, Ranko; Veale, Peter (1987), "Evaluation of the Preventive Maintenance Pilot Project and Considerations for the Development of a State-Wide Preventive Maintenance Program," submitted to the Office of Facilities Management, Division of Capital Planning and Operations, Commonwealth of Massachusetts. October 30th, 1987. Cambridge, Massachusetts.

Dues, John J. (1982), "Real Estate Management and the Corporate Planning Process," Industrial Development July / August 1982, Vol. 151, No. 4 pp. 9-11.

Ebert, Larry P. (1983), "Designing a Corporate Real Estate Data Base," Industrial Development, May / June 1983. Vol. 152, No.3, pp.15-19.

Facility Planning News, "Waterman on Strategy: Be Opportunistic," December 1987, Vol.6, No.6, pp.1-3.

Farragher, Edward J. (1984), "Corporate Real Estate Asset Decision-Making", The Real Estate Appraiser and Analyst, Fall 1984, pp.13-17.

Fisher, Carl D. (1983), internal write-up of the results of the GTE corporate real estate questionnarie.

Fogler, H. Russell (1984), "20% in Real Estate: Can Theory Justify it?" Journal of Portfolio Management, Winter 1984.

Gage, John C. Jr. (1987), comments during November 18, 1986 Facilities' fourth annual real estate roundtable, published in "Does Upper Management Care About Its Real Estate Department?", Facilities Design & Management, February 1987. pp.68-72.

Garrison, Ray H. (1982), Managerial Accounting: Concepts for Planning, Control, Decision Making, Business Publications, Inc., Plano, Texas.

Gergen, David R., Editor (1987), America's Best Colleges, special report by U.S. News & World Report, Inc., Washington, D.C.

Gottfried, Ira S. (1982), "Future Computer Applications in Facility Planning," Industrial Development, September / October 1982, Vol. 151, No. 5, pp.4-7.

Granof, Michael H. (1980), Financial Accounting, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Gross, Robert J. (1987), remarks from presentation of "Make Room for Data: Automating Facilities Management to Cut Operating Costs", made during the Buildings Show, November 19th, 1987 Philadelphia Civic Center, Philadelphia, Pennsylvania.

Hamilton, Kathryn B. (1986), "Expanded Uses for CAD," Buildings July 1986. pp.47-51.

Hannon, Neal D.; Davey, Roy A. (1983), "An Overview of Digital's Real Estate Systems," Industrial Development, July / August Vol. 152, No. 4, pp.33-35.

Holleran, W.E. (1987), "Sources of Corporate Real Estate Personnel Changing," National Real Estate Investor, February 1987. pp.46,154,158.

Horwitch, Mel (1987), The Emergence of Post-Modern Strategic Management, Sloan School of Management, MIT Industrial Liaison Program Report, Cambridge, Massachusetts.

The Institute of Real Estate Management (IREM) (1987), "Income / Expense Analysis: Office Buildings," IREM, of the National Association of Realtors, Chicago, Illinois.

Kimmel, Peter S. (1987), "Computer-Aided Facility Management: Today and Tomorrow," Buildings, March 1987.

Kopcke, Richard W.; Aldrich, Peter C. (1984), "A Real Estate Crises: Averted or Just Postponed?" The Journal of Portfolio Management, Spring 1984.

The International Facility Management Association (1986), IFMA Report #2 Demographics and Trends, Houston, Texas.

Leake, John Patrick (1984), CPM Use in Top 400 Construction Firms, Master's Thesis, Department of Civil Engineering and Sloan School of Management, MIT, Cambridge, Massachusetts.

Lelen, Kenneth (1987), "Strategies for Leases and Land Assets Determine Success for Corporations," Real Estate Times, June 16, 1987. pp.20.

Levy, Gerald M.; Matz, Elliot S. (1987), "Choosing Strategic Objectives," Chapter 2, Corporate Real Estate Handbook, Robert Silverman Editor in Chief, McGraw-Hill.

MacEachron, John D. (1984), "Managing Real Property Assets," Industrial Development, May / June 1984, Vol.153, No.3, pp.35-37.

Margulis, Steven T. (1985), "The BOSTI Studies of the Impact of Office Environments on Employee Performance and Satisfaction; An Introduction to the Methodology," Proceedings: (The Architectural Research Centers Consortium) Workshop on the Impact of the Work Environment on Productivity. (published in 1986) The Architectural Research Centers Consortium, Inc., Washington, D.C.

Marans, Robert (1985), "Approaches to Measuring and Evaluating the Influence of the Physical Environment on Worker Performance" Proceedings: (The Architectural Research Centers Consortium) Workshop on the Impact of the Work Environment on Productivity. (published in 1986) The Architectural Research Centers Consortium, Inc., Washington, D.C.

The Marling Group, (1980), Summary of Corporate Real Estate Survey, Northfield, Illinois.

Norusis, M.J. (1986), SPSS/PC+, SPSS Inc., Chicago, Illinois.

Ott, Lyman & Hildebrand, David K. (1983), Statistical Thinking for Managers, PWS Publishers, Boston, Massachusetts.

Raffini, George A. (1985), Management Consulting '86, The Management Consulting Club of the Harvard University Graduate School of Business Administration, Boston, Massachuesetts.

Ricci, Robert J.; Doran, James F.; Fisher, Carl D.; Kitts, Martin; (1985), How to Organize and Operate a Corporate Real Estate Department, The International Association of Corporate Real Estate Executives, (transcript from a NACORE workshop; 12th Annual Symposium and Exposition, May 6th, 1985).

Sabel, Charles F.; Herrigel, Gary; Kazis, Richard; Deeg, Richard (1987), "How to Keep Mature Industries Innovative," Technology Review, April 1987. pp.27-35

Silverman, Robert & Zeckhauser, Sally (1981), Corporate Real Estate Asset Management in the United States, (a report prepared by Harvard Real Estate, Inc.), Cambridge, Massachussetts.

Silverman, Robert & Zeckhauser, Sally (1983), "Rediscover Your Company's Real Estate", The Harvard Business Review, January - February 1983, pp. 111-117.

Silverman, Robert; Editor in Chief (1987), The Corporate Real Estate Handbook, McGraw-Hill

Stevenson, Howard H. (1976), Corporate Real Estate --1975, Harvard Business School, Boston, Massachusetts.

Taylor, Alex III (1986), Fortune Special Report: Real Estate Upheaval, "Smart Moves for Hard Times," Fortune, December 8, 1986.

Thompson, Kip G. (1986), "Corporate Real Estate Strategies for Structuring Development Joint Ventures," Master's Thesis, Department of Architecture, MIT, Cambridge, Massachusetts.

Urbanczyk, Jim (1984), "Choosing a Computerized Maintenance System," Journal of Property Management November / December 1984.

Van Merkensteijn, Eric C. (1986), "Is Facilities Planning a Joint Venture with Senior Management?" Facilities Design & Management, October 1986. pp.88-89.

Veale, Peter R. (1987), "Executive Level Decision-Making in Corporate Real Property: Managing for the Future?", Working paper for the Laboratory of Architecture and Planning, MIT, Cambridge, Massachusetts.

Wald, Matthew L. (1985), "The Smart Building," Commercial Real Estate Report, The New York Times, May 12, 1985. Section 12. pp.1, 59-60.

Wardrep, Bruce N., Ph.D. (1985), "A Pilot Study: Unconsolidated Subsidiaries for Real Estate Holdings", Industrial Development, November - December 1985, Vol.154, No. 6, pp. 17-23.

Wilbur, Bernard F. (1987), comments during November 18, 1986 Facilities' fourth annual real estate roundtable, published in "Does Upper Management Care About Its Real Estate Department?", Facilities Design & Management, February 1987. pp.68-72.

Yee, Roger (1986), "The Corporate Building Team," Corporate Design & Realty, March 1986. pp.44-46.

Yee, Roger (1986), "The 1986 Corporate Real Estate Executive Survey," Corporate Design & Realty, February 1986. pp.56-58.

Young, Micheal S. (1983), "Differentiating Between Computer-Based Property Management and Asset Management Systems," Journal of Property Management September / October 1983.

Zahn, William F. (1987), "The Effect of Real Estate Decisions on Company Performance: A User's Perspective," The Real Estate Finance Journal, Spring 1987. pp.68-73.

Zerbst, Robert H.; Cambon, Barbara R. (1984), "Real Estate: Historical Returns and Risks," Journal of Portfolio Management, Spring 1984.

APPENDIX A: QUESTIONNAIRE AND COVER LETTER

Massachusetts Institute of Technology
Laboratory of Architecture and Planning
Spring 1987

SURVEY OF CORPORATE REAL ESTATE ASSET MANAGEMENT

==========

Background:

1. Your company's (*or parent company's*) principal business activities are:
   (1=primary or sole activity, 2=secondary activity, etc.)

   ____ Heavy manufacturing
   ____ Light manufacturing
   ____ Retail/wholesale
   ____ Forestry/mining/construction
   ____ Banking/finance/insurance
   ____ Transportation
   ____ Utilities
   ____ Other (please specify) _____

2. For the last fiscal year, what was your company's sales volume or revenue from operations (in $ millions)?

   _____ Under 250
   _____ 250 - 500
   _____ 500 - 1000
   _____ 1000 - 5000
   _____ Over 5000

3. At the close of the last fiscal year, what were your company's total assets (in $ millions)

   _____ Under 250
   _____ 250 - 500
   _____ 500 - 1000
   _____ 1000 - 5000
   _____ Over 5000

4. Approximately how many square feet of building space does your company own or lease?

	under 500,000	500,000 - 1 million	1 -10 million	10-25 million	over 25 million	uncertain
Owned and occupied	_____	_____	_____	_____	_____	_____
Owned and leased out	_____	_____	_____	_____	_____	_____
Leased	_____	_____	_____	_____	_____	_____

5. Approximately how many sites or facilities does your real estate portfolio include?

   _____ Under 25
   _____ 25- 50
   _____ 50 - 100
   _____ 100- 500
   _____ 500 - 1000
   _____ 1000 - 5000
   _____ Over 5000
   _____ Uncertain

6. What was the acquisition (historical) cost of your company's real estate (in $ millions)?

   _____ Over 1000
   _____ 500 - 1000
   _____ 250 -500
   _____ 100 - 250
   _____ 50 - 100
   _____ Under 50
   _____ Uncertain

7. According to your estimate, what would be the current fair market value of the real estate owned by your company and the value of its leaseholds (in $ millions)?

Property owned	Leaseholds
_____ Over 5000	_____ Over 5000
_____ 1000 - 5000	_____ 1000 - 5000
_____ 500 - 1000	_____ 500 - 1000
_____ 250 - 500	_____ 250 - 500
_____ 100 - 250	_____ 100 - 250
_____ Under 100	_____ Under 100
_____ Uncertain	_____ Uncertain

Organization:

8. Does your company have a formally organized real estate unit?

a. _____ Yes _____ No
(if you answer no, please go to question 13).

b. How long has such a unit been in existence?

_____ Less than 5 years _____ 10 - 20 years
_____ 5 - 10 years _____ More than 20 years

c. Is the unit now a _____ Department of the company
_____ Subsidiary of a parent company

9. What is the title of the real estate unit head? _____

10. The real estate unit reports to the company

_____ President _____ Treasurer or controller
_____ Group senior or executive vice president _____ Division vice president
_____ General counsel _____ Other *(please specify)* _____

11. In which of the following real estate activities does your company's real estate unit engage? (1=primary or sole activity, 2=secondary activity, etc.)

_____ Leasing _____ Divestiture _____ Property management
_____ Acquisitions _____ Development

12. Who is responsible for the following functions? (*where applicable, please check more than one line per function).*

	Real estate unit	Line operating units	Other staff departments	Outside Consultants
Real estate recordkeeping	_____	_____	_____	_____
Property tax evaluation	_____	_____	_____	_____
Capital budgeting for real estate	_____	_____	_____	_____
Financial analysis of prop--osed real estate projects	_____	_____	_____	_____
Identification of new real estate investment needs	_____	_____	_____	_____
Site selection	_____	_____	_____	_____
Acquisition of new property	_____	_____	_____	_____
Identification of surplus property	_____	_____	_____	_____
Disposal of surplus property	_____	_____	_____	_____
Lease approval	_____	_____	_____	_____
Design decisions	_____	_____	_____	_____
Construction supervision	_____	_____	_____	_____
Property management	_____	_____	_____	_____

13. Do the real estate acquisition, development and disposition functions in your company generally report to the same vice president or director as the property or facility management functions?

_____ Yes _____ No *(if you answer yes, please go to question 15)*

a. If not, do you feel there is adequate communication, support and coordination between these two groups?

_____ Yes _____ No _____ Uncertain

Real Estate Performance and Evaluation:

14. On what basis does your company evaluate its real estate activities?

_____ Cost center within operating division
_____ Cost center within real estate unit
_____ Profit center within operating division
_____ Profit center within real estate unit
_____ Depends on the property
_____ No separate evaluation for real estate

a. If you manage your real estate for profit, what are some or all of your basic rationales or motivations behind this approach? (*please check those which apply*)

_____ Increased efficiency of real estate resources
_____ Generate revenue for overall corporate purposes
_____ Generate revenue for other real estate requirements
_____ Investment of idle corporate funds
_____ Induce competition with the marketplace
_____ Induce competition among properties within the company's portfolio
_____ More effective evaluation of individual property performance
_____ Tax purposes
_____ other _____

b. If you manage your real estate as a cost center, what are some or all of your basic rationales or motivations behind this approach? (*please check those which apply*)

_____ Ease of use
_____ Facilitate cost recovery through Cost of Goods Sold (for company's main products)
_____ Real estate units not sufficiently profitable by nature
_____ Unavailable management expertise/manpower to manage for profit
_____ Equal allocation of real estate expense across line operations (through overheads)
_____ "Not in the real estate business"
_____ Top management resistance
_____ Other _____

15. Does your company charge internal rents to its own departments?

_____ Yes _____ No

a. If yes, on what basis?

____ Fair market rent ____ Differential pricing depending on type of space occupant
____ Cost recovery ____ Other (*please specify*) _____

16. How does your company account for real estate operations?

____ In a pool ____ Property by property
____ By category of property ____ No separate accounting for real estate

17. Does your company maintain (*please check*)

_____ A real property inventory
_____ A separate real property management information system (MIS)

a. If you do not maintain an inventory or MIS for your company's real estate, what are the primary barriers or obstacles for developing and operating such systems in your organization? (*please check those which apply*)

_____ Not enough funding or manpower
_____ Difficult to effect change in the organization
_____ Not cost justifiable
_____ Not enough power vested in real estate function
_____ Real estate functions/responsibilities too decentralized
_____ Resistance to new procedures or methodology by real estate staff
_____ Resistance to new information technologies (i.e. computers) by real estate staff
_____ Unfamiliar with available inventory/MIS systems for real estate
_____ Cannot convince top management
_____ Other _____

18. Real estate investments in your company are analyzed according to (*1=primary means of analysis, 2=secondary, etc.*)

_____ Pay back period _____ Rate of return on investment
_____ Net present value (before tax) _____ Return on assets
_____ Net present value (after tax) _____ Return on net assets

19. How does the after-tax return on real estate (net income plus appreciation) compare with your company's overall return?

_____ Real estate returns are generally higher _____ Real estate returns are generally lower
_____ Real estate returns are generally the same _____ We do not calculate real estate returns

Real Estate Decision Making:

20. Approximately how many hours a week, on average, is the senior real estate executive in your organization likely to spend on

_____ Leasing negotiation
_____ Project review of in-progress construction and development
_____ Review and analysis of proposed real estate investment alternatives
_____ Site selection and acquisition
_____ Disposition of surplus properties
_____ Facility or property management issues for existing building stock
_____ Legal issues
_____ Planning and analysis of the organization's current and future space needs
_____ Review and preparation of capital /annual operating budgeting reports and requests
_____ Administration of real estate department
_____ Liaison with other departments (tenants) in the organization
_____ Reporting to senior management
_____ Other (*please specify*) _____
_____ Other (*please specify*) _____
_____ Other (*please specify*) _____

21. At the level of the senior real estate executive in your organization, decision-making for real property is likely to based upon (or driven by) the following concerns (*1=primary basis for decisions, 2=secondary, etc.*)

_____ Investment or profit potential -- *e.g. to increase return on investment; to enhance value of fixed assets; improve upon financial position of overall portfolio; etc.*

_____ Occupancy cost -- *e.g. to reduce or limit space overhead; operating expenses, debt service, lease payments, and overall corporate occupancy costs, etc.*

_____ Operational factors -- *e.g. in response to new space needs, program requirements, relocation decisions, new office technologies, etc. deriving from the mission of the company*

_____ Situational factors -- *e.g. in response to existing demands or concerns which stem from events or occurences (such as emergency roof repairs, behind-schedule construction, lease expirations, labor strikes, etc.) which demand immediate management attention*

_____ Other factors -- *e.g. to show next quarter earnings, protect against takeover bids, community relations, shield taxable income, etc.* *(please specify)* _____

22. In evaluating your company's real estate needs and options -- including lease-buy analysis, pay back periods for development and construction, major facility renewal proposals, lease terms, etc. -- on what "time horizon" or planning periods do you typically base your analysis?

	Often	Sometimes	Seldom	Never
1 - 2 years	____	____	____	____
2 - 5 years	____	____	____	____
5 - 10 years	____	____	____	____
10 - 15 years	____	____	____	____
15 - 25 years	____	____	____	____
25 - 50 years	____	____	____	____
Other _____	____	____	____	____

23. Does your company employ computer programs for decision making in

	Often	Sometimes	Seldom	Never
Real estate investment analysis	____	____	____	____
CAD-based facility management/ spaceplanning	____	____	____	____
CAD-based drafting and design	____	____	____	____
Project control and scheduling	____	____	____	____
Maintenance managment	____	____	____	____
Real estate inventory and tracking	____	____	____	____
Other _____	____	____	____	____

24. Does your company have an ongoing system (manual or otherwise) for maintaining information and reporting on

	Yes	No
Utilization and current capacity of existing properties	____	____
Lease commitments and action dates	____	____
Identification and review of surplus or under-utilized properties	____	____
Tracking costs per-sq-ft by facility	____	____
Identification of significant changes in market value of real estate holdings (market appraisal, net realizable value, etc.)	____	____
Identification of significant opportunities for improved financing vehicles (equity-leases, master limited partnerships, sale-lease back)	____	____
Physical condition and performance of buildings	____	____

a. Is this information analyzed and prepared for top management review?

____ No ____ Yes (semi-annually) ____ Yes (as necessary)
____ Yes (quarterly) ____ Yes (annually)

25. How often does the president or CEO get involved in corporate real estate decisions?

____ Often ____ Sometimes ____ Seldom ____ Never

26. Final decisions on real estate financing are made by the company

____ President
____ Treasurer/controller
____ Line operating manager
____ Real estate unit
____ Other (*Please specify*) _____

27. Are duties, responsibilities or performance criteria defined, through departmental policy or procedure, for the following areas?

	As necessary	General policies and procedures	Standards/formulas/ thresholds/hurdles	Discretion of line unit
Property acquisition	____	____	____	____
Property disposition	____	____	____	____
Development projects	____	____	____	____
Lease commitments	____	____	____	____
Space planning/allocation	____	____	____	____
Preventive maintenance	____	____	____	____
Capital budgeting	____	____	____	____
Energy use	____	____	____	____
Space overhead accounting	____	____	____	____

28. Please evaluate the following statements

(A= strongly agree, B= mostly agree, C= mostly disagree, D= strongly disagree, E= no comment)

a. Uncertainty and unpredictability of future real estate markets, economic conditions, and organizational space needs greatly reduces my capacity to effect optimal real estate solutions. _____

b. Diversifying real property portfolios -- by lease/own ratios, lease term and maturation, capital financing vehicle, etc. -- can significantly reduce financial risk. _____

c. I have regular exposure to, and a firm understanding of, overall corporate strategic plans and objectives from which to base real property decisions. _____

d. Future flexibility -- in terms of commitments, location, building design and use, etc. -- is a top priority in evaluating real estate alternatives. _____

e. I do not have sufficient information or methodology available to clearly evaluate the physical performance or use effectiveness of my buildings. _____

f. Real property decision-making, on average, plays a critical part in the overall performance of my organization. _____

g. Responsibility for real estate assets are delegated too far down in my organization. _____

Thank you for completing this survey. We would welcome any additional comments that you feel might be useful to our study. Please return the questionnaire in the enclosed envelope to :

The Laboratory of Architecture and Planning
Massachusetts Institute of Technology
77 Massachusetts Avenue, Room 4-209
Cambridge, Massachusetts 02139

If you would like a copy of the results of this survey, please provide the following information:

_____ _____

Name & title Institution

_____

Address

If you would be willing to answer additional questions, please provide your telephone number. _____

(telephone number)

MIT LABORATORY OF ARCHITECTURE AND PLANNING

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 77 MASSACHUSETTS AVENUE, CAMBRIDGE, MASSACHUSETTS 02139 ROOM 4-209 (617) 253-1350

June 1, 1987

Dear Colleague:

We at the Laboratory of Architecture and Planning at MIT have been investigating the management of real estate assets in corporate America. While an organization's portfolio of buildings and land represents a sizeable investment and ongoing concern, the actual day-to-day management of these assets in corporations today remains largely under-researched.

This survey is being conducted in cooperation with the International Association of Corporate Real Estate Executives (NACORE) and follows up a similar survey conducted by Harvard Real Estate, Inc. in 1981 entitled "Corporate Real Estate Asset Management in the United States." The results of this survey will complement our research at MIT which is aimed towards gaining a greater understanding of the current practices and attitudes among corporate real estate decision-makers today. We ask, in the spirit of cooperation between academia and practitioners, that you complete the survey and return it in the envelope provided, before July 1st. Your answers and remarks will be held in strict confidence; all results will be reported in a consolidated and anonymous fashion.

If you would like an advance copy of the results of this survey, please include your address in the space provided. Our thanks in advance.

Sincerely,

Michael L. Joroff
Director

Enclosure

APPENDIX B: STATISTICAL SUMMARY OF SURVEY RESULTS

BUSINESS ACTIVITY OF SURVEY RESPONDENTS

	FREQUENCY	PERCENT
PROFIT OR NON-PROFIT		
NON-PROFIT	10	3.5%
PROFIT	274	96.5%
TOTAL	284	100.0%
HEAVY MANUFACTURING		
NO ANSWER	245	86.2%
PRIMARY	34	12.0%
SECONDARY	5	1.8%
TOTAL	284	100.0%
LIGHT MANUFACTURING		
NO ANSWER	229	80.6%
PRIMARY	38	13.4%
SECONDARY	16	5.6%
THIRD	1	.4%
TOTAL	284	100.0%
RETAIL/WHOLESALE		
NO ANSWER	230	81.0%
PRIMARY	48	16.9%
SECONDARY	5	1.8%
THIRD	1	.4%
TOTAL	284	100.0%
FORESTRY/MINING/CONSTRUCTION		
NO ANSWER	262	92.3%
PRIMARY	11	3.9%
SECONDARY	11	3.9%
TOTAL	284	100.0%
BANKING/FINANCIAL/INSURANCE		
NO ANSWER	220	77.5%
PRIMARY	56	19.7%
SECONDARY	5	1.8%
THIRD	3	1.1%
TOTAL	284	100.0%
TRANSPORTATION		
NO ANSWER	264	93.0%
PRIMARY	17	6.0%
SECONDARY	3	1.1%
TOTAL	284	100.0%
UTILITIES		
NO ANSWER	259	91.2%
PRIMARY	24	8.5%
SECONDARY	1	.4%
TOTAL	284	100.0%
OTHER BUSINESS ACTIVITY		
NO ANSWER	208	73.2%
PRIMARY	59	20.8%
SECONDARY	16	5.6%
THIRD	1	.4%
TOTAL	284	100.0%
UNIVERSITY/COLLEGE		
NO ANSWER	284	100.0%
TOTAL	284	100.0%
HOSPITAL/HEALTHCARE		
NO ANSWER	284	100.0%
TOTAL	284	100.0%
FOUNDATION		
NO ANSWER	284	100.0%
TOTAL	284	100.0%
PUBLIC AGENCY		
NO ANSWER	275	96.8%
PRIMARY	9	3.2%
TOTAL	284	100.0%

BUILDING PORTFOLIO DEMOGRAPHICS OF SURVEY RESPONDENTS

	FREQUENCY	PERCENT
SALES VOLUME (IN THOUSANDS)		
NO ANSWER	12	4.2%
UNDER 250	49	17.3%
250-500	36	12.7%
500-1000	43	15.1%
1000-5000	85	29.9%
OVER 5000	59	20.8%
TOTAL	284	100.0%
TOTAL COMPANY ASSETS (IN THOUSANDS)		
NO ANSWER	14	4.9%
UNDER 250	51	18.0%
250-500	32	11.3%
500-1000	32	11.3%
1000-5000	68	23.9%
OVER 5000	87	30.6%
TOTAL	284	100.0%
SQ/FT OWNED AND OCCUPIED		
NO ANSWER	41	14.4%
UNDER 500,000	61	21.5%
500,000 TO 1 MILLION	38	13.4%
1 TO 10 MILLION	95	33.5%
10 TO 25 MILLION	25	8.8%
OVER 25 MILLION	11	3.9%
(NP ONLY) OVER 10 MILLION	1	.4%
UNCERTAIN	12	4.2%
TOTAL	284	100.0%
SQ/FT OWNED AND LEASED OUT		
NO ANSWER	140	49.3%
UNDER 500,000	90	31.7%
500,000 TO 1 MILLION	13	4.6%
1 TO 10 MILLION	25	8.8%
10 TO 25 MILLION	3	1.1%
OVER 25 MILLION	1	.4%
(NP ONLY) OVER 10 MILLION	1	.4%
UNCERTAIN	11	3.9%
TOTAL	284	100.0%
SQ/FT LEASED		
NO ANSWER	54	19.0%
UNDER 500,000	74	26.1%
500,000 TO 1 MILLION	39	13.7%
1 TO 10 MILLION	75	26.4%
10 TO 25 MILLION	20	7.0%
OVER 25 MILLION	8	2.8%
(NP ONLY) OVER 10 MILLION	1	.4%
UNCERTAIN	13	4.6%
TOTAL	284	100.0%
NUMBER OF SITES/FACILITIES		
NO ANSWER	2	.7%
UNDER 25	37	13.0%
25-50	31	10.9%
50-100	37	13.0%
100-500	100	35.2%
500-1000	30	10.6%
1000-5000	37	13.0%
OVER 5000	9	3.2%
UNCERTAIN	1	.4%
TOTAL	284	100.0%

	FREQUENCY	PERCENT
ACQUISITION COST OF REAL ESTATE (IN THOUSANDS)		
NO ANSWER	11	3.9%
OVER 1000	20	7.0%
500-1000	20	7.0%
250-500	24	8.5%
100-250	27	9.5%
50-100	34	12.0%
UNDER 50	42	14.8%
UNCERTAIN	106	37.3%
TOTAL	284	100.0%
MARKET VALUE OF OWNED REAL ESTATE (IN THOUSANDS)		
NO ANSWER	38	13.4%
OVER 5000	22	7.7%
1000-5000	36	12.7%
500-1000	29	10.2%
250-500	30	10.6%
100-250	38	13.4%
UNDER 100	62	21.8%
UNCERTAIN	29	10.2%
TOTAL	284	100.0%
MARKET VALUE OF LEASEHOLDS (IN THOUSANDS)		
NO ANSWER	70	24.6%
OVER 5000	7	2.5%
1000-5000	12	4.2%
500-1000	14	4.9%
250-500	16	5.6%
100-250	40	14.1%
UNDER 100	71	25.0%
UNCERTAIN	54	19.0%
TOTAL	284	100.0%

REAL ESTATE ORGANIZATION OF SURVEY RESPONDENTS

	FREQUENCY	PERCENT
FORMAL REAL ESTATE UNIT IN PLACE		
NO ANSWER	4	1.4%
YES	244	85.9%
NO	36	12.7%
TOTAL	284	100.0%
AGE OF REAL ESTATE UNIT		
NO ANSWER	41	14.4%
LESS THAN 5 YEARS	60	21.1%
5-10 YEARS	57	20.1%
10-20 YEARS	60	21.1%
MORE THAN 20 YEARS	66	23.2%
TOTAL	284	100.0%
STATUS OF REAL ESTATE UNIT		
NO ANSWER	49	17.3%
DEPARTMENT OF THE COMPANY	192	67.6%
SUBSIDIARY OF THE COMPANY	31	10.9%
BOTH	12	4.2%
TOTAL	284	100.0%
REPORTS TO PRESIDENT		
NO ANSWER	227	79.9%
YES	57	20.1%
TOTAL	284	100.0%
REPORTS TO SENIOR OR EXEC VICE PRESIDENT		
NO ANSWER	180	63.4%
YES	104	36.6%
TOTAL	284	100.0%
REPORTS TO GENERAL COUNSEL		
NO ANSWER	276	97.2%
YES	8	2.8%
TOTAL	284	100.0%
REPORTS TO TREASURER OR CONTROLLER		
NO ANSWER	274	96.5%
YES	10	3.5%
TOTAL	284	100.0%
REPORTS TO DIVISION VICE PRESIDENT		
NO ANSWER	251	88.4%
YES	33	11.6%
TOTAL	284	100.0%
REPORTS TO OTHER		
NO ANSWER	245	86.3%
YES	39	13.7%
TOTAL	284	100.0%

LEASING ACTIVITY: BY REAL ESTATE UNIT		
NO ANSWER	65	22.9%
PRIMARY	168	59.2%
SECONDARY	46	16.2%
THIRD	4	1.4%
FIFTH	1	.4%
TOTAL	284	100.0%
ACQUISTIONS ACTIVITY: BY REAL ESTATE UNIT		
NO ANSWER	88	31.0%
PRIMARY	128	45.1%
SECONDARY	46	16.2%
THIRD	15	5.3%
FOURTH	5	1.8%
FIFTH	2	.7%
TOTAL	284	100.0%
DIVESTITURE ACTIVITY: BY REAL ESTATE UNIT		
NO ANSWER	111	39.1%
PRIMARY	97	34.2%
SECONDARY	51	18.0%
THIRD	7	2.5%
FOURTH	11	3.9%
FIFTH	7	2.5%
TOTAL	284	100.0%
DEVELOPMENT ACTIVITY: BY REAL ESTATE UNIT		
NO ANSWER	142	50.0%
PRIMARY	89	31.3%
SECONDARY	40	14.1%
THIRD	7	2.5%
FOURTH	2	.7%
FIFTH	4	1.4%
TOTAL	284	100.0%
PROPERTY MANAGEMENT ACTIVITY: BY REAL ESTATE UNIT		
NO ANSWER	87	30.6%
PRIMARY	118	41.5%
SECONDARY	63	22.2%
THIRD	8	2.8%
FOURTH	6	2.1%
FIFTH	2	.7%
TOTAL	284	100.0%
REPORTS TO SAME VICE PRESIDENT		
0	7	2.5%
1	210	73.9%
2	67	23.6%
TOTAL	284	100.0%
ADEQUATE COMMUNICATION AND COORDINATION		
NO ANSWER	209	73.6%
YES	52	18.3%
NO	17	6.0%
UNCERTAIN	6	2.1%
TOTAL	284	100.0%

REAL ESTATE PERFORMANCE AND EVALUATION - PART1

	FREQUENCY	PERCENT
COST CENTER IN OPERATING DIVISION		
NO ANSWER	222	78.2%
YES	62	21.8%
TOTAL	284	100.0%
COST CENTER IN REAL ESTATE UNIT		
NO ANSWER	249	87.7%
YES	35	12.3%
TOTAL	284	100.0%
PROFIT CENTER IN OPERATING DIVISION		
NO ANSWER	249	87.7%
YES	35	12.3%
TOTAL	284	100.0%
PROFIT CENTER IN REAL ESTATE UNIT		
NO ANSWER	264	93.0%
YES	20	7.0%
TOTAL	284	100.0%
DEPENDS ON PROPERTY		
NO ANSWER	246	86.6%
YES	38	13.4%
TOTAL	284	100.0%
NO SEPARATE EVALUATION		
NO ANSWER	227	79.9%
YES	57	20.1%
TOTAL	284	100.0%
INCOME PRODUCING (NON-PROF) OPERATING DIVISION		
NO ANSWER	282	99.3%
YES	2	.7%
TOTAL	284	100.0%
INCOME PRODUCING (NON-PROF) REAL ESTATE UNIT		
NO ANSWER	281	98.9%
YES	3	1.1%
TOTAL	284	100.0%
PROFIT CENTER: TOTAL		
NO ANSWER	234	82.4%
OPS OR RE	43	15.1%
BOTH	5	1.8%
3.00	1	.4%
4.00	1	.4%
TOTAL	284	100.0%
COST CENTER: TOTAL		
NO ANSWER	194	68.3%
OPS OR RE	83	29.2%
BOTH	7	2.5%
TOTAL	284	100.0%
INCREASED EFFICIENCY OF RESOURCES		
NO ANSWER	231	81.3%
YES	53	18.7%
TOTAL	284	100.0%
GENERATE REVENUE: OVERALL CORPORATE NEEDS		
NO ANSWER	212	74.6%
YES	72	25.4%
TOTAL	284	100.0%
GENERATE REVENUE: OTHER REAL ESTATE NEEDS		
NO ANSWER	260	91.5%
YES	24	8.5%
TOTAL	284	100.0%
INVEST IDLE CORPORATE FUNDS		
NO ANSWER	272	95.8%
YES	12	4.2%
TOTAL	284	100.0%
INDUCE COMPETITION W/MARKETPLACE		
NO ANSWER	279	98.2%
YES	5	1.8%
TOTAL	284	100.0%
INDUCE COMPETITION AMONG PROPERTIES		
NO ANSWER	280	98.6%
YES	4	1.4%
TOTAL	284	100.0%
MORE EFFECTIVE EVALUATION OF PROP PERFORMANCE		
NO ANSWER	249	87.7%
YES	35	12.3%
TOTAL	284	100.0%
TAX PURPOSES		
NO ANSWER	263	92.6%
YES	21	7.4%
TOTAL	284	100.0%
OTHER		
NO ANSWER	266	93.7%
YES	18	6.3%
TOTAL	284	100.0%

REAL ESTATE PERFORMANCE AND EVALUATION - PART2

	FREQUENCY	PERCENT
EASE OF USE		
NO ANSWER	250	88.0%
YES	34	12.0%
TOTAL	284	100.0%
FACILITATE COST RECOVERY THRU COGS		
NO ANSWER	252	88.7%
YES	32	11.3%
TOTAL	284	100.0%
RE UNIT NOT SUFFICIENTLY PROFITABLE		
NO ANSWER	266	93.7%
YES	18	6.3%
TOTAL	284	100.0%
UNAVAILABLE MGT EXPERTISE / MANPOWER		
NO ANSWER	269	94.7%
YES	15	5.3%
TOTAL	284	100.0%
EQUAL ALLOCATION THRU OVERHEADS		
NO ANSWER	249	87.7%
YES	35	12.3%
TOTAL	284	100.0%
NOT IN REAL ESTATE BUSINESS		
NO ANSWER	205	72.2%
YES	79	27.8%
TOTAL	284	100.0%
TOP MANAGEMENT RESISTANCE		
NO ANSWER	258	90.8%
YES	26	9.2%
TOTAL	284	100.0%
OTHER		
NO ANSWER	268	94.4%
YES	16	5.6%
TOTAL	284	100.0%
INTERNAL RENTS CHARGED		
NO ANSWER	5	1.8%
YES	191	67.3%
NO	88	31.0%
TOTAL	284	100.0%
FAIR MARKET RENT		
NO ANSWER	213	75.0%
YES	71	25.0%
TOTAL	284	100.0%
COST RECOVERY		
NO ANSWER	179	63.0%
YES	104	36.6%
2	1	.4%
TOTAL	284	100.0%
DIFFERENTIAL PRICING BY OCCUPANT TYPE		
NO ANSWER	261	91.9%
YES	23	8.1%
TOTAL	284	100.0%
OTHER		
NO ANSWER	271	95.4%
YES	13	4.6%
TOTAL	284	100.0%

REAL ESTATE PERFORMANCE AND EVALUATION - PART3

	FREQUENCY	PERCENT
ACCOUNTING: BY POOL		
NO ANSWER	230	81.0%
YES	54	19.0%
TOTAL	284	100.0%
ACCOUNTING: BY CATEGORY OF PROPERTY		
NO ANSWER	258	90.8%
YES	26	9.2%
TOTAL	284	100.0%
ACCOUNTING: PROPERTY BY PROPERTY		
NO ANSWER	139	48.9%
YES	145	51.1%
TOTAL	284	100.0%
ACCOUNTING: NO SEPARATE ACCOUNTING FOR REAL ESTATE		
NO ANSWER	218	76.8%
YES	66	23.2%
TOTAL	284	100.0%
REAL ESTATE INVENTORY/MIS IN PLACE		
NO ANSWER	28	9.9%
INVENTORY INPLACE	154	54.2%
MIS INPLACE	45	15.8%
BOTH	57	20.1%
TOTAL	284	100.0%

INSUFFICIENT FUNDING / MANPOWER		
NO ANSWER	251	88.4%
YES	33	11.6%
TOTAL	284	100.0%

DIFFICULT TO EFFECT CHANGE		
NO ANSWER	273	96.1%
YES	11	3.9%
TOTAL	284	100.0%

NOT COST JUSTIFIABLE		
NO ANSWER	250	88.0%
YES	34	12.0%
TOTAL	284	100.0%

INSUFFICIENT POWER VESTED IN RE UNIT		
NO ANSWER	263	92.6%
YES	21	7.4%
TOTAL	284	100.0%

REAL ESTATE FUNCTION TOO DECENTRALIZED		
NO ANSWER	269	94.7%
YES	15	5.3%
TOTAL	284	100.0%

RESISTANCE TO NEW PROCEDURES BY RE STAFF		
NO ANSWER	280	98.6%
YES	4	1.4%
TOTAL	284	100.0%

RESISTANCE TO NEW INFO TECHNOLOGY BY RE STAFF		
NO ANSWER	283	99.6%
YES	1	.4%
TOTAL	284	100.0%

UNFAMILIAR WITH AVAILABLE MIS/INV SYSTEMS		
NO ANSWER	263	92.6%
YES	21	7.4%
TOTAL	284	100.0%

CANNOT CONVINCE TOP MANAGEMENT		
NO ANSWER	277	97.5%
YES	7	2.5%
TOTAL	284	100.0%

OTHER		
NO ANSWER	273	96.1%
YES	11	3.9%
TOTAL	284	100.0%

REAL ESTATE PERFORMANCE AND EVALUATION - PART4

	FREQUENCY	PERCENT
PAY BACK PERIOD		
NO ANSWER	172	60.6%
YES	49	17.3%
2	51	18.0%
3	9	3.2%
4	2	.7%
6	1	.4%
TOTAL	284	100.0%

NET PRESENT VALUE (BEFORE TAX)		
NO ANSWER	206	72.5%
YES	48	16.9%
2	21	7.4%
3	5	1.8%
4	2	.7%
5	1	.4%
6	1	.4%
TOTAL	284	100.0%

NET PRESENT VALUE (AFTER TAX)		
NO ANSWER	179	63.0%
YES	65	22.9%
2	35	12.3%
3	2	.7%
4	1	.4%
5	1	.4%
6	1	.4%
TOTAL	284	100.0%

RATE OF RETURN ON INVESTMENT		
NO ANSWER	112	39.4%
YES	134	47.2%
2	37	13.0%
3	1	.4%
TOTAL	284	100.0%

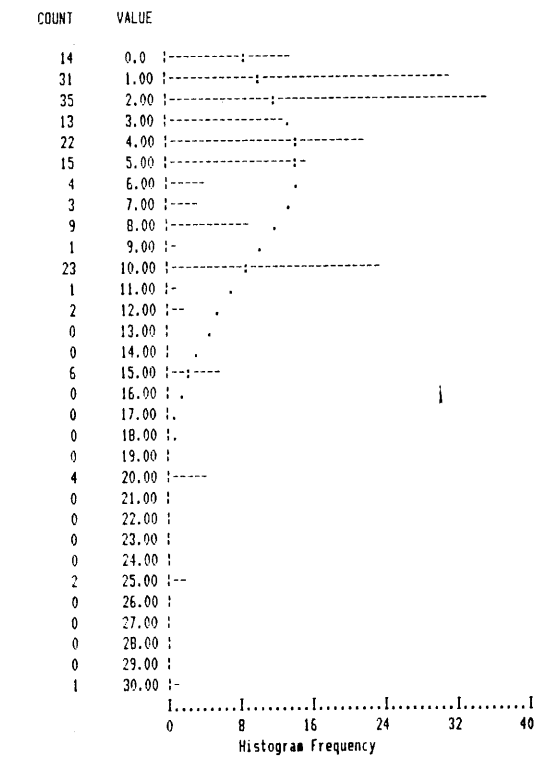
RETURN ON ASSETS		
NO ANSWER	215	75.7%
YES	29	10.2%
2	33	11.6%
3	4	1.4%
4	3	1.1%
TOTAL	284	100.0%

RETURN ON NET ASSETS		
NO ANSWER	239	84.2%
YES	17	6.0%
2	22	7.7%
3	4	1.4%
5	2	.7%
TOTAL	284	100.0%

RETURN COMPARED W/ FIRMS OVERALL RETURN		
NO ANSWER	51	18.0%
RE RETURNS HIGHER	59	20.8%
RE RETURNS SAME	20	7.0%
RE RETURNS LOWER	33	11.6%
DO NOT CALCULATE RE RETURNS	121	42.6%
TOTAL	284	100.0%

HOURS1 HRS/WEEK:LEASE NEGOTIATION

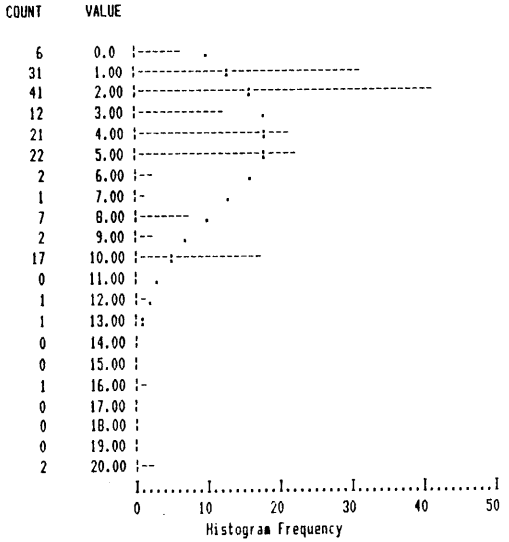
Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	14	4.9	7.5	7.5
	1	31	10.9	16.7	24.2
	2	35	12.3	18.8	43.0
	3	13	4.6	7.0	50.0
	4	22	7.7	11.8	61.8
	5	15	5.3	8.1	69.9
	6	4	1.4	2.2	72.0
	7	3	1.1	1.6	73.7
	8	9	3.2	4.8	78.5
	9	1	.4	.5	79.0
	10	23	8.1	12.4	91.4
	11	1	.4	.5	91.9
	12	2	.7	1.1	93.0
	15	6	2.1	3.2	96.2
	20	4	1.4	2.2	98.4
	25	2	.7	1.1	99.5
	30	1	.4	.5	100.0
	.	98	34.5	MISSING	
	TOTAL	284	100.0	100.0	



Mean 5.075 Std Dev 5.189 Minimum 0.0
Maximum 30.000

HOURS2 HRS/WEEK:PROJECT REVIEW OF NEW CONS/DEV

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	6	2.1	3.6	3.6
	1	31	10.9	18.6	22.2
	2	41	14.4	24.6	46.7
	3	12	4.2	7.2	53.9
	4	21	7.4	12.6	66.5
	5	22	7.7	13.2	79.6
	6	2	.7	1.2	80.8
	7	1	.4	.6	81.4
	8	7	2.5	4.2	85.6
	9	2	.7	1.2	86.8
	10	17	6.0	10.2	97.0
	12	1	.4	.6	97.6
	13	1	.4	.6	98.2
	16	1	.4	.6	98.8
	20	2	.7	1.2	100.0
	.	117	41.2	MISSING	
	. TOTAL	284	100.0	100.0	

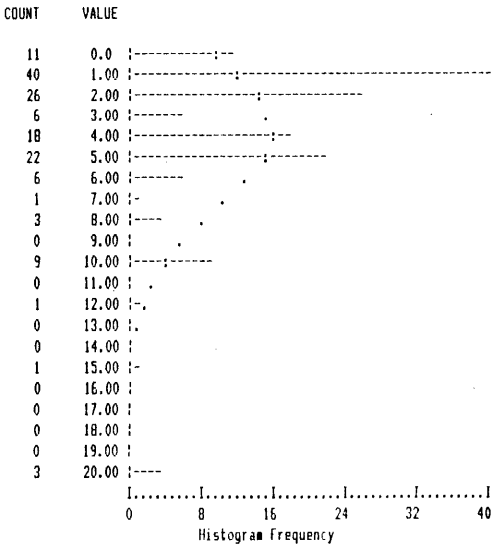


Mean 4.114 Std Dev 3.610 Minimum 0.0
Maximum 20.000

Valid Cases 167 Missing Cases 117

HOURS3 HRS/WEEK:REVIEW REAL ESTATE INVSESTMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	11	3.9	7.5	7.5
	1	40	14.1	27.2	34.7
	2	26	9.2	17.7	52.4
	3	6	2.1	4.1	56.5
	4	18	6.3	12.2	68.7
	5	22	7.7	15.0	83.7
	6	6	2.1	4.1	87.8
	7	1	.4	.7	88.4
	8	3	1.1	2.0	90.5
	10	9	3.2	6.1	96.6
	12	1	.4	.7	97.3
	15	1	.4	.7	98.0
	20	3	1.1	2.0	100.0
	.	137	48.2	MISSING	
	TOTAL	284	100.0	100.0	



Mean 3.646 Std Dev 3.708 Minimum 0.0
Maximum 20.000

Valid Cases 147 Missing Cases 137

HOURS4 HRS/WEEK:SITE SELECTION AND ACQUISITION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	4	1.4	2.3	2.3
	1	40	14.1	23.4	25.7
	2	30	10.6	17.5	43.3
	3	13	4.6	7.6	50.9
	4	17	6.0	9.9	60.8
	5	23	8.1	13.5	74.3
	6	2	.7	1.2	75.4
	7	2	.7	1.2	76.6
	8	5	1.8	2.9	79.5
	10	19	6.7	11.1	90.6
	12	2	.7	1.2	91.8
	15	6	2.1	3.5	95.3
	16	1	.4	.6	95.9
	18	1	.4	.6	96.5
	20	3	1.1	1.8	98.2
	30	2	.7	1.2	99.4
	50	1	.4	.6	100.0
	.	113	39.8	MISSING	
	TOTAL	284	100.0	100.0	

COUNT	VALUE
4	0.0
40	1.00
30	2.00
13	3.00
17	4.00
23	5.00
2	6.00
2	7.00
5	8.00
0	9.00
19	10.00
0	11.00
2	12.00
0	13.00
0	14.00
6	15.00
1	16.00
0	17.00
1	18.00
0	19.00
3	20.00
0	21.00
0	22.00
0	23.00
0	24.00
0	25.00
0	26.00
0	27.00
0	28.00
0	29.00
2	30.00
0	31.00
0	32.00
0	33.00
0	34.00
0	35.00
0	36.00
0	37.00
0	38.00
0	39.00
0	40.00
0	41.00
0	42.00
0	43.00
0	44.00
0	45.00
0	46.00
0	47.00
0	48.00
0	49.00
1	50.00

0 8 16 24 32 40

Histogram Frequency

Mean 5.240 Std Dev 6.201 Minimum 0.0
Maximum 50.000

Valid Cases 171 Missing Cases 113

HOURS5 HRS/WEEK:DISPOSITION OF SURPLUS PROPERTY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	12	4.2	7.2	7.2
	1	54	19.0	32.3	39.5
	2	31	10.9	18.6	58.1
	3	12	4.2	7.2	65.3
	4	10	3.5	6.0	71.3
	5	12	4.2	7.2	78.4
	6	1	.4	.6	79.0
	7	2	.7	1.2	80.2
	8	4	1.4	2.4	82.6
	10	10	3.5	6.0	88.6
	12	4	1.4	2.4	91.0
	15	5	1.8	3.0	94.0
	16	2	.7	1.2	95.2
	17	1	.4	.6	95.8
	20	5	1.8	3.0	98.8
	24	1	.4	.6	99.4
	30	1	.4	.6	100.0
	.	117	41.2	MISSING	
	TOTAL	284	100.0	100.0	

COUNT	VALUE
12	0.0
54	1.00
31	2.00
12	3.00
10	4.00
12	5.00
1	6.00
2	7.00
4	8.00
0	9.00
10	10.00
0	11.00
4	12.00
0	13.00
0	14.00
5	15.00
2	16.00
1	17.00
0	18.00
0	19.00
5	20.00
0	21.00
0	22.00
0	23.00
1	24.00
0	25.00
0	26.00
0	27.00
0	28.00
0	29.00
1	30.00

0 12 24 36 48 60

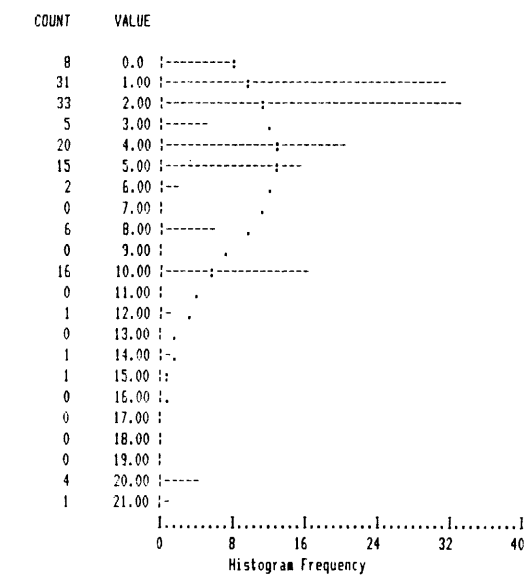
Histogram Frequency

Mean 4.371 Std Dev 5.446 Minimum 0.0
Maximum 30.000

Valid Cases 167 Missing Cases 117

HOURS6 HRS/WEEK:FACILITY MANAGEMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	8	2.8	5.6	5.6
	1	31	10.9	21.5	27.1
	2	33	11.6	22.9	50.0
	3	5	1.8	3.5	53.5
	4	20	7.0	13.9	67.4
	5	15	5.3	10.4	77.8
	6	2	.7	1.4	79.2
	8	6	2.1	4.2	83.3
	10	16	5.6	11.1	94.4
	12	1	.4	.7	95.1
	14	1	.4	.7	95.8
	15	1	.4	.7	96.5
	20	4	1.4	2.8	99.3
	21	1	.4	.7	100.0
	.	140	49.3	MISSING	
	TOTAL	284	100.0	100.0	

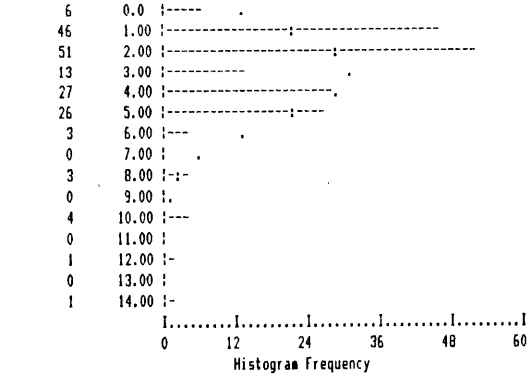


Mean 4.368 Std Dev 4.439 Minimum 0.0
Maximum 21.000

Valid Cases 144 Missing Cases 140

HOURS7 HRS/WEEK:LEGAL ISSUES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	6	2.1	3.3	3.3
	1	46	16.2	25.4	28.7
	2	51	18.0	28.2	56.9
	3	13	4.6	7.2	64.1
	4	27	9.5	14.9	79.0
	5	26	9.2	14.4	93.4
	6	3	1.1	1.7	95.0
	8	3	1.1	1.7	96.7
	10	4	1.4	2.2	98.9
	12	1	.4	.6	99.4
	14	1	.4	.6	100.0
	.	103	36.3	MISSING	
	TOTAL	284	100.0	100.0	

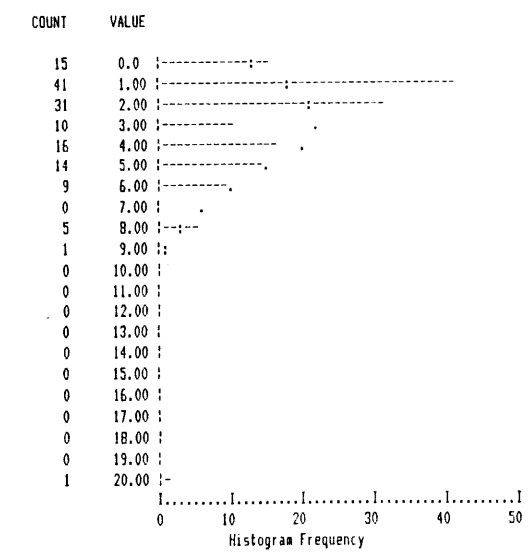


Mean 2.945 Std Dev 2.260 Minimum 0.0
Maximum 14.000

Valid Cases 181 Missing Cases 103

HOURS8 HRS/WEEK:PLANNING FUTURE SPACE NEEDS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	15	5.3	10.5	10.5
	1	41	14.4	28.7	39.2
	2	31	10.9	21.7	60.8
	3	10	3.5	7.0	67.8
	4	16	5.6	11.2	79.0
	5	14	4.9	9.8	88.8
	6	9	3.2	6.3	95.1
	8	5	1.8	3.5	98.6
	9	1	.4	.7	99.3
	20	1	.4	.7	100.0
	.	141	49.6	MISSING	
	TOTAL	284	100.0	100.0	

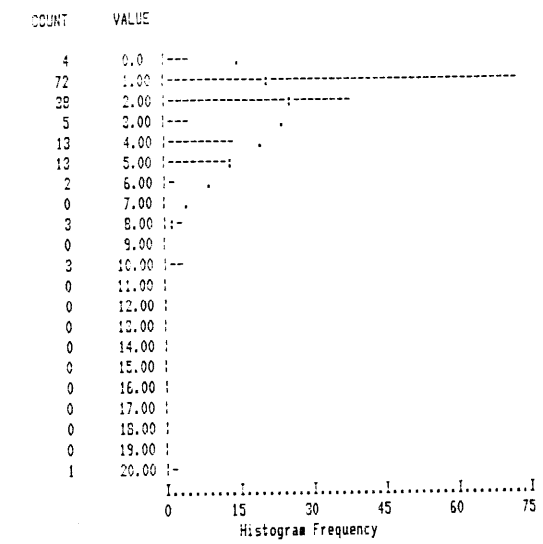


Mean 2.727 Std Dev 2.549 Minimum 0.0
Maximum 20.000

Valid Cases 143 Missing Cases 141

HOURS9 HRS/WEEK:PREPARE CAPITAL BUDGETS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	4	1.4	2.6	2.6
	1	72	25.4	46.8	49.4
	2	38	13.4	24.7	74.0
	3	5	1.8	3.2	77.3
	4	13	4.6	8.4	85.7
	5	13	4.6	8.4	94.2
	6	2	.7	1.3	95.5
	8	3	1.1	1.9	97.4
	10	3	1.1	1.9	99.4
	20	1	.4	.6	100.0
	.	130	45.8	MISSING	
	TOTAL	284	100.0	100.0	

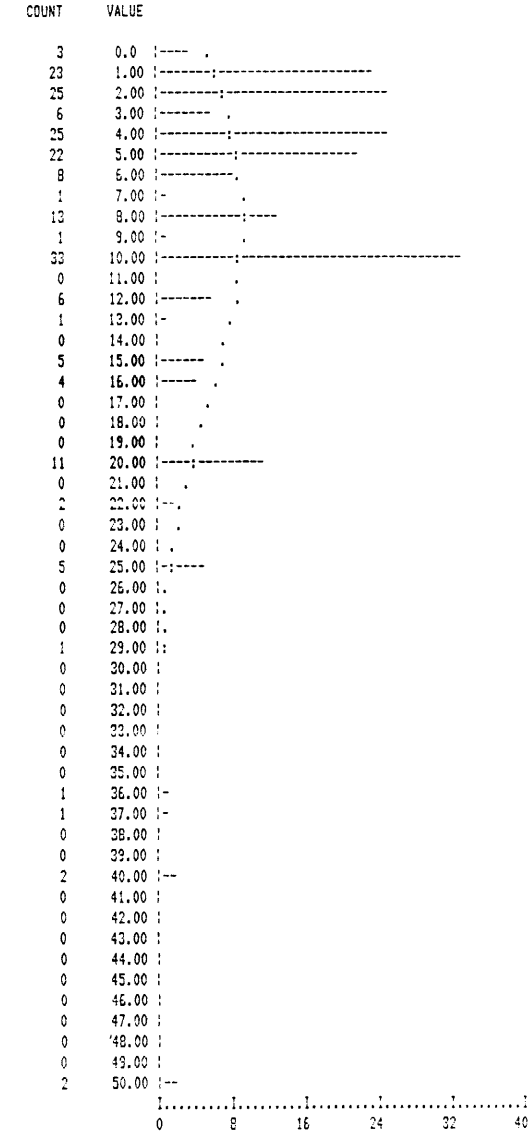


Mean	2.377	Std Dev	2.420	Minimum	0.0
Maximum	20.000				

Valid Cases 154 Missing Cases 130

HOURS10 HRS/WEEK:ADMINISTER REAL ESTATE DEPT

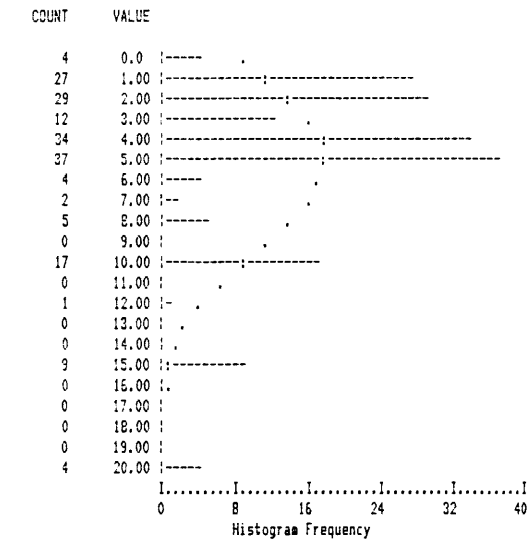
Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	3	1.1	1.5	1.5
	1	22	8.1	11.4	12.9
	2	25	9.8	12.4	25.4
	3	6	2.1	3.0	28.4
	4	25	8.8	12.4	40.8
	5	22	7.7	10.9	51.7
	6	8	2.8	4.0	55.7
	7	1	.4	.5	56.2
	8	13	4.6	6.5	62.7
	9	1	.4	.5	63.2
	10	33	11.6	16.4	79.6
	12	6	2.1	3.0	82.6
	13	1	.4	.5	83.1
	15	5	1.8	2.5	85.6
	16	4	1.4	2.0	87.6
	20	11	3.9	5.5	93.0
	22	2	.7	1.0	94.0
	25	5	1.8	2.5	96.5
	29	1	.4	.5	97.0
	36	1	.4	.5	97.5
	37	1	.4	.5	98.0
	40	2	.7	1.0	99.0
	50	2	.7	1.0	100.0
	.	83	29.2	MISSING	
	TOTAL	284	100.0	100.0	



Mean	8.428	Std Dev	8.597	Minimum	0.0
Maximum	50.000				

HOURS11 HRS/WEEK:LIASON W/OTHER DEPARTMENTS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	4	1.4	2.2	2.2
	1	27	9.5	14.6	16.8
	2	29	10.2	15.7	32.4
	3	12	4.2	6.5	38.9
	4	34	12.0	18.4	57.3
	5	37	13.0	20.0	77.3
	6	4	1.4	2.2	79.5
	7	2	.7	1.1	80.5
	8	5	1.8	2.7	83.2
	10	17	6.0	9.2	92.4
	12	1	.4	.5	93.0
	15	9	3.2	4.9	97.8
	20	4	1.4	2.2	100.0
	.	99	34.9	MISSING	
	TOTAL	284	100.0	100.0	

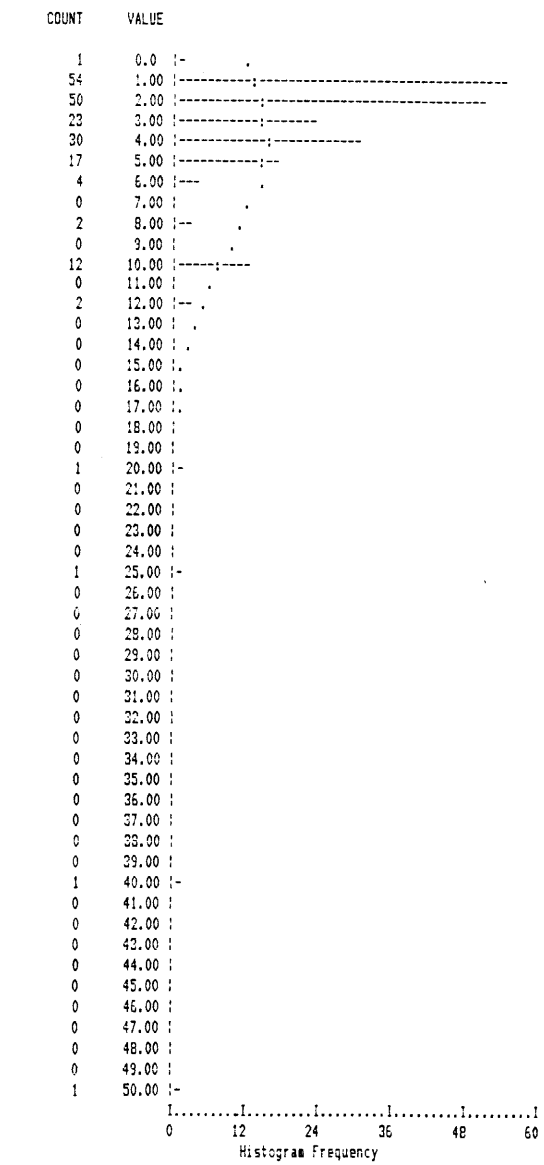


Mean 4.957 Std Dev 4.174 Minimum 0.0
Maximum 20.000

Valid Cases 185 Missing Cases 99

HOURS12 HRS/WEEK:REPORTING TO SENIOR MANGEMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	1	.4	.5	.5
	1	54	19.0	27.1	27.6
	2	50	17.6	25.1	52.8
	3	23	8.1	11.6	64.3
	4	30	10.6	15.1	79.4
	5	17	6.0	8.5	87.9
	6	4	1.4	2.0	89.9
	8	2	.7	1.0	91.0
	10	12	4.2	6.0	97.0
	12	2	.7	1.0	98.0
	20	1	.4	.5	98.5
	25	1	.4	.5	99.0
	40	1	.4	.5	99.5
	50	1	.4	.5	100.0
	.	85	29.9	MISSING	
	TOTAL	284	100.0	100.0	

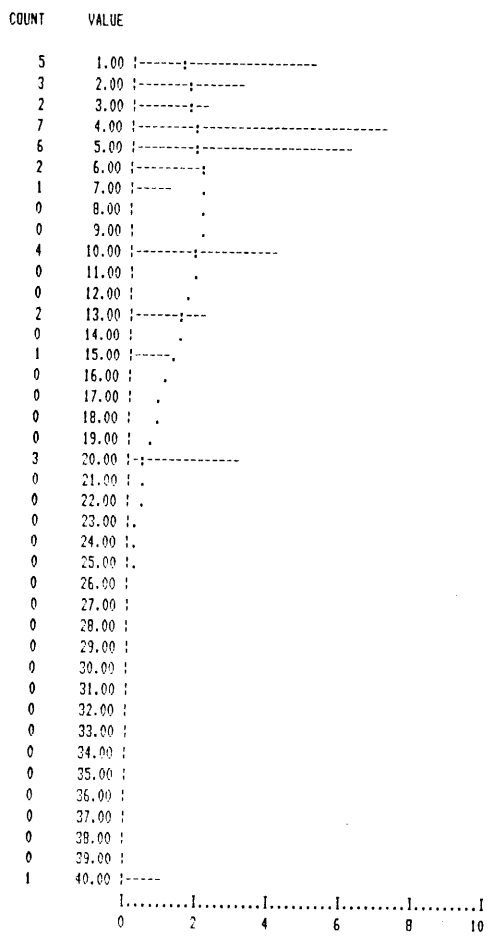


Mean 3.754 Std Dev 5.245 Minimum 0.0
Maximum 50.000

Valid Cases 199 Missing Cases 85

HOURS13 HRS/WEEK:OTHER

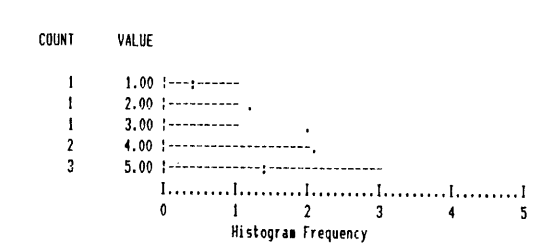
Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	5	1.8	13.5	13.5
	2	3	1.1	8.1	21.6
	3	2	.7	5.4	27.0
	4	7	2.5	18.9	45.9
	5	6	2.1	16.2	62.2
	6	2	.7	5.4	67.6
	7	1	.4	2.7	70.3
	10	4	1.4	10.8	81.1
	13	2	.7	5.4	86.5
	15	1	.4	2.7	89.2
	20	3	1.1	8.1	97.3
	40	1	.4	2.7	100.0
	.	247	87.0	MISSING	
	TOTAL	284	100.0	100.0	



Mean 7.432 Std Dev 7.705 Minimum 1.000
Maximum 40.000

HOURS14 HRS/WEEK:OTHER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	1	.4	12.5	12.5
	2	1	.4	12.5	25.0
	3	1	.4	12.5	37.5
	4	2	.7	25.0	62.5
	5	3	1.1	37.5	100.0
	.	276	97.2	MISSING	
	TOTAL	284	100.0	100.0	

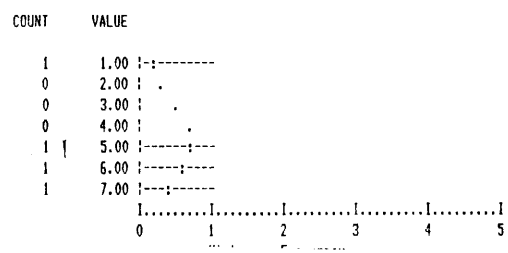


Mean 3.625 Std Dev 1.506 Minimum 1.000
Maximum 5.000

Valid Cases 8 Missing Cases 276

HOURS15 HRS/WEEK:OTHER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	1	.4	25.0	25.0
	5	1	.4	25.0	50.0
	6	1	.4	25.0	75.0
	7	1	.4	25.0	100.0
	.	280	98.6	MISSING	
	TOTAL	284	100.0	100.0	



TOTAL HOURS PER WEEK

Value	Frequency	Percent	Valid Percent	Cum Percent
0.0	56	18.9	18.9	18.9
1.00	3	1.0	1.0	19.9
2.00	2	.7	.7	20.5
4.00	4	1.3	1.3	21.9
5.00	3	1.0	1.0	22.9
6.00	1	.3	.3	23.2
7.00	2	.7	.7	23.9
10.00	2	.7	.7	24.6
11.00	1	.3	.3	24.9
12.00	1	.3	.3	25.3
13.00	3	1.0	1.0	26.3
15.00	1	.3	.3	26.6
16.00	3	1.0	1.0	27.6
17.00	1	.3	.3	27.9
20.00	6	2.0	2.0	30.0
22.00	1	.3	.3	30.3
23.00	1	.3	.3	30.6
24.00	1	.3	.3	31.0
25.00	1	.3	.3	31.3
26.00	3	1.0	1.0	32.3
27.00	1	.3	.3	32.7
28.00	1	.3	.3	33.0
29.00	1	.3	.3	33.3
30.00	3	1.0	1.0	34.3
32.00	2	.7	.7	35.0
33.00	1	.3	.3	35.4
34.00	7	2.4	2.4	37.7
35.00	3	1.0	1.0	38.7
36.00	5	1.7	1.7	40.4
37.00	2	.7	.7	41.1
38.00	4	1.3	1.3	42.4
39.00	2	.7	.7	43.1
40.00	57	19.2	19.2	62.3
41.00	9	3.0	3.0	65.3
42.00	5	1.7	1.7	67.0
43.00	7	2.4	2.4	69.4
44.00	6	2.0	2.0	71.4
45.00	10	3.4	3.4	74.7
46.00	5	1.7	1.7	76.4
47.00	4	1.3	1.3	77.8
48.00	7	2.4	2.4	80.1
49.00	5	1.7	1.7	81.8
50.00	10	3.4	3.4	85.2
51.00	3	1.0	1.0	86.2
52.00	5	1.7	1.7	87.9
53.00	2	.7	.7	88.6
54.00	5	1.7	1.7	90.2
55.00	2	.7	.7	90.9
56.00	6	2.0	2.0	92.9
57.00	1	.3	.3	93.3
59.00	1	.3	.3	93.6
60.00	5	1.7	1.7	95.3
61.00	1	.3	.3	95.6
62.00	2	.7	.7	96.3
64.00	1	.3	.3	96.6
65.00	1	.3	.3	97.0
66.00	1	.3	.3	97.3
69.00	1	.3	.3	97.6
100.00	5	1.7	1.7	99.3
107.00	1	.3	.3	99.7
160.00	1	.3	.3	100.0
TOTAL	297	100.0	100.0	

Count	Midpoint	
0	-3.25	¦
59	.08	¦----------
9	3.41	¦------
3	6.74	¦--
3	10.07	¦--
5	13.40	¦---
4	16.73	¦---
6	20.06	¦----
4	23.39	¦---
5	26.72	¦---
4	30.05	¦---
13	33.38	¦---------
11	36.71	¦-------
68	40.04	¦----------
28	43.37	¦--------------------
16	46.70	¦----------
18	50.03	¦----------
14	53.36	¦---------
7	56.69	¦-----
7	60.02	¦-----
4	63.35	¦---
1	66.68	¦-
1	70.01	¦-
0	73.34	¦
0	76.67	¦
0	80.00	¦
0	83.33	¦
0	86.66	¦
0	89.99	¦
0	93.32	¦
0	96.65	¦
5	99.98	¦---
0	103.31	¦
1	106.64	¦-
0	109.97	¦
0	113.30	¦
0	116.63	¦
0	119.96	¦
0	123.29	¦
0	126.62	¦
0	129.95	¦
0	133.28	¦
0	136.61	¦
0	139.94	¦
0	143.27	¦
0	146.60	¦
0	149.93	¦
0	153.26	¦
0	156.59	¦
1	159.92	¦-
0	163.25	¦

I....+....I....+....I....+....I....+....I....+....I
0 15 30 45 60 75
Histogram Frequency

Mean 33.165 Std Dev 23.251 Minimum 0.0
Maximum 160.000

Valid Cases 297 Missing Cases 0

REAL PROPERTY DECISION MAKING - PART1

	FREQUENCY	PERCENT
DECISION BASIS:INVSESTMENT POTENTIAL		
NO ANSWER	116	40.8%
PRIMARY	92	32.4%
SECONDARY	50	17.6%
THIRD	8	2.8%
FOURTH	13	4.6%
FIFTH	5	1.8%
TOTAL	284	100.0%
DECISION BASIS:OCCUPANCY COST		
NO ANSWER	86	30.3%
PRIMARY	100	35.2%
SECONDARY	81	28.5%
THIRD	13	4.6%
FOURTH	2	.7%
FIFTH	1	.4%
6	1	.4%
TOTAL	284	100.0%
DECISION BASIS:OPERATIONAL FACTORS		
NO ANSWER	56	19.7%
PRIMARY	164	57.7%
SECONDARY	55	19.4%
THIRD	8	2.8%
FOURTH	1	.4%
TOTAL	284	100.0%
DECISION BASIS:SITUATIONAL FACTORS		
NO ANSWER	114	40.1%
PRIMARY	34	12.0%
SECONDARY	103	36.3%
THIRD	21	7.4%
FOURTH	10	3.5%
FIFTH	2	.7%
TOTAL	284	100.0%
DECISION BASIS:OTHER FACTORS		
NO ANSWER	179	63.0%
PRIMARY	16	5.6%
SECONDARY	62	21.8%
THIRD	6	2.1%
FOURTH	7	2.5%
FIFTH	14	4.9%
TOTAL	284	100.0%

TIME HORIZON: 1-2 YEARS		
NO ANSWER	67	23.6%
OFTEN	89	31.3%
SOMETIMES	48	16.9%
SELDOM	35	12.3%
NEVER	45	15.8%
TOTAL	284	100.0%
TIME HORIZON: 2-5 YEARS		
NO ANSWER	54	19.0%
OFTEN	99	34.9%
SOMETIMES	85	29.9%
SELDOM	28	9.9%
NEVER	18	6.3%
TOTAL	284	100.0%
TIME HORIZON: 5-10 YEARS		
NO ANSWER	50	17.6%
OFTEN	99	34.9%
SOMETIMES	78	27.5%
SELDOM	44	15.5%
NEVER	13	4.6%
TOTAL	284	100.0%
TIME HORIZON: 10-15 YEARS		
NO ANSWER	67	23.6%
OFTEN	43	15.1%
SOMETIMES	70	24.6%
SELDOM	57	20.1%
NEVER	47	16.5%
TOTAL	284	100.0%
TIME HORIZON: 15-25 YEARS		
NO ANSWER	75	26.4%
OFTEN	27	9.5%
SOMETIMES	39	13.7%
SELDOM	63	22.2%
NEVER	80	28.2%
TOTAL	284	100.0%
TIME HORIZON: 25-50 YEARS		
NO ANSWER	81	28.5%
OFTEN	10	3.5%
SOMETIMES	17	6.0%
SELDOM	46	16.2%
NEVER	130	45.8%
TOTAL	284	100.0%
TIME HORIZON: OTHER		
NO ANSWER	233	82.0%
SELDOM	3	1.1%
NEVER	48	16.9%
TOTAL	284	100.0%

COMPUTER USE:INVESTMENT ANALYSIS		
NO ANSWER	16	5.6%
OFTEN	142	50.0%
SOMETIMES	46	16.2%
SELDOM	21	7.4%
NEVER	59	20.8%
TOTAL	284	100.0%
COMPUTER USE:FACILITY MANAGEMENT (CAD)		
NO ANSWER	47	16.5%
OFTEN	73	25.7%
SOMETIMES	38	13.4%
SELDOM	32	11.3%
NEVER	94	33.1%
TOTAL	284	100.0%
COMPUTER USE:DRAFTING/DESIGN (CAD)		
NO ANSWER	44	15.5%
OFTEN	82	28.9%
SOMETIMES	42	14.8%
SELDOM	27	9.5%
NEVER	89	31.3%
TOTAL	284	100.0%
COMPUTER USE:PROJECT MANAGEMENT		
NO ANSWER	38	13.4%
OFTEN	83	29.2%
SOMETIMES	71	25.0%
SELDOM	21	7.4%
NEVER	71	25.0%
TOTAL	284	100.0%
COMPUTER USE:MAINTENANCE MANAGEMENT		
NO ANSWER	47	16.5%
OFTEN	70	24.6%
SOMETIMES	55	19.4%
SELDOM	36	12.7%
NEVER	76	26.8%
TOTAL	284	100.0%
COMPUTER USE:REAL ESTATE INVENTORY		
NO ANSWER	15	5.3%
OFTEN	151	53.2%
SOMETIMES	60	21.1%
SELDOM	15	5.3%
NEVER	43	15.1%
TOTAL	284	100.0%
COMPUTER USE:OTHER		
NO ANSWER	254	89.4%
OFTEN	8	2.8%
SOMETIMES	3	1.1%
SELDOM	1	.4%
NEVER	18	6.3%
TOTAL	284	100.0%

REAL PROPERTY DECISION MAKING - PART3

	FREQUENCY	PERCENT
SYSTEM INPLACE:UTILIZATION STUDY		
NO ANSWER	16	5.6%
YES	196	69.0%
NO	72	25.4%
TOTAL	284	100.0%
SYSTEM INPLACE:LEASE DATES/COMMITMENTS		
NO ANSWER	12	4.2%
YES	249	87.7%
NO	23	8.1%
TOTAL	284	100.0%
SYSTEM INPLACE:IDENTIFY SURPLUS PROPERTIES		
NO ANSWER	13	4.6%
YES	196	69.0%
NO	75	26.4%
TOTAL	284	100.0%
SYSTEM INPLACE:TRACKING COST/SQFT		
NO ANSWER	18	6.3%
YES	161	56.7%
NO	105	37.0%
TOTAL	284	100.0%
SYSTEM INPLACE:IDENTIFY CHANGE IN MKT VALUE		
NO ANSWER	23	8.1%
YES	85	29.9%
NO	176	62.0%
TOTAL	284	100.0%
SYSTEM INPLACE:IDENTIFY IMPROVED FINANCING		
NO ANSWER	29	10.2%
YES	72	25.4%
NO	183	64.4%
TOTAL	284	100.0%
SYSTEM INPLACE:PHYSICAL CONDITION		
NO ANSWER	25	8.8%
YES	156	54.9%
NO	103	36.3%
TOTAL	284	100.0%
TOP MANAGEMENT REVIEW		
NO ANSWER	9	3.2%
NO	57	20.1%
YES (QUARTERLY)	48	16.9%
YES (SEMI-ANNUALLY)	10	3.5%
YES (ANNUALLY)	25	8.8%
YES (AS NECESSARY	135	47.5%
TOTAL	284	100.0%
PRESIDENT/CEO INVOLVEMENT		
NO ANSWER	6	2.1%
OFTEN	128	45.1%
SOMETIMES	82	28.9%
SELDOM	65	22.9%
NEVER	3	1.1%
TOTAL	284	100.0%
PRESIDENT ON FINAL RE DECISIONS		
NO ANSWER	192	67.6%
YES	92	32.4%
TOTAL	284	100.0%
TREASURER ON FINAL RE DECISIONS		
NO ANSWER	177	62.3%
YES	107	37.7%
TOTAL	284	100.0%
LINE UNIT ON FINAL RE DECISIONS		
NO ANSWER	268	94.4%
YES	16	5.6%
TOTAL	284	100.0%
RE UNIT ON FINAL RE DECISIONS		
NO ANSWER	240	84.5%
YES	44	15.5%
TOTAL	284	100.0%
OTHER ON FINAL RE DECISIONS		
NO ANSWER	211	74.3%
YES	73	25.7%
TOTAL	284	100.0%

REAL PROPERTY DECISION MAKING - PART4

	FREQUENCY	PERCENT
PROCEDURES FOR PROP ACQUISITION		
NO ANSWER	25	8.8%
AS NECESSARY	93	32.7%
GENERAL POLICIES & PROCEDURES	116	40.8%
STANDARDS/FORMULAS/THRES HOLDS	36	12.7%
DISCRETION OF LINE UNIT.	14	4.9%
TOTAL	284	100.0%
PROCEDURES FOR PROP DISPOSITION		
NO ANSWER	27	9.5%
AS NECESSARY	110	38.7%
GENERAL POLICIES & PROCEDURES	114	40.1%
STANDARDS/FORMULAS/THRES HOLDS	17	5.0%
DISCRETION OF LINE UNIT.	16	5.6%
TOTAL	284	100.0%
PROCEDURES FOR DEV. PROJECTS		
NO ANSWER	56	19.8%
AS NECESSARY	101	35.7%
GENERAL POLICIES & PROCEDURES	72	25.4%
STANDARDS/FORMULAS/THRES HOLDS	37	13.1%
DISCRETION OF LINE UNIT.	17	6.0%
TOTAL	283	100.0%
PROCEDURES FOR LEASING COMMITMENTS		
NO ANSWER	31	10.9%
AS NECESSARY	59	20.8%
GENERAL POLICIES & PROCEDURES	135	47.5%
STANDARDS/FORMULAS/THRES HOLDS	37	13.0%
DISCRETION OF LINE UNIT.	22	7.7%
TOTAL	284	100.0%
PROCEDURES FOR SPACE PLANNING/ALLOCATION		
NO ANSWER	38	13.4%
AS NECESSARY	73	25.7%
GENERAL POLICIES & PROCEDURES	96	33.8%
STANDARDS/FORMULAS/THRES HOLDS	47	16.5%
DISCRETION OF LINE UNIT.	30	10.6%
TOTAL	284	100.0%
PROCEDURES FOR PREVENTIVE MAINTENANCE		
NO ANSWER	40	14.1%
AS NECESSARY	60	21.1%
GENERAL POLICIES & PROCEDURES	99	34.9%
STANDARDS/FORMULAS/THRES HOLDS	34	12.0%
DISCRETION OF LINE UNIT.	51	18.0%
TOTAL	284	100.0%
PROCEDURES FOR CAPITAL BUDGETING		
NO ANSWER	33	11.6%
AS NECESSARY	39	13.7%
GENERAL POLICIES & PROCEDURES	154	54.2%
STANDARDS/FORMULAS/THRES HOLDS	40	14.1%
DISCRETION OF LINE UNIT.	18	6.3%
TOTAL	284	100.0%
PROCEDURES FOR ENERGY USE		
NO ANSWER	50	17.6%
AS NECESSARY	68	23.9%
GENERAL POLICIES & PROCEDURES	71	25.0%
STANDARDS/FORMULAS/THRES HOLDS	33	11.6%
DISCRETION OF LINE UNIT.	62	21.8%
PROCEDURES FOR OVERHED ACCOUNTING (SPACE)		
NO ANSWER	53	18.7%
AS NECESSARY	65	22.9%
GENERAL POLICIES & PROCEDURES	103	36.3%
STANDARDS/FORMULAS/THRES HOLDS	31	10.9%
DISCRETION OF LINE UNIT.	32	11.3%
TOTAL	284	100.0%
UNCERTAINTY REDUCES MY CAPACITY TO MANAGE RE		
.....	8	2.8%
STRONLY AGREE	27	9.5%
MOSTLY AGREE	71	25.0%
MOSTLY DISAGREE	101	35.6%
STRONGLY DISAGREE	61	21.5%
NO COMMENT	16	5.6%
TOTAL	284	100.0%
DIVERSIFYING RE REDUCES RISK		
.....	9	3.2%
STRONLY AGREE	51	18.0%
MOSTLY AGREE	132	46.5%
MOSTLY DISAGREE	35	12.3%
STRONGLY DISAGREE	6	2.1%
NO COMMENT	51	18.0%
TOTAL	284	100.0%
HAVE EXPOSURE TO CORP STRATEGIC PLANS		
.....	7	2.5%
STRONLY AGREE	97	34.2%
MOSTLY AGREE	114	40.1%
MOSTLY DISAGREE	38	13.4%
STRONGLY DISAGREE	18	6.3%
NO COMMENT	10	3.5%
TOTAL	284	100.0%
FUTURE FLEXIBILITY TOP PRIORITY		
.....	7	2.5%
STRONLY AGREE	103	36.3%
MOSTLY AGREE	108	38.0%
MOSTLY DISAGREE	39	13.7%
STRONGLY DISAGREE	12	4.2%
NO COMMENT	15	5.3%
TOTAL	284	100.0%
INSUFFICIENT INFO TO EVALUATE BUILDINGS		
.....	8	2.8%
STRONLY AGREE	19	6.7%
MOSTLY AGREE	67	23.6%
MOSTLY DISAGREE	84	29.6%
STRONGLY DISAGREE	89	31.3%
NO COMMENT	17	6.0%
TOTAL	284	100.0%
RE PLAYS A CRITICAL ROLE IN MY ORG		
.....	6	2.1%
STRONLY AGREE	85	29.9%
MOSTLY AGREE	93	32.7%
MOSTLY DISAGREE	58	20.4%
STRONGLY DISAGREE	29	10.2%
NO COMMENT	13	4.6%
TOTAL	284	100.0%
RE RESPONSIBILITY TOO FAR DOWN IN MY ORG		
.....	6	2.1%
STRONLY AGREE	10	3.5%
MOSTLY AGREE	26	9.2%
MOSTLY DISAGREE	77	27.1%
STRONGLY DISAGREE	157	55.3%
NO COMMENT	8	2.8%
TOTAL	284	100.0%

APPENDIX C: ABSTRACT OF HARVARD REAL ESTATE INC. STUDY

ABSTRACT OF FINDINGS -- HARVARD REAL ESTATE SURVEY

A survey conducted by Harvard Real Estate, Inc. of corporate America's approach to managing its multi-billion dollar real property holdings indicates that, while many companies have created real estate offices and given them a number of responsibilities, few have chosen to treat real estate as an independent asset. One out of five American companies lacks the property inventory that would tell senior management what it owns or leases. Most firms do not have a separate real property management information system. As a result, few firms have developed the information base needed for setting informed policies, suggesting that important real estate decisions are made in a data vacuum, or not made at all.

Corporate real estate, the buildings and land owned by companies that are not primarily in the real estate business, typically accounts for 25 percent or more of a firm's total assets. Despite this enormous value, it remains an undermanaged asset. Just 40 percent of American firms clearly and consistently evaluate the performance of their real estate. The method of evaluation, or lack of it, is unrelated to a company's structure, and is probably explained by the mixture of personalities, strategies, and management styles. One out of five American corporations manages its real estate for profit, aiming to match or exceed the rate of return it could achieve through alternative investments. These more aggressive firms are structurally similar to passive companies, suggesting once again that the combination of people and opportunities is the critical factor in determining whether a profit orientation is chosen.

In sum, the survey shows that professional real estate organizations are prevalent in corporate America, but diagnostic tools for guiding and evaluating real estate performance are not. Only when this situation is corrected can senior

management make truly effective corporate use of its real property assets. The basic elements of a real property asset management program are (1) an up-to-date inventory of buildings and land (2) a management information system that tracks real estate income and expense property by property, separately from non-real-estate income and expense and (3) a system for assessing at fair market value all space, including that occupied by internal departments. In the 1980s a need for investment capital and a growing awareness among board members, external financial analysts, and stockholders of the true value of corporate real estate will require senior executives to manage real property assets as effectively as any other company asset.