

# New Ranking of Decision-Making Subject Areas for Corporate Real Estate Executives

---

Author Donald R. Epley

---

**Abstract** This study is among the first to uncover specific concepts and skills critical to the general corporate real estate executive. The research targeted a broad range of U.S. and international corporate real estate executives in positions to know the requirements for their assignment. The results rank the three most important current subject areas critical to corporate real estate decision making as *real estate market interpretation, general tools of analysis as opposed to specific tools and relationships with other personnel and the public*. An additional area, lease analysis, was also found to be a part of the required concepts and skills.

---

## Introduction

The knowledge and skills used by corporate real estate executives (CREs) in decisions regarding corporate real estate property assets are being investigated continually to uncover areas of emphasis and potential gaps in knowledge. These discoveries can be used to develop specific tools to support critical analysis, and to assemble a focused body of knowledge to improve the current level of decision making.

This study identifies the ranking of selected concepts and skills used by a nonrandom pre-selected sample of CRE executives in a general population of firm types and sizes. The topics serving as the basis for the survey were developed by a group of industry professionals from a wide range of specialties, with the goal of assembling a body of knowledge that would cover the commercial and investment specialist *in any type of transaction*. The intent was to identify those specific concepts and skills that would provide the necessary information and tools required in the majority of all commercial and investment decisions.

This study's identification of specific topics, arranged in priority order, is among the first to categorize the concepts and skills used in the general corporate sector to facilitate decisions on real property assets. This knowledge can be critical to the future performance of the corporate real estate asset, as the common tools

used by the CRE should be more focused on real estate decision making as opposed to the tools brought to the position by the accounting, finance, or law-trained professional. The results identify the current subjects most important to general CRE executives, and they rank the knowledge areas viewed as the most critical by these individuals.

---

## The Literature

The contributions from the literature to this project are those studies that identify (a) the specific topic areas of knowledge and specific skills, and (b) the rank of each according to current level of need. *General* topics or areas of knowledge that touch briefly on specific skills were classified by Carn, Black and Rabianski (1999) into six research categories ranging from environmental matters to strategic benchmarking. Included in these six are “Internal CRE Organization and Operations,” which covers corporate and core business characteristics, and “Skills and Training,” which covers the strategic and executive skills needed by CREs (CBR, 1999; 294–97). Issues included in the first category are management principles and techniques, and the most essential personal and professional characteristics. Issues in the second category include needed basic business and management skills, and understanding of new technologies. All these areas need to be emphasized in CRE training. Also, management techniques in addition to the traditional tools of total quality management need to be identified.

Using a Delphi survey technique, CBR (1999) identified major research issues including topics such as internal organization, necessary skills and training, management of outsourced operations and benchmarking. The conclusion was that the CRE executive should be a generalist who possesses a broad range of skills and can be viewed as a “person for all seasons.” Such broad-based talents serve as the basis for networking within a company.

The results in CBR (1999) are important in that the study identified and classified the major topics that need further investigation. The authors did not attempt to uncover and recommend the specific concepts and skills they identified. Additional major research topics they recommend include the identification of strategic and executive subject areas, and the knowledge base needed to conduct basic job assignments and provide the background for a stronger strategic and operational role. They further conclude that the identification of these subject areas and required knowledge would enable the executive to acquire a better grasp of the legal and institutional components of global economic integration (CBR, 1999: 294–98).

Corporate research study methodologies were synthesized by Manning and Roulac (1999) into *general* classifications that point to specific concepts and skills without identifying them. The authors posed three questions on the future direction of this topic: (1) where should corporate research be focused in the future; (2) what types of corporate research issues merit research consideration; and (3) what research methodologies, data banks and statistical tools are likely to prove useful.

To find answers to these questions, Manning and Roulac (1999) proposed that a "...broader perspective [be used] that includes not only the traditional financial focus, but also an explicit business, as well as real estate, focus with both external and internal dimension, as part of an integrated corporate real property management paradigm." The broader approach they recommend would classify this study as grounded theory in its use of primary data and the inductive approach, as it is survey-based. The results in this paper take the next step by identifying and recommending the specific decision-making concepts and skills needed.

In one of the first studies conducted on *specific* corporate body of knowledge concepts among a *general population*, Gibler, Black and Moon (forthcoming, this journal) conducted a survey among international real estate executives and service providers in Australia, Hong Kong, the United Kingdom and the United States. They report that little evidence exists that real estate decisions have been integrated into overall corporate strategic planning. The top three strategic objectives of the respondents were meeting the workplace needs of business growth, meeting individual needs of business operating divisions and minimizing the operating expense of the portfolio. The most crucial knowledge and skills identified were strategic planning, portfolio management, the organization's business and negotiation and deal making. The conclusion was that future success depends on strategic and management skills rather than narrow technical or financial skills.

The most important difference between the Gibler, Black and Moon (forthcoming) study and this paper is the mission of the study and resulting survey. The authors appear to address a research question that might be phrased as: "What are the nature and future of the real estate asset in corporate strategic planning, and what future knowledge and skills will be necessary?" The basic question addressed in this study is: "What do you need to know in the current assignment to be successful?"

The second difference is the nature of the questions asked. The questions covering critical knowledge and accompanying skills in this paper were written in the 1970s by industry professionals who were specialists in the fields of commercial and investment transaction and analysis. This set of forty-seven concepts and skills has evolved over time with continuing revision through consultation and industry surveys. The only issue that is relevant is their validation and ranking by individuals who use them in the current corporate job assignment.

O'Mara (1999) provided specific information used in the location decisions of only forty companies with high-quality information-driven jobs. A topology of decisions was constructed based on the magnitude of the relocation and the resulting impact on the labor force. The paper is a case study of a number of company decisions covering both internal and external business and real estate areas that apply to real estate and senior corporate management.

Gibson and Barkham (2001) provided a cross-sectional view of real estate strategy in the retail sector by an examination of a number of successful United Kingdom

retailers. The objective of their study was to examine how and why real estate portfolios were being managed in a particular way, and the degree to which the structure supported the organization of the future. Their sample revealed the diverse range of activities retailers pursue, and ways in which they own and utilize their real estate resources to meet the overarching goal for a majority of retail real estate managers, which is to support the retail business. Although the study did not focus on the specific concepts that were used or required, it does contain objectives that require specific knowledge such as the minimization of rents, use of flexible leases, minimization of overhead expenses and maximization of the best location(s) (GB, 2001:115). Their study is useful, as it is one of the first to examine real estate objectives and knowledge in the retail sector.

Another study by Manning and Roulac (1999) recommended that a broader perspective of corporate research beyond the specific tools used in the finance paradigm be conducted into important corporate executive subject areas, including required knowledge such as the necessary statistical methodologies, databases and tools needed to provide the analytical skills for future success. Although both Manning and Roulac studies were important first steps to uncover the major issues, neither attempted to identify these subjects and the accompanying knowledge needed by current CRE executives.

Several studies have utilized the traditional finance paradigm to uncover the specific knowledge and skills used by a variety of specifically targeted audiences. Webb and McIntosh (1986) concentrated on REITs only and solicited information on concepts and skills, examining primarily the finance paradigm application in the corporate environment. Webb (1984) did the same among life insurance and pension firms, and Page (1993) used the same objective in his study of REITs, insurance and real estate firms, and real estate investors. The most recent study by Farragher and Kleiman (1996) added strategy and management activities to the finance questions, and targeted firms that make equity investments. Webb (1984) correctly argued that a comparison across study conclusions is useful only for the identification of trends, as the various methodologies employed differed in sample design and audience.

Although a summary of the critical results found in these studies is difficult due to the different target audiences, sample sizes, and the intent and design of the questions, common characteristics do exist. First, the surveys were targeted to obtain responses from selected trade groups and institutions only. Second, the majority of these questions were designed to emphasize the finance background that has dominated the real estate curriculum in higher education.

In contrast, the subject areas in this study were developed originally by a combined group of real estate professionals and academics. The subjects have been substantiated and revised through academic review and selected surveys. The questionnaire was structured to elicit responses that validate and rank the importance of each topic to the current job assignment. The results should suggest additional credibility as the intent, design and structure were produced by a combination of industry professionals and higher education expertise.

In sum, the literature needs additional research that provides an insight into the *specific* concepts and skills comprising the knowledge needed by the personnel who make CRE decisions.

---

## The Survey

This project surveyed a selected, nonrandom sample of CREs across a variety of job descriptions and firm specialties. This step was consistent with the original intent of those who assembled the initial list of knowledge and skills. The purpose of this original set of topic areas was to provide commonality among all assignments and all types of employment without delineation by product type.

Opinions were solicited only from those individuals who were in a position to know the subject areas, types of real estate decisions needed and the appropriate knowledge required. The specific subject areas that are identified here and the knowledge required provide an important ranking that is useful to identify further research topics. Further, it helps to refine the expected qualifications and performance levels for CRE executives, and concurrently, expand corporate research to a new level.

## Unique Features

The design of this study has several unique features when compared with the previous literature. First, the survey responses were from individuals who were pre-selected according to their position of authority within the corporation.<sup>1</sup> The information received was from identified professionals who have the knowledge to offer an informed opinion. It follows the stratified, targeted sample used by Carn, Black and Rabianski (1999) in a study that identified future organizational and operational issues. Second, companies were chosen to provide diversity among products produced, geographical location and size. The list covered a diverse range of products from individual counseling to oil exploration. Third, all individuals on the mailing list possessed a CCIM<sup>2</sup> designation. This was a prerequisite to assure consistency in educational background and experience. This criterion is an important contrast to the random survey techniques used in the previous literature, as these responses could be from anyone in a department who might be handed the questionnaire to answer.

The fourth feature was that the questions asked were the concepts and skills developed over time by commercial and investment specialists who have been involved in a wide variety of property types and analyses.<sup>3</sup> Use of this type of knowledge as the basis for survey questions is in contrast to other questionnaires, which were created primarily by scholars.

This sample design is critical to identify and prioritize the knowledge that is used by those who have demonstrated success, and for further research into the necessary qualifications for the personnel who make CRE decisions. The results

from this non-random, stratified survey cannot be compared strictly to the random survey results of REITs (Webb and McIntosh, 1984), life insurance companies and pension funds (Webb, 1984) and equity investors (Farragher and Kleiman, 1996).

Companies included in the sample handle a wide variety of products. A diverse range of firms was selected to avoid a concentration of responses that reflect the needs of only one industry, and to cover a wide-ranging set of properties requiring a diverse set of decision-making skills. Previous studies such as Webb (1984) concentrated only on life insurance and pension companies, and Webb and McIntosh (1986) concentrated only on REITs.

The non-random, targeted questionnaires were sent to 133 U.S. and 6 offshore U.S. firms including Allstate Insurance, AMB Property Corporation, Amoco Corporation, FedEx Corporation, GE Capital Realty Group, Hewlett Packard, Jones Lang LaSalle, McDonald's Corporation, Mass Mutual, Mobil Corporation, Mobil Asia Pacific Ltd., New York Life, Pacific Bell, Pacific Gas & Electric, Trammell Crow Corporate Services and USAA Benefits.

### Sample Bias

Efforts were made to minimize any sample bias. The individual names were selected using several criteria of firm diversity such as location, type of product or service, amount of annual gross income and number of employees. Firms sampled were divided into strata according to gross income. International companies were added to include offshore markets. The number of employees ranged from a high of 6,000 to a low of 2. In addition, two follow-up mailings were spaced in 14-day intervals to maximize response rates.

### Questionnaire

The questionnaires were mailed in early March, 2000. This report is based on the 27.3% response rate.

---

## Important Corporate Concepts and Skills

### The Firm

The overall characteristics of the firm are:

Public or private ownership?	Public: 73%	Private: 27%
Does real estate have its own area?	Yes: 43%	No: 57%
What is the 1999 firm gross income?	\$200,000–\$190.0 billion	
How many employees in real estate?	2–6,000	
(at least 75% of work)		

Almost two-thirds of the firms were in the public sector, with 1999 gross firm income ranging from \$200,000 to \$190 billion, and with number of those working in real estate ranging from 2 to 6,000 employees. Interestingly, the majority of these firms do not have a separate real estate area.

### The Respondent

Each respondent was asked to rank (1 lowest–5 highest) the areas of real estate decision making that were the most important to his/her area of responsibility. The relatively low and widely dispersed areas shown below range from the most important area of Management to All Areas, which ranked the lowest. The top five areas include Management, Leasing, Development, Real Estate Finance, Acquisition and Sales. The more analytical topics of Analysis, Analysis and Counseling, and Appraisal ranked in the lower 50%. This shows that the CRE specialist, although trained in the investment fundamentals, does not rank them highly in the current corporate assignment.

	<b>Area</b>	<b>Rank</b>
Acquisition	1.5	5
All Areas	0.0	12
Analysis Only	0.5	11
Analysis and Counseling	1.4	7
Appraisal	0.9	9
Construction	1.2	8
Development	1.7	3
RE Finance	1.6	4
Leasing	2.2	2
Management	2.4	1
Negotiation	0.7	10
Sales	1.5	5

### Results

The survey results were divided into two groups. The first was the set of *overall responses*. All mean scores of 3.6 (5 = highest) and higher were considered to be important. The second included all mean scores of 3.6 and higher from five different groups.<sup>4</sup> The first group was all responses. The next four groups were the mean scores after the firms had been delineated by size of annual income. The criterion used was that a specific topic had to score at least 3.6 among all groups. For example, if a specific concept scored 3.6 for one level of firm income and 3.0 for another level, it was eliminated.

Gross income has been used as a factor to delineate responses with the expectation that concepts and skills required by larger operations could be in a different market than those that were smaller. A smaller firm could be concentrating on assets that

support a firm objective of market penetration and growth as opposed to the objectives of a larger, mature firm that has already achieved market position and wants to maintain a selected portfolio of properties.

### Mean Scores for All Responses

An overall profile of the results, as shown in Exhibit 1, contains the mean responses and standard deviations for all forty-seven questions.

### Highest Ranking 50%

Mean scores in Exhibit 1 were classified further by the type of concept and specific skill. For example, the survey question that covers “Identify clients and their goals” was classified in Exhibit 2 as “user,” meaning that users of the information needed this information and the specific skill identified as “people skills.” This delineation was somewhat arbitrary, but it allowed for a grouping of the final results into meaningful patterns of responses.

The highest ranking concepts were “analysis” followed closely by “market.” The analysis category was assigned when the concept called for calculation with reasoning. The market category was used when the task appeared to involve the traditional investigation of supply and/or demand factors in the marketplace.

The specific skill required with analysis involved the calculation of rates of return. The one skill that was classified alone was the estimate of rates involved with leases.

The third category was the use of people skills. Specific skills include the identification of needs, negotiation and marketing plans.

### Lowest Ranking 50%

Although the three areas of classification remained the same, the concepts and skills changed. Interestingly, the topics that traditionally involve more detailed analysis and calculation were grouped in this class. For example, all of the before-tax and after-tax rates were found here. A gap analysis that involves extensive market data is in this group. Estimation of the cost-of-capital and the calculation of a 1031 exchange were classified here as well. Other detailed analysis topics such as measures of investment performance, identification of a trade area and estimation of the price to pay a lease buyer were located in this group.

In sum, the top 50% may be described as the more general topics, those that do not involve detailed calculations, those involving additional market analysis, and ones that include people skills and contact with the public. The implication is that the traditional academic courses that spend considerable time on the detailed topics above could be emphasizing the wrong topics for the corporate real estate



**Exhibit 1** | Overall Concepts and Skills

Concepts and Skills	Mean	Std. Dev.
Access and interpret market data	4.2	0.9
Identify clients and their goals	4.2	1.3
Use net present value analysis	4.1	0.9
Conduct a site analysis	4.1	0.9
Use market data to set rents	4.1	1.0
Interpret vacancy and absorption rates	4.0	1.0
Conduct a location analysis	4.0	1.0
Apply people skills	3.9	1.2
Identify property types and characteristics	3.9	1.2
Describe economic impact of various leases	3.8	1.0
Identify phases of real estate cycle	3.8	1.3
Analyze needs of users of space	3.8	1.3
Describe a real estate marketing plan	3.7	1.2
Calculate investment value	3.7	1.2
Calculate investment performance measures	3.7	1.0
Recognize the impact of demographics	3.7	1.0
Describe types of leases	3.6	1.2
Develop strategies for managing risk	3.6	1.0
Evaluate various types of risk	3.6	1.2
Use market feasibility, appraisal, and highest and best use	3.6	1.2
Identify debt and equity capital markets and sources	3.6	1.5
Determine minimum price an owner should accept for a lease buyout	3.5	1.1
Calculate the price to buy or accept a lease buyer	3.5	1.2
Contrast types of investments	3.5	1.2
Prepare strategy for achieving investor's goals such as debt coverage ratio and loan-to-value	3.4	1.2
Recognize the effects of growth patterns	3.4	1.1
Identify ownership entities	3.4	1.3
Define the cost-of-capital	3.3	1.3
Dem. relationship between cap. rate and int. rate of return	3.3	1.2
Delineate a trade area for a site	3.3	1.1
Apply gap analysis	3.3	1.1
Identify sources of financing	3.2	1.4
Identify components of loan package	3.2	1.4

**Exhibit 1** | (continued)  
Overall Concepts and Skills

Concepts and Skills	Mean	Std. Dev.
Demonstrate effect of leverage	3.2	1.2
Recognize impact of tax laws on ownership and disposition	3.2	1.1
Calculate before and after tax analysis for a potential user of a lease	3.1	1.4
Apply base analysis	3.1	1.0
Calculate before and after tax analysis for a owner of a lease	3.0	1.5
Prepare a before and after tax analysis	3.0	1.3
List and describe areas of specialization	3.0	1.3
Calculate before and after tax analysis for a tenant in a lease	2.9	1.4
Describe a 1031 exchange	2.9	1.3
Calculate six functions of \$1	2.9	1.4
Use investment base in selecting investment	2.8	1.4
Calculate investment base	2.8	1.4
Describe an installment sale	2.5	1.3

Note: 1 = lowest, 5 = highest.

decision-maker. One example is the subject of “leases,” which is not traditionally taught in real estate higher education.

### *Above Ranking of 3.5 vs. Below 3.5*

Using the ranking equal to 3.6 minimum to determine the acceptable topics, five topics of analysis and one involving markets were eliminated. The analysis eliminated and the skills are specific topics on leases, growth, use of data and rate estimation.

Below 3.6, the topics lost were the analysis concepts that included specific calculation skills described above, such as before- and after-tax rates, 1031 exchanges, gap analysis and measures of investment performance.

### *Concepts and Skills Ranked 3.6 and Higher*

Those concepts and skills that were ranked the highest using the 3.6 cutoff are summarized below in the three topic areas of market, analysis and user skills:

**Exhibit 2** | Ranking of Overall Concepts and Skills

Concepts and Skills	Mean	Concept	Specific Skill
<b>Panel A: Highest Ranking 50%</b>			
Access and interpret market data	4.2	market	data
Identify clients and their goals	4.2	user	people skills
Use net present value (NPV) analysis	4.1	analysis	NPV
Conduct a site analysis	4.1	analysis	site
Use market data to set rents	4.1	market	rents
Interpret vacancy and absorption rates	4.0	market	absorp. rates
Conduct a location analysis	4.0	analysis	location
Apply people skills	3.9	user	people skills
Identify property types and characteristics	3.9	market	prop. types
Describe economic impact of various leases	3.8	market	leases
Identify phases of real estate cycle	3.8	market	data
Analyze needs of users of space	3.8	users	people skills
Describe a real estate marketing plan	3.7	market	marketing
Calculate investment value	3.7	analysis	value
Calculate investment performance measures	3.7	analysis	rates
Recognize the impact of demographics	3.7	market	data
Describe types of leases	3.6	analysis	leases
Develop strategies for managing risk	3.6	analysis	rates
Evaluate various types of risk	3.6	analysis	rates
Use market feasibility, appraisal, and highest and best use	3.6	market	value
Identify debt and equity capital markets and sources	3.6	market	data
Determine minimum price an owner should accept for a lease buyout	3.5	analysis	leases
Calculate the price to buy or accept a lease buyer	3.5	analysis	leases
Contrast types of investments	3.5	analysis	rates
Prepare strategy for achieving investor's goals such as debt coverage ratio and loan-to-value	3.4	analysis	rates
Recognize the effects of growth patterns	3.4	market	growth
Identify ownership entities	3.4	analysis	data
<b>Panel B: Lowest Ranking 50%</b>			
Define the cost-of-capital	3.3	analysis	rates
Dem. relationship between cap. rate and int. rate of return	3.3	analysis	rates
Delineate a trade area for a site	3.3	market	data
Apply gap analysis	3.3	market	data
Identify sources of financing	3.2	analysis	data

**Exhibit 2** | (continued)  
Ranking of Overall Concepts and Skills

Concepts and Skills	Mean	Concept	Specific Skill
Panel B: Lowest Ranking 50% (continued)			
Identify components of loan package	3.2	market	data
Demonstrate effect of leverage	3.2	analysis	rates
Recognize impact of tax laws on ownership and disposition	3.2	analysis	rates
Calculate before and after tax analysis for a potential user of a lease	3.1	analysis	leases
Apply base analysis	3.1	market	data
Calculate before and after tax analysis for the owner of a lease	3.0	analysis	leases
Prepare a before and after tax analysis	3.0	analysis	rates
List and describe areas of specialization	3.0	users	people skills
Calculate before and after tax analysis for a tenant in a lease	2.9	analysis	leases
Describe a 1031 exchange	2.9	analysis	data
Calculate six functions of \$1	2.9	analysis	rates
Use investment base in selecting investment	2.8	analysis	rates
Calculate investment base	2.8	analysis	rates
Describe an installment sale	2.5	analysis	data

*Note:* 1 = lowest, 5 = highest.

<b>Topic: Markets</b>	<b>Rank</b>	<b>Class</b>	<b>Skill</b>
Access and interpret market data	1	market	data
Use market data to set rents	2	market	rents
Interpret vacancy and absorp. rates	3	market	absorp. rates
Identify prop types and characteristics	4	market	prop. types
Describe econ impact of lease types	5	market	leases
Identify phases of real estate cycle	5	market	data
Describe a real estate marketing plan	6	market	marketing
Recognize the impact of demographics	6	market	data
Use market feasibility, appraisal and H&BU	7	market	value
Identify debt, capital markets and sources	7	market	data

The highest ranking concepts are the abilities to access and interpret market data, use this data to set rents, interpret vacancy and absorption rates, and identify property types and characteristics. Other important topics include the identification

of phases of the real estate cycle, recognition of the impact of demographics and the use of valuation techniques.

The specific skills required are the use and interpretation of market data. The implication here is that the CRE decision-maker must be able to access, manipulate and interpret market data such as demographics, rents, absorption and vacancy rates, and the data needed to support a feasibility and highest and best use study.

<b>Topic: Analysis</b>	<b>Rank</b>	<b>Class</b>	<b>Skill</b>
Use net present value analysis	1	analysis	NPV
Conduct a site analysis	2	analysis	site
Conduct a location analysis	3	analysis	location
Calculate investment value	6	analysis	value
Calculate invest performance measures	6	analysis	rates
Describe types of leases	7	analysis	leases
Develop strategies for managing risk	7	analysis	rates
Estimate various types of risk	7	analysis	rates

The analysis concepts, in general, do not include much of the detailed analysis that academic texts and classes are prone to teach. Skills involve the traditional NPV and typical rates of investment performance and risk analysis. Additional required skills include the ability to understand a site and location analysis and the financial terms of a lease.

<b>Topic: User</b>	<b>Rank</b>	<b>Class</b>	<b>Skill</b>
Identify clients and their goals	1	user	clients
Apply people skills	4	user	people skills
Analyze needs of users of space	5	user	people skills

Interestingly, this category that includes the user of the real estate product or service and people skills is not one that has appeared previously in the literature. It means that corporate decision-makers are frequently placed in positions where they must interact professionally with personnel or clients.

In sum, the topics and skills above have been evaluated as being of above average importance and necessity, and should be emphasized in future decisions that involve the qualifications of CREs. Further, they serve as current indicators to academia on subjects that should be emphasized in classroom instruction and future research.

Concepts and Skills Ranked 3.5 and Lower

The topics that rank at the lower end and shown below would be evaluated individually to determine the relative importance of each. They may be summarized as the concepts and skills that require a detailed analysis, and those that tend to be income-tax related, such as a 1031 exchange and after-tax cash

flows. Further, they tend to come from the finance paradigm (*e.g.*, cost-of-capital, lease vs. own, use of the internal rate of return and calculation of the investment base). In sum, these concepts and accompanying skills that are tax related and tend to require detailed tools from financial analysis are not considered to be as important as the more general market and analytical tools described above.

### Principal Components

Principal components (pc) analysis was used to uncover patterns in the responses.<sup>5</sup> The ranked results of the first pc factor with a covariance matrix are shown in Exhibit 3. All of the p-factor scores were zero or close to zero.

The higher factors appear to be associated with the more traditional financial tools such as cost-of-capital, before- and after-tax analysis, investment value, and the relationship between the overall capitalization rate and the internal rate of return. The lower ranked factors appear to be those that are described as “contrast, recognize, evaluate, identify and use.” Those factors ranked close to the median appear to be more general.

---

### Corporate Concepts and Skills by Size of Firm

An important new hypothesis tested was the ranking of concepts and skills according to the size of the firm as determined by gross income.<sup>6</sup> Smaller firms interested in establishing a market and growth could have a need for CREs who possess talents that are different from those needed by a larger, established firms interested in maintaining market share. The hypothesis tested was the following:

**H:** Ranking of the concepts and skills required by the CREs does not vary by size of the firm as measured by gross income.

To test this hypothesis, the 1999 level of firm gross revenue was divided into the following four categories: (1) firm gross income over \$1 billion; (2) firm gross income of \$100 million to \$1 billion; (3) firm gross income under \$100 million; and (4) firms not reporting a gross income. For consistency, only the mean score of 3.6 and higher was used among all four groups for the topic to be selected. Exhibit 4 shows the scores by income class of the firm.

### Mann-Whitney Two-Tailed Rank Median Test

The firm income classifications above were tested using the Mann-Whitney two-tailed rank test of the population medians<sup>7</sup> to determine if the size of the firm was an important factor that could explain the selection of a subject area and the accompanying required knowledge. The null hypothesis examined is that no difference exists among the groups:

**H<sub>0</sub>:**  $median_i = median_j$

**Exhibit 3** | Principal Components

Concepts and Skills	Principal Concepts	<i>p</i> -factor
Define the cost-of-capital	0.195	0
Calculate investment base	0.185	0
Use investment base in selecting investment	0.182	0
Calculate investment value	0.181	0
Calculate before and after tax analysis for a potential user of a lease	0.181	0
Determine minimum price an owner should accept for a lease buyout	0.181	0
Identify sources of financing	0.179	0
Calculate before and after tax analysis for an owner of a lease	0.179	0
Demonstrate effect of leverage	0.178	0
Describe economic impact of various leases	0.172	0
Dem. relationship between cap. rate and int. rate of return	0.171	0
Panel A: Top 25%		
Prepare strategy for achieving investor's goals	0.167	0
Calculate investment performance measures	0.167	0
Calculate before and after tax analysis for a tenant in a lease	0.162	0
Apply gap analysis	0.159	0
Describe types of leases	0.156	0
Apply base analysis	0.155	0
Delineate a trade area for a site	0.153	0
Prepare a before and after tax analysis	0.153	0
Recognize the effects of growth patterns	0.149	0
Det. loan amt using criteria such as debt cover ratio and loan to value	0.149	0
Use market data to set rents	0.148	0
Describe an installment sale	0.148	0
Identify debt and equity capital markets and sources	0.146	0
Interpret vacancy and absorption rates	0.142	0
Panel B: Median		
Identify components of loan package	0.141	0
Calculate the price to buy or accept a lease buyer	0.139	0
Use net present value analysis	0.136	0
Recognize impact of tax laws on ownership and disposition	0.136	0
Develop strategies for managing risk	0.136	0
Describe a real estate marketing plan	0.136	0

**Exhibit 3** | (continued)

## Principal Components

Concepts and Skills	Principal Concepts	<i>p</i> -factor
Panel B: Median (continued)		
Identify ownership entities	0.135	0
List and describe areas of specialization	0.132	0
Access and interpret market data	0.132	0
Panel C: Bottom 25%		
Calculate six functions of \$1	0.128	0
Describe a 1031 exchange	0.126	0
Contrast types of investments	0.123	0
Recognize the impact of demographics	0.120	0
Evaluate various types of risk	0.109	0
Use market feasibility, appraisal, and highest and best use	0.107	0
Identify property types and characteristics	0.105	0
Identify clients and their goals	0.104	0
Apply people skills	0.096	0
Identify phases of real estate cycle	0.094	0
Conduct a location analysis	0.087	0
Analyze needs of users of space	0.076	0
Conduct a site analysis	0.055	0

An underlying assumption is that the data are independent random samples from two populations that have the same shape and a scale that is continuous or ordinal if discrete. The medians of two separate populations were tested sequentially for equality at the 5% and 10% level of significance. All numbers have been adjusted for ties.

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>A:</b> Greater than \$1B	—	.0007	.0006	—
<b>B:</b> \$100M–\$1B	—	—	—	.9033*
<b>C:</b> Less than \$100M	—	—	—	.0000
<b>D:</b> Not reported	—	—	—	—

\*Cannot reject the hypothesis at .05 and .10.

The figures mean that all comparisons were rejected at the .10 level except one. The medians between the firms with annual revenues from \$100 million to \$1



**Exhibit 4** | Mean Scores by Firm Income

Concepts and Skills	Mean	>\$1B <sup>a</sup>	\$100M-1B	<\$100M	NR
Identify clients and their goals	4.2	3.7	4.7	3.7	4.4
Identify property types and characteristics	3.9	4.1	4.0	2.7	3.9
Contrast types of investments	3.5	2.8	3.8	3.7	3.7
Analyze needs of users of space	3.8	3.2	4.6	3.7	3.7
Identify ownership entities	3.4	2.8	3.9	2.3	3.9
Identify debt and equity capital markets and sources	3.6	3.0	4.1	1.7	4.1
List and describe areas of specialization	3.0	2.7	3.2	2.0	3.4
Apply people skills	3.9	4.1	3.8	3.3	4.0
Recognize the impact of demographics	3.7	3.5	3.6	3.7	3.9
Use market feasibility, appraisal, and highest and best use	3.6	3.9	3.4	3.0	3.7
Use market data to set rents	4.1	3.7	4.4	4.0	4.3
Access and interpret market data	4.2	4.1	4.4	4.3	4.2
Conduct a site analysis	4.1	4.5	4.0	3.7	3.9
Conduct a location analysis	4.0	4.5	4.1	2.3	4.0
Identify phases of real estate cycle	3.8	3.4	4.0	3.3	4.0
Apply gap analysis	3.3	3.2	3.3	2.0	3.6
Interpret vacancy and absorption rates	4.0	3.5	4.4	4.0	4.0
Delineate a trade area for a site	3.3	3.3	3.7	1.7	3.4
Apply base analysis	3.1	2.8	3.2	2.0	3.4
Recognize the effects of growth patterns	3.4	3.5	3.6	2.0	3.6
Calculate six functions of \$1	2.9	2.9	2.9	2.0	3.5

**Exhibit 4** | (continued)  
Mean Scores by Firm Income

Concepts and Skills	Mean	>\$1B <sup>a</sup>	\$100M-1B	<\$100M	NR
Use net present value analysis	4.1	4.5	4.3	2.7	4.2
Recognize impact of tax laws on ownership and disposition	3.2	3.2	3.0	2.0	3.8
Prepare a before and after tax analysis	3.0	2.9	3.0	2.3	3.4
Calculate investment performance measures	3.7	3.2	4.3	4.0	3.8
Calculate investment value	3.7	3.4	4.2	3.3	4.1
Dem. relation between cap. rate and int. rate of return	3.3	3.4	3.4	2.0	3.6
Demonstrate effect of leverage	3.2	2.9	3.4	2.0	3.8
Identify components of loan package	3.2	2.8	3.2	3.3	3.7
Det. loan amount using underwriting criteria such as debt coverage ratio and loan-to-value	3.4	3.1	3.6	3.0	4.0
Evaluate various types of risk	3.6	3.5	3.7	4.0	3.8
Develop strategies for managing risk	3.6	3.8	3.6	3.0	3.8
Prepare strategy for achieving investor's goals	3.4	3.2	3.9	3.3	3.6
Identify sources of financing	3.2	3.3	3.3	1.7	3.6
Calculate investment base	2.8	2.5	3.1	2.0	3.2
Use investment base in selecting investment	2.8	2.2	3.4	2.3	3.2
Describe a 1031 exchange	2.9	2.6	2.9	2.3	3.5
Describe an installment sale	2.5	2.3	2.2	1.3	3.3
Describe types of leases	3.6	3.5	4.0	2.7	3.8
Describe economic impact of various leases	3.8	4.0	4.2	3.0	3.8

**Exhibit 4** | (continued)  
 Mean Scores by Firm Income

Concepts and Skills	Mean	>\$1B <sup>a</sup>	\$100M-1B	<\$100M	NR
Calc. before and after tax anal. for a tenant in a lease	2.9	2.7	3.4	2.0	3.2
Calc. before and after tax anal. for an owner of a lease	3.0	2.6	3.8	2.0	3.2
Calc. before and after tax anal for a potential user of a lease	3.1	2.9	3.7	2.0	3.2
Define the cost-of-capital	3.3	3.6	3.4	1.3	3.6
Describe a real estate marketing plan	3.7	3.7	4.1	2.7	3.8
Calc the price to buy or accept a lease buyer	3.5	3.4	3.7	3.7	4.0
Calc min price an owner should accept for a lease buyout	3.5	3.3	4.1	3.0	3.7
Median	3.5	3.3	3.7	2.7	3.8

*Note:*  
<sup>a</sup>M = Million; B = Billion; NR = Not Reported.

**Exhibit 5** | Important Concepts and Skills by Size of Firm

Concepts and Skills	Stay	Delete	>\$100m gone
Access and interpret market data	x		
Identify clients and their goals	x		
Use net present value analysis		x	stay
Conduct a site analysis	x		
Use market data to set rents	x		
Interpret vacancy and absorption rates		x	
Conduct a location analysis		x	stay
Apply people skills		x	stay
Identify property types and characteristics		x	stay
Describe economic impact of various leases		x	stay
Identify phases of real estate cycle		x	
Analyze needs of users of space	x		
Describe a real estate marketing plan		x	stay
Calculate investment value		x	
Calculate investment performance measures		x	
Recognize the impact of demographics	x		
Describe types of leases		x	
Develop strategies for managing risk		x	stay
Evaluate various types of risk		x	stay
Use market feasibility, appraisal and highest and best use		x	
Identify debt and equity capital markets and sources		x	
Determine minimum price an owner should accept for a lease buyout		x	
Calculate the price to buy or accept a lease buyer		x	
Contrast types of investments		x	
Prepare strategy for achieving investor's goals debt coverage ratio and loan-to-value	x		
Recognize the effects of growth patterns	x		
Identify ownership entities		x	
Define the cost-of-capital		x	
Dem. relationship between cap. rate and int. rate of return		x	
Delineate a trade area for a site		x	
Apply gap analysis		x	

**Exhibit 5** | (continued)  
 Important Concepts and Skills by Size of Firm

Concepts and Skills	Stay	Delete	>\$100m gone
Identify sources of financing		x	
Identify components of loan package		x	
Demonstrate effect of leverage		x	
Recognize impact of tax laws on ownership and disposition		x	
Calculate before and after tax analysis for a potential user of a lease		x	
Apply base analysis		x	
Calculate before and after tax analysis for an owner of a lease		x	
Prepare a before and after tax analysis		x	
List and describe areas of specialization		x	
Calculate before and after tax analysis for a tenant in a lease		x	
Describe a 1031 exchange		x	
Calculate six functions of \$1		x	
Use investment base in selecting investment		x	
Calculate investment base		x	
Describe an installment sale		x	

billion and those firms that did not report were not rejected, or were from the same population. Although not conclusive, the results suggest that corporate job requirements may emphasize different subject areas in larger firms and warrant further investigation.

### *Kruskal-Wallis Test for Equality of Groups*

A generalization of the Mann-Whitney test above is the Kruskal-Wallis test, which offers a nonparametric test of the hypothesis that all of the population medians are equal, as opposed to the alternative hypothesis that they are not equal. An underlying assumption is that the samples from the different populations are independent random samples from continuous distributions, and the distributions have the same shape. The null hypothesis is:

**H:**  $median_i = median_j$

**Exhibit 6** | Statistical Tests

Concepts and Skills	Mann-Whitney Income <i>p</i> -value adjusted for ties	Wilcoxon Income <i>p</i> -value
Identify debt and equity capital markets and sources	0.7879	0.7210
List and describe areas of specialization	0.8126	0.7560
Recognize the impact of demographics	1.0000	1.0000
Identify phases of real estate cycle	0.8652	—
Apply base analysis	0.8874	1.0000
Recognize the effects of growth patterns	—	0.7600
Calculate six functions of \$1	0.7369	—
Prepare a before and after tax analysis	0.9197	—
Det. loan amount using underwriting criteria such as debt coverage ratio and loan-to-value	0.8394	0.7790
Evaluate various types of risk	0.7328	0.7530
Calculate investment base	0.8663	0.9590
Describe a 1031 exchange	—	0.9060
Describe an installment sale	0.9727	0.8590
Describe types of leases	1.0000	1.0000
Describe economic impact of various leases	0.9441	—
Calculate before and after tax analysis for a potential user of a lease	0.8141	0.8890
Describe a real estate marketing plan	1.0000	1.0000
Calculate the price to buy or accept a lease buyer	1.0000	0.7350
Common terminology	0.9730	0.8340
Real estate marketing process	0.9726	0.9170
Generic marketing activities	0.9463	1.0000
Knowledge of user representation	0.7356	0.7260
Market research	0.7291	—
Request and evaluation of RFPs	0.9723	0.7350
Financial evaluations	0.9418	—
Subjective and objective influences	0.8066	0.8340
Negotiating points and strategies	—	0.7220
Advising	0.9710	0.8380
Exchange software	0.8395	0.7260
Geographical information systems	0.8638	0.8660
Laptop computer	1.0000	1.0000
Realtor multilist	—	0.8590
Site-to-do business (CIREI)	0.8656	—
Retail site selection analysis	—	0.7210
Portfolio analysis	0.9183	0.8340

The resulting  $p$ -value equals .392 and is significant at the .05 and .10 levels. Supporting the Mann-Whitney results above, this suggests that the subject and knowledge areas do depend on the size of the firm.

A difference in the mean scores by firm size would be a reasonable result. Smaller firms could be expected to incorporate growth and market penetration objectives in their strategic plan, as opposed to maintenance and preservation of market share that would be expected from a larger, well-established business.

### Firm Size and Concepts and Skills

Following the results above suggesting that firm size is important, all topics in Exhibit 4 that are ranked 3.6 and higher are shown as “stay” in Exhibit 5. Any topic ranked lower in each income class is classified as “delete.”

The firms grouped in the “under \$100 million” category generally revealed the lowest rankings, with a median of 2.7. Eliminating this group moved eight of these topics into the “stay” column.

Among all firms in all classes, the topics and skills that remained were: (1) access and interpret market data; (2) identify clients and their goals; (3) conduct a site analysis; (4) use market data to set rents; (5) analyze needs of users of space; (6) recognize the impact of demographics; and (7) recognize the effects of growth patterns. In sum, all of these relate to market information and relationships with other personnel and the public. None include the traditional financial analysis tools.

Additional Mann-Whitney and Wilcoxon tests were conducted on each concept and skills. The  $p$ -values greater than .7 are shown in Exhibit 6.

The topics for which the  $p$ -value is  $>.7$  indicate statistically significant commonality of opinion among the firms. Interestingly, the majority of these topics were the areas that the firms ranked in the *lower* one-half of all topics that were important when the results are compared to the rankings in Exhibit 1. Agreement exists among real estate decision-makers in firms of all sizes on specific topics and skills that should be ranked lower.

---

## Conclusion

Three specific important concepts this survey revealed that are valued by CREs are the use of *real estate market interpretation*, *general tools of analysis as opposed to specific tools* and *relationships with other personnel and the public*. The subject matter of *leases* was an additional area that deserves emphasis. These results add additional detail to the conclusions by Gibler, Black and Moon (forthcoming) that real estate managers still perceive their main role as acquirers of inexpensive space.

The *interpretation of real estate markets* can be broken down into the following topical areas: (1) conduct a location analysis; (2) identify phases of the real estate cycle; (3) conduct a site analysis; (4) recognize the impact of demographics; (5) use market data to set rents; (6) access and interpret market data; and (7) use market feasibility, appraisal, and highest and best use.

*The use of general tools of analysis as opposed to specific tools* is a result that suggests the minimization of traditional financial analysis tools such as detailed rates of return and tax analysis. The general tools of analysis include the following: (1) conduct a site analysis; (2) conduct a location analysis; (3) calculate investment value; (4) calculate investment performance; (5) describe types of leases; (6) develop strategies for managing risk; (7) evaluate investment performance measures; and (8) use net present value.

A new topical area that involves *relationships with other personnel and the public* includes the identification of the client and goals, the determination of the needs of space users and the use of people skills. In addition, the newly identified concepts of *lease analysis* and *lease interpretation* were found to be important among the *market* topics and the *analysis* areas.

The survey results suggest several contributions to the literature, such as the topic areas that are needed in the current corporate assignment. The use of general concepts and skills as opposed to specific skills is consistent with the earlier results found by Carn, Black and Rabianski (1999). The sample design covers a general population of firms without delineation by product type. The respondents possessed the same common denominator of educational background to provide consistency in responses. All individuals were selected by their position of authority. The population included both U.S. and international firms.

Another important contribution is expansion on the set of concepts and skills that was assembled in the 1970s for the commercial and investment analyst to employ in any assignment. It has been revised to meet the needs of the current market, and has survived the test of time. This study asked respondents to evaluate the usefulness of this body of knowledge, as opposed to the construction and assembly of a new set of knowledge without testing its applicability. The conclusions give better insight into the concepts and tools that are necessary for better real estate decision making in a corporate environment.

One of the more interesting results is that the traditional tools from the financial analysis area were ranked relatively low. These include the before-tax and after-tax rates of analysis, a 1031 exchange, an installment sale, investment base, use of the overall cap rate and the internal rate of return, and the calculation of performance measures.

---

## Endnotes

<sup>1</sup> Individuals were selected who appeared to have decision-making authority as evidenced by their title. The final list was reviewed by two professionals with personal knowledge of the composition and coverage of the list, and by the research team.



- <sup>2</sup> The CCIM represents the Certified Commercial and Investment Member designation that is awarded by the CCIM Institute. The knowledge that all members must possess is perhaps the most extensive educational requirement of all commercial and investment specialists in the marketplace. The use of a designation assures that each respondent has the same educational frame of reference within which to assess the decision-making requirements. Possible variance that might appear in the results from the heterogeneity of educational expectations and interpretation of terms should be minimized. Additional attention given to the qualifications of the respondent is a unique contribution of this study.
- <sup>3</sup> A general set of concepts for a commercial and investment analyst that covers all areas of specialty was developed and shown in the text by Messner, Schreiber and Lyon (1975). The material was revised and classified into subject matter by the Commercial and Investment Council (1977). The current four topic areas include financial analysis, market analysis, user decision analysis and investment analysis. Epley (2001) used a subset of this general knowledge to find a common set of concepts among U.S. commercial and investment specialists.
- <sup>4</sup> The median of all mean scores equaled 3.4. All scores are reported in Exhibit 1. A decision was made to concentrate only on above average means of 3.6 or higher to emphasize those topics that have a high priority.
- <sup>5</sup> Although the interpretation of the results is subjective, the loadings can reveal patterns.
- <sup>6</sup> The original concepts developed in the 1970s [Messner, Schreiber and Lyon (1975)] were designed to be used by all commercial and investment analyst specialists regardless of type of firm or product produced. For this reason, firms were divided into groups by size of income only.
- <sup>7</sup> A Mann-Whitney analysis is used to uncover a difference in the population location without assuming a parametric model for the distributions. The Kruskal-Wallis analysis is a generalization of the Mann-Whitney procedure and looks for a difference among the population medians. Gibler and Ziobrowski (2002) used both tests in their analysis of survey responses on the perceived ranking of real estate journals.

---

## References

- Carn, N., R. Black and J. Rabianski, Operational Organizational Issues Facing Corporate Real Estate Executives and Managers, *Journal of Real Estate Research*, 1999, 17:3, 281–99.
- Commercial Investment Council, Minutes of the Magic Meeting, CCIM Institute, January, 1977.
- Epley, D. R., U.S. Real Estate Agent Income and Commercial/Investment Activities, *Journal of Real Estate Research*, 2001, 21:3, 221–44.
- Farragher, E. J. and R. T. Kleiman, A Re-examination of Real Estate Investment Decision Making Practices, *Journal of Real Estate Portfolio Management*, 1996, 2:1, 31–40.
- Gibler, K., R. Black and K. Moon, Time, Place, Space, Technology and Corporate Real Estate Strategy, *Journal of Real Estate Research*, Forthcoming.
- Gibler, K. and A. Ziobrowski, Author's Perceptions and Preferences Among Real Estate Journals, *Real Estate Economics*, 2002, 30:1, 137–57.
- Gibson, V. and R. Barkham, Corporate Real Estate Management in the Retail Sector: An Investigation of Current Strategy and Structure, *Journal of Real Estate Research*, 2001, 22: 1/2, 107–28.

Manning, C. and S. Roulac, Corporate Real Estate Research within the Academy, *Journal of Real Estate Research*, 1999, 17:3, 265–79.

Messner, S., I. Schreiber and V. Lyon, *Marketing Investment Real Estate: Finance Taxation Techniques*, Chicago: Realtors National Marketing Institute of the National Association of Realtors, 1975.

O'Mara, M., Strategic Drivers of Location Decisions, *Journal of Real Estate Research*, 1999, 17:3, 365–86.

Page, D., Criteria for Investment Decision Making: An Empirical Study, *The Appraisal Journal*, 1983, 51:4, 498–508.

Webb, J. R., Real Estate Investment Acquisition Rules for Life Insurance Companies and Pension Funds: A Survey, *Journal of the American Real Estate and Urban Economics Association*, 1984, 2:4, 495–520.

Webb, J. R. and W. McIntosh, Real Estate Investment Acquisition Rules for REITs: A Survey, *Journal of Real Estate Research*, 1986, 1:1, 77–98.

*Credit is given to the CCIM Institute for their financial support of this project. They are not responsible for the content. The conclusions represent the opinions of the author only. The paper has benefited from comments by Chris Manning, Roy Black, two reviewers, the editor, and the participants attending the Corporate Real Estate session, American Real Estate Society Annual Meeting, 2003.*