

REAL ESTATE ISSUES

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Transitions

Maury Seldin, CRE Emeritus

Why Can't a Building Be More Like a Machine?

M. Gordon Brown and Stephen E. Roulac

Enterprise and Parametric Modeling: Decision Support for Strategic Planning of Corporate Real Estate

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Making Green Communities Work

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REAL ESTATE ISSUES

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"What would happen if a Corporate Real Estate department could investigate the impact of regional location, facility ownership and workplace utilization using a single analytical tool?" "What would happen if a Corporate Real Estate department could predict the capital budget of a manufacturing company based just on the concept of a new product slated for production 3-4 years from now?" "Who would listen to their findings?—the Director of Corporate Real Estate?—the CFO?—the Heads of Manufacturing or R&D?—the CEO? These questions are among those being contemplated as a new generation of computerized models are being developed for the purpose of strategic planning of corporate real estate.

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About THE COUNSELORS OF REAL ESTATE

THE COUNSELORS OF REAL ESTATE, established in 1953, is an international group of high profile professionals including members of prominent real estate, financial, legal and accounting firms as well as leaders of government and academia who provide expert, objective advice on complex real property situations and land-related matters.

Membership is selective, extended by invitation only on either a sponsored or self-initiated basis. The CRE Designation (Counselor of Real Estate) is awarded to all members in recognition of superior problem solving ability in various areas of specialization such as litigation support, asset management, valuation, feasibility studies, acquisitions/dispositions and general analysis.

CREs achieve results, acting in key roles in annual transactions and/or real estate decisions worth billions of dollars annually. Over 300 of the Fortune 500 companies retain CREs for advice on real estate holdings and investments. CRE clients include public and private property owners, investors, attorneys, accountants, financial institutions, pension funds and advisors, government institutions, health care facilities, and developers.

ENRICHMENT THROUGH PEER ASSOCIATION, COLLABORATION, EDUCATION & PUBLICATIONS

Knowledge sharing continues as the hallmark of The Counselor organization. Throughout the year, programs provide cutting-edge educational opportunities for CREs including seminars, workshops, technology sessions, and business issues forums that keep members abreast of leading industry trends. Meetings on both the local and national levels also promote interaction between CREs and members from key user groups including those specializing in financial, legal, corporate, and government issues.

CRE members benefit from a wealth of information published in The Counselors' quarterly award-winning journal *Real Estate Issues* which offers decisive reporting on today's changing real estate industry. Recognized leaders contribute critical analyses not otherwise available on important

topics such as institutional investment, sports and the community, real estate ethics, tenant representation, break-even analysis, the environment, cap rates/yields, REITs, and capital formation. Members also benefit from the bi-monthly member newsletter, *The Counselor*, and a wide range of books and monographs published by The Counselor organization. A major player in the technological revolution, the CRE regularly accesses the most advanced methodologies, techniques and computer-generated evaluation procedures available.

WHAT IS A COUNSELOR OF REAL ESTATE (CRE)?

A Counselor of Real Estate is a real estate professional whose primary business is providing expert advisory services to clients. Compensation is often on an hourly or total fixed fee basis, although partial or total contingent fee arrangements are sometimes used. Any possibility of actual or perceived conflict of interest is resolved before acceptance of an assignment. In any event, the Counselor places the interests of the client first and foremost in any advice provided, regardless of the method of compensation. CREs have acquired a broad range of experience in the real estate field and possess technical competency in more than one real estate discipline.

The client relies on the Counselor for skilled and objective advice in assessing the client's real estate needs, implying both trust on the part of the client and trustworthiness on the part of the counselor.

Whether sole practitioners, CEOs of consulting firms, or real estate department heads for major corporations, CREs are seriously committed to applying their extensive knowledge and resources to craft real estate solutions of measurable economic value to clients' businesses. CREs assess the real estate situation by gathering the facts behind the issue, thoroughly analyzing the collected data, and then recommending key courses of action that best fit the client's goals and objectives. These real estate professionals honor the confidentiality and fiduciary

responsibility of the client-counselor relationship.

The extensive CRE network stays a step ahead of the ever-changing real estate industry by reflecting the diversity of all providers of counseling services. The membership includes industry experts from the corporate, legal, financial, institutional, appraisal, academic, government, Wall Street, management, and brokerage sectors. Once invited into membership, CREs must adhere to a strict Code of Ethics and Standards of Professional Practice.

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The demand continues to increase for expert counseling services in real estate matters worldwide. Institutions, estates, individuals, corporations, and federal, state and local governments have recognized the necessity and value of a CRE's objectivity in providing advice.

CREs service both domestic and foreign clients. Assignments have been accepted in Africa, Asia, the United Kingdom, the Caribbean, Central and South America, Europe and the Middle East. CREs have been instrumental in assisting the Eastern European Real Property Foundation create and develop private sector, market-oriented real estate institutions in Central and Eastern Europe and the Newly Independent States. As a member of The Counselor organization, CREs have the opportunity to travel and share their expertise with real estate practitioners from several developing countries including Poland, Hungary, Bulgaria, Ukraine, Czech Republic, Slovak Republic, and Russia as they build their real estate businesses and develop standards of professional practice.

Only 1,100 practitioners throughout the world carry the CRE Designation, denoting the highest recognition in the real estate industry. With CRE members averaging 20 years of experience in the real estate industry, individuals, institutions, corporations, or government entities should consider consulting with a CRE to define and solve their complex real estate problems or matters. ■

Editor's Statement

BY HUGH F. KELLY, CRE



"If I HAVE SEEN FURTHER," WROTE SIR ISAAC NEWTON IN 1675, "it is by standing on the shoulders of giants." Thus one of the surpassing intellects in scientific history credited the accomplishments of his predecessors, while describing the need and opportunity to secure an ever-wider vision of the world.

Among the humbling realizations that come from a review of the fifty-year history of The Counselors of Real Estate is the visionary power of the giants who founded our society. These thirty-six professionals, of exceptional talent and stature, looked beyond day-to-day business concerns and saw the challenge of a changing industry. And, in that challenge, they perceived a tremendous opportunity to create an elite organization where the very best in the industry could share ideas and information, set standards for quality and ethics, create lasting friendships, and have a lot of fun in the process. And with all the change in the half-century since then, those opportunities still beckon to us.

Our legacy is one that has seen accumulating accomplishments. I'm not sure who came up with the name *Real Estate Issues* for our professional journal, but I can't think of a better banner for this publication. *Real Estate Issues* occupies a very narrow niche in the world of real estate writing. On one side are the glossy trade publications, either privately published or sponsored by other industry associations, which range from the newsy to the gossipy, but which rarely venture into the kind of serious examination of issues that are the hallmark of the best writing in *REI*. On the other side are the technical, academically-oriented journals. Those feature tremendous rigor, but are often so mathematically

abstruse as to be inaccessible to practitioners. *Real Estate Issues* is a peer-reviewed journal with a difference. Our Editorial Board is comprised of practicing Counselors who scrutinize each submitted article for its depth of understanding, relevance to the readership and the industry as a whole, quality of writing, and for an important insight that will "make a difference" on some important real estate issue. Though we are hardly overwhelmed with manuscript submissions, more articles are rejected than are accepted—and this is as it should be if high standards are meaningfully applied.

"Issues" is a term that suggests the possibility of disagreement. One definition reads, "a matter that is in dispute; a point of debate or controversy." So *Real Estate Issues* does not shy away from what the medieval philosophers termed *quaestiones disputatae*. At least two of the articles in the current issue clearly raise disputatious questions. Maury Seldin, CRE Emeritus, has offered his reflections on the transitions facing our industry and our society. Seldin identifies some very specific challenges, and questions whether professional real estate education is adequately preparing the next generation to face them. Moreover, he lays out some quite particular proposals for addressing those challenges, naming organizations including The Counselors of Real Estate that he feels might contribute to solutions. Some, surely, will disagree—that's why Seldin's "Transitions" is apt for including in *REI*.

Likewise, M. Gordon Brown and Stephen E. Roulac offer a provocative question, "Why Can't a Building Be More Like a Machine." These authors are quite direct in asserting that

the real estate industry is lagging seriously behind other forces in the economy, harkening back to a 1947 *Fortune* magazine article that called our business "the industry that the Industrial Revolution forgot." Is it so? What are the implications, on both the business and societal levels? Again, there will be dissenters, but this is a "think piece" that raises issues worthy of reflection.

In some ways, the essay by Charles Shapiro, CRE, "Enterprise and Parametric Modeling: Decision Support for Strategic Planning of Corporate Real Estate," tackles one aspect of the question raised by Brown and Roulac. Shapiro seeks to integrate the metrics used by corporate decision-makers with those familiar to real estate professionals. In a series of charts and diagrams, he walks conceptual issues across the landscape of available tools and techniques toward the goal of answering fundamental questions of sell versus lease, location selection, capital expenditures, and facility utilization standards.

Normally, *Real Estate Issues* steers clear of articles focusing on single-family housing as being somewhat apart from the professional concerns of most of our readership. But we are publishing Steve Kellenberg's "Making Green Communities Work," because it addresses the broader issue of environmentally sound and sustainable development, especially as it applies to master-planned large-scale communities. Competing interests of private profit and public benefit, as well as short-term and long-range planning horizons, make this area of research one that is going to be thought-provoking for some time to come.

I commend these articles, and the columns offering "Insiders' Perspectives," to your attention. Perhaps the contents will spur some "next step" thinking on your part. Or perhaps the assertions of the authors will trigger some contrary opinions in your mind. In either case, the writers will have done their job of stimulating a sharper focus on a key real estate issue, and we are better off for that. Even better, you might be inspired to step forward with a follow-up article of your own, keeping the dialogue flowing and making further progress in the industry's understanding of that issue.

Even Newton realized that he did not have the last word in the progress of science. Geniuses understand better than most of us that questioning is one of the most powerful of intellectual tools. Albert Einstein, in 1930, wrote, "The most beautiful thing we can experience is the mysterious. It is the source of all true art and science." So, our challenge at *Real Estate Issues* is to encourage a culture of questioning. Atop the shoulders of giants, we are striving to push back our horizon, even if just a little bit. And if that gets us into issues, disputes, controversies, or even into items that are bit mysterious, well, that can be a beautiful thing! ■

HUGH F. KELLY, CRE
EDITOR IN CHIEF

Transitions

BY MAURY SELDIN, CRE EMERITUS

A SOCIAL SCIENCE PERSPECTIVE

THE GREAT TRANSITION IN THOUGHT that brought us to modernity was the reliance on the scientific method for predicting outcomes. The impact went well beyond the natural sciences into virtually all of the social sciences.

For Western civilization humanity developed with a transition in belief that led to behavior not directed by royalty or by church authority. This belief for America was in the inalienable rights of the individual to "life, liberty, and the pursuit of happiness." Our American philosophy has had its own transition, as has its culture.

We think differently from the way Americans thought when our nation was founded, although certain principles and values still apply. Much of the change, which some will call progress, was brought about by advances in the social sciences.

The social sciences emerged with a division into a multiplicity of disciplines enabling researchers to examine phenomena in greater detail by sharpening focus on a set of related problems. This led to a specialization with added precision in methodology and nomenclature, and the discipline to assign particular investigations to the most appropriate social science.

The early version of sociology may be thought of as the father of modern social science. But, political-economy became the "mother" because of its profound influence on our lives. Political-economy, in turn, split into political science and economics about a century ago.

The study of real estate first emerged as "land economics." It then underwent its own transition. In the early post-World War II period, the real estate program at The American University in Washington, D.C., started in the sociology department. It shifted into business administration and took on a strong industry orientation. The school

of business administration also added a land planning and use program.

At that time the University of Wisconsin had continued its land economics approach that preceded World War II. Indiana University was developing an administrative approach. But, most universities had a transactions approach. The typical pattern for undergraduate education was to include courses in real estate practices, real estate law, real estate appraisal and a principles of real estate course which could be based on any one of a number of approaches from transactions to analytical economics.

Today, the greatest interest in academic real estate programs housed in schools of business administration is in investments. This, in part, is attributable to most real estate faculty being housed in finance departments. A good deal of the spatial dimension has moved over to planning departments or just faded away. The loss of emphasis on the critical impact of location, in all its geographic richness, threatens to marginalize the study of real estate in the university context. And, of equal importance, an overly abstract approach to real estate risks the loss of empirical tests of relevance and application in academic research.

There are two major types of exceptions to the widespread threat to the future of real estate at universities. The first

About the Author

Dr. Seldin is a CRE Emeritus, Realtor Chair Professor Emeritus from The American University, and Chairman of the Hoyt Group. The early editorial comments of two of his good friends and colleagues, Dr. Halbert Smith, CRE, and Dr. Ronald Racster are gratefully acknowledged as is the final editing of Hugh Kelly, CRE.

This article is related to a book in progress, Improving Decisions: Toward a New Age of Enlightenment. Information on that book is available from mseldin@tampabay.rr.com.

type of exception is at leading universities where the real estate scholars, many from other disciplines, are held in high regard because the nature of their work is perceived as a branch of another discipline. The other type of major exception is at institutions that have real estate generating a great deal of revenue. Some of it is from students paying tuition. Some of it is from research support through transfer payments from real estate licensure fees. There is precious little recognition of real estate as an integrating field of study worthy of a place at the university. Yet, that recognition is important to real estate making a contribution to the social sciences and to improving the quality of life in American society through better real estate decisions.

We need to take a fresh look at where we have been, where we are, and where we are going in academia.¹

HISTORY OF THOUGHT IN REAL ESTATE

Just as combining different chemicals may transform constituent materials into a new form, so a combination of the resources of land and building materials can engender a transition to income- or amenity-producing real estate.

The real estate literature, beginning with pioneers such as Homer Hoyt and Arthur Weimer, tracks a history of thought that produced the principles that assist us in making wise choices in the combination of resources. Principles rooted in economics include those that relate to getting the right balance between building investment and land as well as the right balance between the land use and other land uses. Indeed, the idea of balance, as related to real estate, goes beyond the discipline of economics to include city planning, law, and public administration. The idea of balance also applies to the architecture and engineering, a reminder of the irreducibly physical character of real estate.²

There are other principles common to many disciplines; for example leverage and inertia. The idea of the commonality of basic principles is expounded in the concept of consilience as written about by Edward O. Wilson.³

We can extend this concept of consilience to the idea of transitions of thought. This is a mighty challenge because we know more about how the system works at a point in time than how it changes over time, especially in the time

dimension of the long run evolution of society. Also, we know more about the natural sciences, including physical sciences, than the social sciences. Even so, let us take a look at the study of real estate as a social science and see what we can learn about the process of transition of

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thought. Then, by applying the concept of consilience, what we learn about the process of transition, by the techniques of studying intellectual history, may be applied to other issues. One such issue is a strategy for dealing with terrorism (as was alluded to earlier in endnote 1).

One might ask why we care to use the study of real estate, especially its intellectual history, as an example of consilience. Some academics might say for status on campus. Some practitioners might say for status of the industry. But, we all should say because the understanding of the system is an important step in improving the quality of life. Such a study elucidates values that are under threat from fundamentalisms of all kinds, imposing by fiat or force that which cannot be won by intellectual persuasion.

The discussion that follows makes some observations on principles or theories, whose development might be traced to give us a better understanding of how we got to know what we think we know. We should then examine that process by which the principles or theories were developed, and seek to apply the process to other areas of social science

Property Rights—Possession of land has a long history as a critical element in the organization of society. For the society of cavemen, possession was defended by club and spear. Technology has changed, but some nations still rely on the use of force. Within free nations, however, a rule of law prevails with force taking a back seat.

Transitions

The rule of law is critical in Western society. It protects possession and enforces contracts. It enables private ownership and provides an important element in a system that utilizes incentives to increase productivity through greater effort and innovation.

For the West, the great advances in private property rights came after the Enlightenment. The transition from the ownership of land by royalty was part of an emancipation of the populace in the West. It blossomed in the wake of the scientific revolution and was part of the great progress in economic development.

In more recent times, concerns for the natural environment and the diversity of interests have brought an adjustment in the balance of interests. Economic development is traded for other interests through a political process.

This transition evolved through a political process, heavily influenced by non-governmental organizations. Political science, economics, sociology, psychology, and law, among others, contributed to the trajectory of change. A democratic process has directed the transition, though sometimes (as in California with the referendum and initiative movements) there seems to be a tyranny of the majority.

Understanding how our society has made such progress as it has made can be helpful in assessing how the knowledge may be applied by others in their own context.

This is especially challenging because many nation-states are not free societies. And non-state actors neither recognize democratic accountability nor balance rights and responsibilities as is characteristic of modern civil society. Additionally, in some cases the land is owned by royalty and in others there may be private ownership, but under a tyrannical authority without the real rule of law.

Externalities—The use of real estate to provide property services is heavily dependent on externalities. The real estate research literature explores how utilities, transportation, and the agglomeration of various economic activities bring value to real estate operations.

In the industrial company towns of an earlier era, the firm virtually owned all the real estate and the town, or at least it exerted substantial control over town facilities. With the diversity of employers over time came a diversity of real estate ownership, which along with private property by home owners enabled a greater democratic control. There are still some vestigial remnants of cities of industry where

the nighttime population is a small fraction of the daytime population and the local governmental authority is generally controlled by the owners of the industrial real estate.

Substantial progress has been made in the cost sharing of externalities. In some areas, however, there is an outright subsidy to induce industrial location. This indicates structural inefficiency in the system, and a need for policy reform. Such progress would take cognizance of the economic principle of comparative advantage. Finding a way to have the politics give greater recognition to the economics would help in getting a more sustainable and effective distribution of activities.

City Growth and Structure—The location of economic activity is a topic whose ramifications transcend the obvious context of taxation and tax abatement. The large picture of economic location has a rich history in real estate and urban studies theory.

The issues may well be seen in a parallel discipline examining economic development in emerging countries. The history of thought in both contexts would be a fruitful area of future research. An additional twist could be in the discussion of the competitiveness in capital markets as related to space markets.

A key aspect of city growth and structure is the pattern of land use. The development of that thought considers the interaction among the various land uses and the spatial distribution of the activities. Theory has changed as scale increased, but the results on the ground still seem less than satisfactory (i.e., we have some problems in which the patterns of land use significantly detract from the quality of life). Perhaps a better understanding of the development of thought on these matters would not only assist in remediating our domestic urban problems, but also help emerging nations avoid some of the same issues as they grow.

Space Markets—At whatever spatial distribution of economic activity that we have, markets for various space uses form, shaped in part by the regulation of land use. These markets are generally local in geographic extent, and tied to the economic activity of the city through its growth and structural characteristics.

To the extent that the locale is competing to be a portal for export activity, the scale of analyses is broadened. The

development of thought on emergence of footloose industry may be very helpful in assessing the potential for some lesser developed countries. The economics of comparative advantage need to be applied to economic globalization. Research would necessarily consider a myriad of disciplines, especially those that relate to local culture.

In any event, there is a need for balance among the land uses. So, the development of one kind of use may generate demand for other kinds of uses. Competitiveness in a market may be constrained by local regulation, but market forces are at work and sometimes breed corruption. Indeed, harnessing market forces may require institutional arrangement that deter corruption, e.g., requiring transparency and accountability.

The approaches for level playing fields are especially important for a transfer of technology in system management. The fairness and stability of the system also affect the requirements of capital markets.

Capital Markets—An effective capital market is essential to obtaining the resources for economic development and investment, including real estate. Our capital markets have undergone dramatic change in the post-World War II period. Some of these changes are attributable to the provision of tax advantages to real estate investors with the result of the distortion of a level playing field in the competition for capital.

Real estate has from time to time received excessive capital flows and at other times faced excessive shortages. Some of these shifts have been attributable to changes in tax laws. Some however are attributable to investor behavior, responding to what Keynes famously termed 'animal spirits.'⁴ Understanding that development of thought in neo-classical economics and in behavioral economics can contribute to efficiencies in both domestic and international markets.

SOME PRAGMATIC SUGGESTIONS FOR THE NEXT TRANSITION OF REAL ESTATE AS A FIELD OF STUDY

The evolution of real estate studies, as an applied intellectual discipline, does not take place in a vacuum. On the one hand, we have seen significant changes within the universities themselves, as sketched at the beginning of this article. On the other hand, we may note the advances in real estate professional organizations, academic societies, and think tanks. I would like to propose some practical ways in which each might enhance the quality of real

estate studies, suggesting that improvements in our field of knowledge can bring important benefits to the wider community.

For the Lead Professional Organization—The stature of real estate counseling as a professional endeavor is tied to the criteria for professions. There are no professions that exist without disciplines of academic stature. It is not just law and medicine. Accountancy, public administration, social work, engineering, and a whole host of professional endeavors are ranked, in part, by the extent of educational qualifications required for practice and stature of the discipline in academia.

The Counselors of Real Estate needs to deal with the body of knowledge of its discipline by adding to its development as well as its dissemination. This journal of the Counselors of Real Estate, *Real Estate Issues*, is a significant symbol of a professional organization.⁵ Further, the Counselors are to be applauded for the support of education through grants from the James E. Gibbons Educational Development Trust Fund I am not here necessarily advocating the formation of a research support unit within the Counselors. But I will point out a proposed initiative that has emerged at the Homer Hoyt Institute from groups with significant CRE representation. In addition to the eleven Counselors who are Weimer School Fellows (an academic group), there are twenty-one Counselors who have the honor of being Hoyt Fellows; the industry counterpart group to the Weimer Fellows of the Homer Hoyt Advanced Studies Institute. These Hoyt Fellows are among the supporters of the research programs of the Homer Hoyt Institute and they are the ones from which the idea of a "history of thought" project emerged.

The proposal envisions the real estate discipline producing a book tracing its intellectual evolution. Other professional disciplines has already successfully done so. The geographers have highlighted their key "thought leaders" in *Geographical Voices: Fourteen Autobiographical Essays*. Later, the sociologists published a similar volume titled *Our Studies, Ourselves: Sociologists' Lives and Work*. (Oxford University Press, 2003)

In time, such a book may emerge for real estate. At this point in time, the first step is a panel discussion at the ARES (American Real Estate Society) annual meetings for 2004 jointly sponsored by ARES, the Hoyt Fellows, and the Homer Hoyt Advanced Studies Institute. I would encour-

age the active involvement of the Counselors in developing such contributions to the corpus of real estate literature.

A second point can be added. Real estate counseling is increasingly an international endeavor. As we have all seen, international events not only affect the real estate in foreign countries, but they impact our domestic affairs. The obvious manifestation has been in the very active cross-border investment markets of the past quarter-century. But the 9/11 event has vividly shown how social, cultural and religious divergence can have direct effects on the economy and real estate.

The previous discussion on history of thought, in identifying some critical aspects of real estate, also identified some institutional relationships that have given us the marvelous opportunities that we have, not only as real estate counselors, but as Americans. We need to be more than grateful for our freedoms and institutions, even though we need to do a lot to improve them, and yes, protect them.

My thesis is that we can utilize our knowledge of real estate to deal with such long run issues, even terrorism. The Counselors can serve as a force in developing an even more powerful, efficient, and cohesive market system, serving society's widest constituencies.

We need to improve our system. A fundamental choice involves focusing narrowly on the real estate aspects, or broadening perspective to include real estate with its systemic knowledge rooted in principles transferable to other problems or disciplines.⁶

For the Two Leading Academic Organizations—The two leading academic organizations are the American Real Estate Society (ARES) and the American Real Estate and Urban Economics Association (AREUEA). The history of thought project started with a discussion at the 2003 ARES meeting and quickly expanded to include a session on the topic at the 2004 convention. This session on the history of thought will explore ways to proceed. It is too soon to tell what will emerge, but here are some ideas.

First, by better understanding how we got to where we are we can better understand how to get where we want to go. The transition of thought is not a rapid process. The genetic portion of how we think takes a long time to

evolve. The environmental influences operate faster, but are nonetheless very slow. Sometimes, what we think is so imbedded that it takes a new generation to accept the changes in knowledge.

The key is that science is an excellent vehicle for obtaining knowledge. There are lesser levels of mental operations, ranging from intuition and hunch, to prejudice and superstition. Science is superior because its expectations of outcomes are more reliable than those of the alternatives. The

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greater the rigor used in developing scientific knowledge, the greater the reliability. Transparency, methodological rules, verifiability of evidence, testing criteria for hypotheses, and the willingness to proceed with provisional results subject to validation: these are the hallmarks of the scientific model.

Much social science research has to deal with improving methodology that will enhance the quality of knowledge obtained through research efforts. The quality of the inferences from the research is thereby enhanced. Part of the process of improving methodology is to adapt methodology from other disciplines. And, part of the process is to develop methodology for the particular discipline at hand. The increase in rigor is an important part of academic effort.

Unfortunately, academia has become so enamored with rigor that the efforts to expand knowledge may be directed to obtaining rigorous results without regard to the usefulness of the results. Not all results need to be immediately useful. Understanding the basic relationships in a system is worthwhile even if no immediate applicability is known. But, when the quality of knowledge is good enough to make reasonable decisions it is a waste of talent to provide more evidence that what we believe to be so is so.

What makes the most sense from the standpoint of societal progress is to consider topics for research that can yield

Transitions

knowledge useful for improving the quality of decisions. The Counselors of Real Estate are well positioned to identify such topics. Shifting concerns associated with changing economic, political, and social environments are evident to real estate counselors as they look at the concerns and issues that give rise to the pattern of their assignments.

The Counselors of Real Estate may want to consider initiating or participating in a data gathering project that tracks the various types of assignments, perhaps in conjunction with academic specialists. Also worth considering is the formation of small groups of counselors interested in specific types of problems. Such groups could not only monitor trends, but could add to the body of knowledge, either with academia or on their own. The point is that we can make progress in improving the quality of decisions not only by providing counsel, but also by better understanding the issues. One route to better understanding the issues is to trace the development of thought and extend it by appropriate means. This is an activity that might best be approached by a cooperative effort between industry and academia. The Counselors of Real Estate may well be the best industry group to get involved in such an effort, though it need not be the sole participant. The academic organizations might take a role in this process. ARES already has with the panel discussion set for this year's annual convention. And, the Homer Hoyt Institute has, especially through the Hoyt Fellows, in initiating the effort in documenting the history of thought in the real estate discipline.

Intellectual history was a popular approach for historians for awhile after World War II. Then came the sixties and cultural history became the fashion. Currently, environmental history is in fashion. If we leave the history of thought in real estate or any of a great many disciplines to the historians we will have a long wait to see results. What makes sense to me is to have those concerned with their discipline adopt some of the techniques of the historians and learn about how the transitions occurred.

Such a process is equally applicable to economics, finance, sociology, political science and numerous other disciplines that bear upon real estate decisions. Knowledge about the process of transition is applicable to a wide array of these disciplines. Real estate by taking the lead can set a fine example for other areas of study and would reciprocally benefit from their progress. It would also add status to real estate academics at the universities.

For the Premier Real Estate Think Tank—As one might guess, the premier real estate think tank referred to is the Hoyt Group which consists of the Homer Hoyt Advanced Studies Institute (including the Weimer School Fellows), its support organization known as the Homer Hoyt Institute (including the Hoyt Fellows), and its wholly owned subsidiary known as Hoyt Advisory Services. The Hoyt Group has a thirty-seven year history going back to its start as the research arm of the then Real Estate and Land Planning and Use Program at The American University.

The Homer Hoyt Institute underwent a transition from being a grant-receiving organization to becoming a grant-giving organization when Dr. Hoyt donated a mile of ocean front land to the Institute that had been named for him more than a decade earlier. Since then, other transitions have occurred, including the formation of the Weimer School and the Hoyt Fellows. The Hoyt Group has taken the lead in this history of thought project because it sees it as an important element in the development of real estate as a discipline. It sees transition as a way of life and would rather be taking positive action in influencing the character of change than simply reacting to it.

Others have similar concerns and we can expect some strategic alliances to emerge from this effort. With whom and when are uncertain. But, it is likely that some of the readership of this article will be among those involved in making the progress achievable by better understanding transition and participating in the evolution of real estate studies as a more scientifically-based intellectual discipline. ■

ENDNOTES

1. This call was discussed in an insert in a newsletter of the Homer Hoyt Advanced Studies Institute. The title was "Real Estate in 3 D." See the www.hoyt.org web site. Click on Advanced Studies Institute and the ASI Newsletter Inserts. In order to better understand the contributions of the study of real estate, one needs to look at the past for examples of transferring the principles from one discipline to another. The peculiar characteristics of real estate, the fixity of location and long economic life, bring to the fore principles that are widely applicable. Dealing with the issues related to forecasting outcomes of courses of action dependent on these conditions necessitates bringing to bear knowledge of other disciplines. Furthermore, the strategies used for dealing with real estate issues may be used in a wide range of non-real estate issues.

Two examples of applying strategies used for real estate issues to other issues are (1) getting involved in local government and (2) amelioration of urban problems. As to the first, developers know that they need to assess community interests and develop relationships with governmental authorities. That is the same approach major industry uses in moving to a new locality; getting the license to do business starts with establishing relationships. As to the second, amelioration of urban problems, proffers to provide community facilities are built upon a strategy of assessing the needs of other parties. This approach is widely used in other types of negotiations, especially in mergers. These are relatively simple aspects of strategies usable in a multiplicity of disciplines. Some more complex strategies are discussed in my favorite book, *Strategy in Poker, Business and War*, by John McDonald (W. W. Norton & Company, Inc., New York, 1950) which builds upon the theory of games in economic behavior. For an indication of how the real estate decision process has potential applications even to the issue of terrorism, see the draft of the above-referenced *Improving Decisions* at <http://www.spicequest.com/acse/index.htm>, the site of the Academy of Senior Professionals at Eckerd College.

2. Each of the principles alluded to engender extensions in understanding systems. The principle of balance in economics, for example, engenders the idea of increasing and decreasing returns. Built items may be over-engineered, creating excessive capacity at excessive cost. Design may be understated or excessive.

3. This is in his book, *Consilience: The Unity of Knowledge* (Vintage Books, New York, 1999) and was preceded by an article in the *Atlantic Monthly*, "Back from Chaos." See at the website, www.theatlantic.com/issues/98mar/eowilson.htm.

4. For an ongoing research program in the area of capital flows to real estate, see www.hoyt.org. Click on "Real Estate Capital Flows Research Program."

5. Additionally, the Counselors have in the past supported formal publications devoted to extending the body of knowledge through its monograph series and book programs. Reflection on "lessons learned" in these programs should prove useful as the organization moves into the future.

6. The first chapter of my monograph, *The Challenge to Our Thought Leaders*, published by the Homer Hoyt Institute, is available on the web at the hoyt.org website for those interested in getting a better understanding of the nature of our changing society, particularly with regard to real estate knowledge

Why Can't a Building Be More Like a Machine?

BY M. GORDON BROWN AND STEPHEN E. ROULAC

INTRODUCTION: THE INDUSTRIAL REVOLUTION SKIPPED REAL ESTATE

IN MY FAIR LADY, THE STAGE ADAPTATION OF PYGMALION, Professor Henry Higgins sings, "Why Can't a Woman Be More Like a Man?" What he is really asking is: "Why can't a set of rules that work for my half of the world apply to the other half?"

It's a question worth asking about real property. Real property accounts for approximately one-half of the world's wealth and nearly half of its economic activity. Like capital, labor and technology, real estate (land and its improvements) is a key factor of production. But what does it produce?

In 1947, *Fortune* magazine profiled major industries to assess the challenges and opportunities following the conclusion of the Second World War. About the housing sector, *Fortune* observed that it was the industry that the Industrial Revolution forgot, with building practices being as primitive as those in the time of Louis XIV. Real estate and its related industries have long lagged contemporary business. The subject matter and its practitioners have been parodied in multiple media ranging from Sinclair Lewis's classic *Babbitt* to the popular *Hawaii Five-O* television series, in which it seemed the bad guy was almost always a real estate developer.

The social systems, business practices, professional motivations and personal perspectives of those involved in the processes of creating buildings and places today are far removed from and very unlike their counterparts in most modern business undertakings outside of real estate. This is the case with respect not simply to manufacturing (the sector most associated with the idea of the machine) but also to marketing, financial management and so many other sectors of business that have employed an analytic understanding of systems and processes to transform the

world. In failing to appreciate how fundamentally different the world of corporate industry is from real estate, one-time presidential aspirant George Romney walked down the path of political oblivion. As HUD Secretary in 1970, Romney's much publicized and heavily funded effort to address the housing crisis through industrialized building methods, Operation Breakthrough, resulted in the construction of but 40 dwelling units.

In many ways today, the disciplines and sectors of economic activity associated with the creation of the built environment operate with approaches that have little relationship to those that have underpinned industrial progress. The result of the industrial revolution was the acquisition of hard-won axioms of organization and production that have been applied to the categories of capital, labor and technology. But, despite postwar efforts, the category of land remains somehow absent from this particu-

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lar period of human instruction. These axioms, exemplified in the vast array of contemporary machines, are not to be found in the way buildings and places are funded, designed, constructed and exchanged.

Advances in the property and real estate sectors have lagged far behind advances in society overall. The Industrial Revolution that occurred in the 1700s and 1800s preceded a similar Industrial Revolution now occurring within the property sector by approximately 200 years. Society has been operating in a post-Industrial Revolution mode for approximately the last two centuries. During much of this time, however, the property and real estate sectors have been largely in a pre-Industrial Revolution mode.

MACHINE IDEAS

The Industrial Revolution was not a stand-alone revolution. The sixteenth, seventeenth, eighteenth and nineteenth centuries experienced extended, equally disruptive revolutions in knowledge, governance, organization, communications and capital that not only stimulated the Industrial Revolution but also benefited from it. Yet, because it enabled power-driven machines to liberate living beings from physical toil, it is the industrial revolution that is the touchstone by which we consider almost any aspect of everyday life in its relation to business, industry and commerce. The dominant world view that emerged from the industrial and its associated revolutions was a view filtered by the image of the machine.

As Mumford (1970) has shown, machine ideas were not exclusive to the industrial revolution. Nor were they continuously dominant. Romanticism countered machine ideas frequently. Yet, for whatever doubts there may be now about the machine worldview, it was felt for a long time to be a liberating and beneficial one. But in real estate, it rarely came into focus. So, why can't a building be more like a machine?

To ask the question, "Why can't a building be more like a machine?" is to raise questions about assumptions. For example, maybe the characteristics of buildings and machines are completely incompatible. Or, maybe a building is like a machine in ways that we don't really understand. Or, maybe it's not that buildings should be like machines but that the means of producing them should be more machine-like.

Although, because of its heavy reliance upon mid-20th century economic and financial paradigms, real estate thought might be considered mechanistic as opposed to, say, organic, there are no explicit references to the machine as an organizing idea in real estate, in terms of either the building itself or any part of the process that gives rise to buildings. Since real estate is largely a practical, rather than theoretical, discipline, ideas come into it from other

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sources. A number of ideas come into real estate through its long and uneven dialogue with architecture. Two dominant ideas—the building as machine and the industrial production of buildings—will be examined here.

The Building as Machine—Machine ideas abounded in and are associated strongly with early 20th century architectural modernism. In 1927, Le Corbusier (1982), for example, stated "A house is a machine for living in." A so-called machine aesthetic was characteristic of many modern buildings from the 1920s into the 1960s and has made periodical appearances thereafter. It is worth noting that it was in this modernist context of thinking of buildings as machines that the foundations of modern real estate analysis were laid.

But a machine aesthetic is not the same as a machine function. Le Corbusier did not really regard a house as a true machine that would transform raw material, merely that it should be without anything extraneous to the purpose of living as he presumed it should be at the time, as efficient and unadorned as a massive early 20th century power generator. He was also exhorting architects to pay attention to the work of engineers. With respect to buildings other than houses, there is little Le Corbusier said that would suggest he regarded them as machines in any

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way other than metaphoric. Indeed, the idea of buildings as machines found itself often opposed to the organic ideas espoused by Frank Lloyd Wright. In architecture, the idea of a machine was no more than a metaphor used in an argument for function and against ornament, an idea that was shared to a great extent by many major and minor 20th century architects.

While the machine idea operated as a metaphor for most of architecture, it operated as a paradigm for an important exception—public housing. Public housing (social housing in Britain) had its start in the late 19th century and reached its zenith between the 1930s to the 1960s. The projects, as they were eventually called, were intended not simply to be replacements for substandard conventional housing but to transform their occupants into responsible participants in middle-class life. Yet, how they could do this by isolating their occupants and segregating them from the everyday aspects of middle class life is a mystery. Thus, it was not simply their frequently sterile appearance that suggested mechanistic thinking. It was the underlying paradigm, a form of social engineering. And what is more suggestive of machine ideas than engineering?

The so-called failure of public housing was attributed to their modern design although some have claimed the failure to be due at least as much to their mismanagement. The presumed failure of public housing design was one of the causes of architecture's dissociation from modernism, its social program and, along with it, the machine idea. A good result but for the wrong reason. By the late 1960s, there was another reason for architecture to abandon the machine idea: suburban development.

Machine Production—The procurement system employed to implement the construction of real estate projects still diverges materially from that in virtually every other major sector of the economy. Although the design/build movement has been afoot for a couple of decades, the prevailing method by which a real estate project is created involves five distinct and disjoint functions and entities providing goods and services to create the project. Whereas in the majority of industries the functions of design, engineering, parts production, assembly and sales are integrated into a single enterprise, in real estate these functions are most often provided by five different economic entities. The majority of real estate ventures involve five separate categories of companies providing goods and services to the overall project.

- Design services are provided by licensed architects.
- Engineering services are provided by licensed engineers.
- Component parts are provided by building materials suppliers.
- Assembly is managed by general contractors.
- Sales are the province of property marketing organizations.

The communication and interaction between these five parties is most often sequential, if not overtly adversarial. Engineers may be frustrated that architects are insufficiently sensitive to the structural implications of their designs. Contractors encounter plans and specifications they perceive (correctly or not) to be insufficiently articulated or uneconomic. Suppliers of building materials to real estate development projects are most often in a reactive mode, bidding to provide what is specified rather than having the opportunity to suggest what might best serve the project's profile and the user's objectives. The sales agent must deal with the project as presented, since the selling function rarely is connected to the research yielding meaningful input to the project to make it best serve prospective purchasers' needs and desires.

The contemporary procurement system for construction projects stands in stark contrast to the means by which other capital-intensive projects are designed, engineered, manufactured and sold. An automobile is a capital-intensive product whose complexity and functional utility challenges or at least mirrors how a building is constructed and used. What if five separate, independent companies were involved in designing the car, doing the engineering, providing the parts, assembling the car, and then selling it? While the sales process for a new car is through an auto dealership, which is most often a separate entity from the manufacturer, most dealerships operate with an ongoing association with the manufacturer, effectively serving as its agent. For the real estate development venture, by contrast, the five members of the development team that join together for a particular project may or may not have worked together before or expect to work together in the future.

Because, other than the developer, no one company that contracts and pays for the five companies' contributions to the final building project has an economic stake in the overall success of the project, each party to the venture is

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motivated to maximize profits and minimize risks for only their component of the project, often through arrangements and behaviors that can be detrimental to the project's overall profitability and risk.

Like the procurement processes in real estate, the means by which properties are transacted diverge dramatically from those that apply in other segments of society. Integrated delivery approaches are not unique to manufacturing. Suppose the delivery of medical services were similarly fragmented with each patient constituting a separate project requiring separate sub-contracts to undertake diagnosis, testing, counseling, prescriptions and surgery. We would not have a healthy society. If the production and transaction processes of other sectors of the economy could be described as advanced, then the property and real estate sector is primitive. This primitiveness creates obstacles and barriers, but also opportunities and potential.

In sharp contrast to the transparent, dynamic, efficient, streamlined, expedited and economical attributes of transactions of financial interests in some other assets, such as the shares in business enterprises, are the murky, ponderous, cumbersome, complex, time-consuming, and expensive characteristics of direct real estate transactions. In many ways the rigid, unique, long lead-time, fixed attributes of property seem out of sync with the fluid, ubiquitous, instantaneous attributes that characterize so much of contemporary society and commerce. As long and difficult a process as it is to engage in and commit to a direct real estate transaction at the front end, it is an equally, if not more, time-consuming and complex process to disengage from a direct real estate investment.

In the years following the 1947 *Fortune* article, the house building sector of real estate was perhaps the first to respond to the problems of real estate production. Post-war suburban development was aided immensely by innovative mortgage practices helping returning GIs and the new road building programs exemplified in federal Interstate Highway legislation. But, these externalities would not have been enough for the prodigious housing production that did take place without a key ingredient. This key ingredient was the incorporation by some of the

new builders—Levitt and Sons, for example—of recently learned, large-scale, wartime logistics management practices. (Albrecht, 1995) It was in suburban housing development that the building industry could legitimately be

The reasons why a building is not more like a machine or why real estate cannot enter into an industrial mode of production are by no means solely attributable to architects. Those involved in the planning, building, development, financing, and facilities management, as well as those who regulate and provide such social services as power, water, transportation, sewer, schools and police and fire services, are also culpable.

called an "industry." Even though these practices did not engage architects in their traditional role as the owner's agent in a building project, some architects embraced and sought to innovate within these developments. The case study houses by Charles and Ray Eames in Southern California are classic examples.

There were enormous and heroic efforts from the early 1950s into the early 1970s to industrialize building practices. German émigrés like Konrad Wachsmann transmitted the best of European mass fabrication techniques to American architecture students and Alcoa undertook construction of aluminum houses. (Many still stand.) But generally, large-scale industrialized building could not be sustained and the idea that houses might be called "product" still galls many architects. With the exception of a few design-build architecture firms and "New Urbanist" architects, most architects are far removed from the problems of building. The architectural ideal remains a self-referential profession with attitudes toward real estate that may be characterized as 'arch' and less interested in the technology and context of building than in architecture as artistic expression.

SOCIAL AND TRANSACTION COSTS

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pects. Those involved in the planning process, the building process, the development process, the financing process, and the facilities management process, as well as those who regulate and provide such social services as power, water, transportation, sewer, schools and police and fire services, are also culpable. James Graaskamp eloquently advanced the idea that these parties interact in ways that are adversarial and mutually suspicious, which inevitably compromise the prospects of efficacious and elegant outcomes (Roulac, 2000). The nature of the interaction between design-engineering-construction-finance-sales results in system-wide risk and diminished quality of any given project because each party pursues a self-serving risk-minimization strategy. The broader result, as is especially evident, is an overall collection of building projects that, as overwhelming commentary over the past decade has indicated, compromises the quality of the built environment.

Dissatisfaction with the built environment is pervasive. Over the past few decades, the idea of the machine has again fallen on hard times. The writings of Lewis Mumford, which addressed almost every aspect of settlement from the individual office building to regional patterns, were pervasively influential in removing the machine from its architectural pedestal. The post-war disillusionment caused by by-products of industrial production like pollution and congestion, obscure what was once so profound an enthrallment with the machine that, in early 19th century America, even nature was considered a giant beneficial machine. (Marx, 1967)

Many are dissatisfied because architecture is so ineffective and real estate is so effective. Contemporary concerns for sprawl, environmental degradation, traffic congestion, affordable housing, tarnished quality of life, space for growth and diminished community are vivid and troubling manifestations of the question, "Why can't a woman be more like a man?" Although considerable progress has been made, despite countless proposals, the approach is essentially incremental, isolated and narrow. Lacking is a comprehensive, systematic, and holistic approach that is needed to make the building environment operate in a manner more comparable to the standards of other segments of society. While architecture, building, and real estate disciplines have tended to operate as independent silos, an integrated approach is needed if the problems that plague the built environment are to be adequately addressed.

To raise questions about the disappointing results delivered by a disjointed approach to building and a fragmented real estate industry today suggests a form of market failure. It is saying there are serious social costs that are consequences of the fundamental structure of the real estate industry. This says, not just that the structure of the industry compromises the quality of its products but, that these social costs are externalities increasingly recognized as reasons for intervention. Think briefly of the need for affordable housing in so many housing markets in Western cities and the effectiveness of strategies being considered to address the problem.

One obvious perspective on this is the "Coase Theorem." Nobelist Ronald Coase proposed that problems often perceived to involve externalities coming from market failure and requiring intervention or subsidy are more likely to be problems involving transaction costs. Coase's work showed that, while there could indeed be externalities, if transaction costs were zero, there wouldn't be a problem, because the parties in the transaction would be able to make a deal that constituted an effective solution. The existence of unresolved externalities that have social costs can be traced to inordinately high transaction costs. Coase's thinking has had a major impact on thinking about the internet which clearly reduces many transaction costs for an indefinite number of parties.

Seen through the template of the Coase theorem, the huge advantage of the machine is that it not only replaces human manual (and intellectual) labor, it minimizes transactions costs that are brought about by a social division of labor. What is often not recognized is the underlying, centuries-old influence of the relationship between land and labor as established by contract. This remnant of feudalism and seigniorialism is quietly built in to the underlying thoughtways of real estate and thus into its structure. It ultimately affects the cost of transactions. That real estate transactions have an exceptionally high cost relative to those in other sectors is widely acknowledged. Reducing them has been one of the prime desiderata of many researchers. Part of the problem in reaching this goal has been the lack of a suitable paradigm to guide work toward it.

CONCLUSION: MACHINE AS A PARADIGM

The conventional idea of a machine is that it is a physical device organized to transform a set of material elements into something else. The machine idea inherited from the

Why Can't a Building Be More Like a Machine?

industrial revolution is that of a machine operating on the basis of power or energy. This notion of machine gives rise to a number of related words like mechanic, mechanical, mechanistic and mechanism, each of which work in slightly different contexts. These can all obscure the more important aspect of what might be a machine paradigm, which suggests not what a machine is, or is like, or what is like a machine, but how a set of phenomena can be regarded for purposes of study and analysis. On the other hand, the machine idea deriving from the information revolution is that of a machine operating on the basis of communication and control. Put another way, a true machine (as opposed to a metaphoric one like a political machine) need not be a physical, material thing but a dynamic system that changes a set of behaviors that may be embodied in various material forms.

The idea of transformation inherent in public housing programs is the essence of the machine idea. In this way, machines constitute the advance of the science over pre-scientific transformative means, i.e. magic. Thus the essence of a machine is not its form or substance as a thing but its transformative impact on behavior. A true machine in the abstract is a cybernetic machine.

Cybernetics envisages a set of possibilities much wider than the actual, and then asks why the particular case should conform to its usual particular restriction... questions of energy play almost no part—the energy is simply taken for granted. Even whether the system is closed to energy or open is often irrelevant; what is important is the extent to which the system is subject to determining and controlling factors. So no information or signal or determining factor may pass from part to part without its being recorded as a significant event. Cybernetics might, in fact, be defined as *the study of systems that are open to energy but closed to information and control—systems that are "information tight."* (Ashby, p. 1/5, 1/6)

This begins to make clear at least one reason why the set of rules that have worked for one half of the world do not work for real estate. Real estate is not information-tight. To make it information-tight requires a rigorous and precise definition of the variables that are transformed in the process of being put through the real estate machine. Real estate transforms a vast and perhaps indeterminate number of variables. Trees and ore become wood and steel framing for houses and high-rises. Streets, sidewalks, doors and windows are all the results of transformations

of a variety of natural materials. Farmlands and wilderness become subdivisions. Airports become town centers. Rolling hills become graded vistas. Dilapidated blocks become new multi-family apartments. Warehouses become loft dwellings. Historic sites become parking lots. All of these are sets of transformations that, in the interest of information tightness, need to be reduced to one or more canonical elements. The simplest of these is space.

The real estate industry is a space-transforming machine that produces, configures and exchanges space contained in various forms. Hypothesizing space as both input and output makes it fully clear that the real estate industry functions indeed as a machine. But it is a machine lacking control. Indeed, real estate is a classic, but very messy, black box, filled with components whose relationship can never be adequately understood without tightening the information concepts which it uses.

The idea that space, as both a metric entity in itself and with its various non-metric attributes, is both input and output for the myriad real estate activities is both practically and theoretically supportable. Practically, almost all real estate performance measures are reducible to some parameter per unit of spatial area.

That the space of everyday life can be of theoretical interest has been addressed by Giddens (1982). That it has cybernetic machine characteristics was first proposed by Brown (1982). More to the point, the idea that the production of the space of everyday life has theoretical interest has been well developed in the context of social critique. What could better describe what real estate does than the following statement.

An existing space may outlive its original purpose and the *raison d'être* which determines its forms, functions, and structures; it may thus in a sense become vacant, and susceptible of being diverted, reappropriated and put to a use quite different from its initial one. (Lefebvre, 1991)

So, why can't a building be more like a machine and why can't real estate function like other industries? Because the real estate industry hasn't had a paradigm that allows it to recognize that buildings can be like machines and that real estate can function like other industries. Recognition is the road to the reality of the better social goods that real estate can supply. ■

Why Can't a Building Be More Like a Machine?

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Enterprise and Parametric Modeling

Decision Support for Strategic Planning of Corporate Real Estate

BY CHARLES A. SHAPIRO, CRE

WHAT WOULD HAPPEN IF A CORPORATE REAL ESTATE department could investigate the impact of regional location, facility ownership and workplace utilization using a single analytical tool?

What would happen if a Corporate Real Estate department could predict the capital budget of a manufacturing company based just on the concept of a new product slated for production 3-4 years from now?

Who would listen to their findings? The Director of Corporate Real Estate? The CFO? The Heads of Manufacturing or R&D? The CEO?

These questions are among those being contemplated as a new generation of computerized models are being developed for the purpose of strategic planning of corporate real estate. The benefits of such models extend far beyond real estate analysis. In fact, the utility of such models may provide a new central role for corporate real estate departments and, as a by-product, yet another justification for centralized control of real estate in large multi-divisional corporations.

As analysts have become more skilled in the use of relational database and spreadsheet programs, and as computer capacity and speed constraints have diminished, new approaches to real estate analysis are being adopted to provide timely support for an ever wider spectrum of corporate executives. In contrast to traditional applications of financial modeling in corporate real estate, these emerging approaches purposely emphasize business needs (or the demand side) of corporate real estate, not just the financial feasibility of alternative supply-side solutions. Rather than simply assuming corporate demand as a given, these models

attempt to derive facility demand as a function of primary business strategies.

Two such approaches are Enterprise-wide Modeling and Parametric Modeling, both of which can be very effective in supporting real estate decisions in the context of broader business strategies, thus giving the corporate real estate executive a seat at some very important conference tables. However, there are practical and conceptual challenges in applying these approaches to corporate real estate. Both approaches are particularly "data hungry," requiring the marshalling of significant amounts of data from diverse sources within a corporation; and both require a focus and deftness with business details typically outside the real estate analysts' comfort zone.

CORPORATE ENTERPRISE-WIDE MODELING

Enterprise-wide Models, by definition, address aspects of businesses far broader than corporate real estate. Such models are defined not only by the breadth of their scope, but by the degree to which they reside within the information sys-

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Enterprise and Parametric Modeling

Exhibit 1

PROS AND CONS OF ENTERPRISE-WIDE MODELING

<u>Model Type / Feature</u>	<u>Benefits</u>	<u>Challenges/Limitations</u>
Embedded Systems	<ul style="list-style-type: none"> - Validity of non-real estate Data assured - Most suitable for real-time monitoring of business 	<ul style="list-style-type: none"> - Difficult to use for off-line planning - Difficult to model numerous alternatives
Facility Mgmt / CAD	<ul style="list-style-type: none"> - Creates Personnel / Assets Linkage 	<ul style="list-style-type: none"> - Typically limited to "before" & "after" comparison
Migration	<ul style="list-style-type: none"> - Migrates Individual Workers 	<ul style="list-style-type: none"> - Difficult to model Re-organization
Workpoint Accounting	<ul style="list-style-type: none"> - Focuses on Allocation of Total Costs to support Worker 	<ul style="list-style-type: none"> - Not oriented toward future projection.
Separated Models	<ul style="list-style-type: none"> - Comprehensive business scope beyond real estate - Enables clear, focused evaluation of "what if" scenarios 	<ul style="list-style-type: none"> - Requires periodic Linkage to Embedded Systems for Validation
Strategic Planning Models	<ul style="list-style-type: none"> - Bi-directional evaluation of: <ul style="list-style-type: none"> > business impact of real estate strategies > real estate impact of business strategies - Product Line, departmental or building group orientation - Future Projection orientation - Gives Corporate Real Estate a seat at the Business Strategy Forum 	<ul style="list-style-type: none"> - Requires thorough understanding of business : real estate relationships - Requires strong relationship with core business strategists - May not be detailed enough for single project authorization
Parametric Models	<ul style="list-style-type: none"> - Stresses cause & effect relationships - Ideal for capital cost or space demand models tied to products - Side benefits of "early" planning for products and facilities - Gives Corporate Real Estate a seat at the Business Strategy Forum 	<ul style="list-style-type: none"> - Requires extensive knowledge of core business - Mostly outside real estate analysis "comfort zone" - Requires strong relationship with core business strategists

tems of a corporation. For purposes of discussion, these can be divided into two types:

- 1) Embedded, having direct real-time linkage to corporate data systems; and
- 2) Linked, less ambitious models using only occasional updates from corporate data systems.

The Embedded form of Enterprise modeling has the built-in validity of using the same corporate data used in the corporation's core business and in other administrative support functions. The Linked form has the benefit

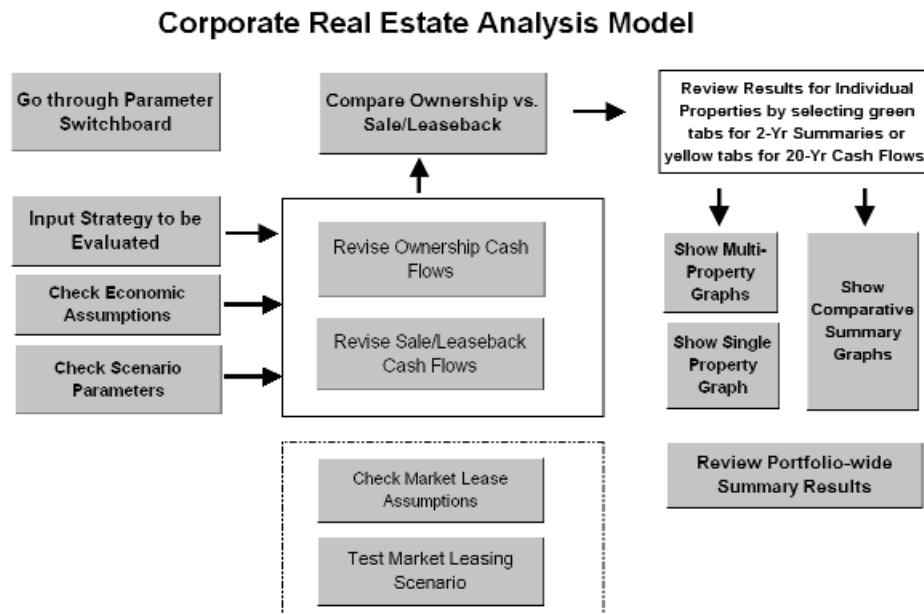
of enabling rapid analysis of "what-if" scenarios. While Enterprise-wide in scope, these separated models can be more compact, not actually manipulating the large volumes of detailed information of an embedded system. It has often been observed that these smaller models are the most effective decision-support tools, with a clarity that is appealing to the highest levels of corporate decision-makers.

In their most embedded form, Enterprise models harness huge amounts of corporate data (including payroll, accounting and purchasing data) directly from corporate

Enterprise and Parametric Modeling

Exhibit 2

Corporate Real Estate Analysis Model



databases, enabling real-time monitoring of performance. These systems link this compendium of business data to current real estate information, typically using personnel records as the primary linkage. With the worker as the primary data key, everything from floor plans to asset lists (e.g., office equipment) can be linked to specific employees, thus adopting a "workplace accounting" perspective to display a cost breakdown of real estate and other assets necessary to provide each worker with their complete corporate work environment. These applications of Enterprise-wide models can prove especially useful in tracking complicated corporate relocation initiatives or the personnel migration accompanying floor-by-floor or zone-by-zone building re-configuration projects. In these instances, tracking (rather than analysis) becomes the priority, since the complex game of musical chairs typically occurs on an individual worker basis, rather than at a departmental level. Ironically, the pitfall of these ambitious embedded Enterprise-wide models is their very emphasis on real-time data, which often inhibits their suitability for planning purposes (particularly for long-range planning beyond the time horizon of a small project).

SIMPLIFIED ENTERPRISE MODELING

The challenge is to enable modeling that is both enterprise-wide in scope (with potentially direct linkage to real-time data), but with the ability to rise in altitude, so to speak, by modeling workgroups and other teams tied to the products and revenue streams of a corporation. Using commonly available software (such as Access or Excel), one can model a corporation both by lines of business and by groups of locations or buildings. Most importantly, these models can be designed to estimate the need for facilities as a function of product revenue and the personnel required to create and sell those products. This demand-side connection can be most effective in enabling corporate real estate executives to demonstrate, with proper perspective, the role of real estate as a facilitator of the corporation's core business.

Capitalizing on the bi-directional nature of the relationship between business and real estate, these models can be utilized to evaluate:

- 1) the operational business impact of corporate real estate decisions; and
- 2) the real estate impact of business operation decisions.

Enterprise and Parametric Modeling

Exhibit 3

Corporate Real Estate Ownership Model Parameters

Comparative Modes of Property Ownership Owned Sale / Leaseback Market Lease	For Ownership Scenarios Book Value & Depreciation Building Infrastructure Equipment Mortgage Planned Capital Expenditure Office - Bldg CapEx Mfg/Ind - Bldg CapEx Reversionary Sale
Universal Assumptions & Parameters Miscellaneous ↳ Years of Analysis ↳ Discount Rates ↳ Corporate Tax Rate ↳ Number of Shares Outstanding	
Property-Specific Parameters - All Modes Occupancy Expenses For Office & Mfg/Ind: Operating Expenses & Growth Rates Utility Expenses & Growth Rates Maintenance / Repair & Growth Rates Real Estate Taxes & Growth Rates For Land: Real Estate Taxes & Growth Rates Revenue For Office & Mfg/Ind: Revenue & Growth Rates	For Market Lease Scenarios Market Rates Office Rental Rates Office Lease Terms & Conditions Office Tenant Improvement Allowance Manufacturing / Industrial Rental Rates Mfg/Ind Lease Terms & Conditions Mfg/Ind Tenant Improvement Allowances Property Sale Property Sale Fees
For Sale / Leaseback Scenarios Corporate Perspective Gross Property Sale Price Tenant Improvement Allowance Transaction Costs & Fees Percentage of Property to be Leased Back LeaseBack Rent, Terms & Conditions	Third-Party Owner's Perspective Required IRR Expense Ratio Reversionary Sale

For example, one can investigate the impact of changes in the mix of a business's products on corporate revenue, labor requirements, facility requirements (including production and administration) and all of the ensuing expenses of running the business. By designing these models to run in reverse, the overall business impact of specific real estate and facility decisions can be evaluated. These may include the sale/leaseback of existing facilities, the relocation of operations to new locations, or the application of new workplace standards to corporate facilities.

By intentionally including a spectrum of non-real estate variables in the analysis, Enterprise-wide Modeling can go far beyond the more traditional analysis of costs and benefits of specific real estate decisions (such as "own vs. lease," "private office vs. open plan workstation," or "old location vs. new location"). Narrow decision-specific analyses have characterized corporate real estate analysis since the first application of computer technology and the

use of discounted cash flows. By contrast, Enterprise-wide Modeling seeks to create a broader model of the business, in which corporate real estate can be portrayed in its proper context, as a facilitator of business operations, rather than an end in itself.

Enterprise and Parametric Modeling

Exhibit 4

Manufacturing Parameters

Manufacturing Capital Budgeting Model - Parametric Menu

Product Code	Product Name	1	2	3	4	5	6	7	8	9	10	11	12	13
		Model Change	Vehicle Type:	Vehicle Arch.	Vehicle Weight	Welds	Doors	Vehicle Length	Vehicle Width	Vehicle Height	Drive	Complex.	Styles	Alt. Materials
		Major	SUV	BOF	2000 3610 5000	1000 2550 4000	2 5 6	100 118 200	60 80 100	40 70 100	AWD	Medium	1 3 8	Aluminum

Launch Year	Yearly Volumes	Shifts	Crews	Line Rate	Plant Code	Plant Name	Plant Status	Brownfield / Greenfield	Compatibility	Plant Conversion Strategy

Manufacturing Capital Budgeting Model - Sample Outputs

	Bldg Conversion		Equipment Cost		Tool Cost		Total Capital Expense	Capital PV	PV per Unit	Annual Burden	Annual Burden per Unit	Program Burden	Program Burden per Unit
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2							
Body Shop													
Paint Shop													
GA													
TOTAL PLANT													

New Major Minor CAR TRUCK SUV BOF BFI Aluminum Composite Other

PARAMETRIC MODELING

Parametric Modeling involves the portrayal of key parameters of a business as a function of multiple independent variables. The most common non-real estate applications of Parametric Modeling have been in cost estimating, where the cost of producing a product are estimated as a function of the specifications of the product. Contractors to NASA and other government agencies employ this technique. The most direct application of Parametric Modeling to real estate involves a variation on this technique, in this case for the facilities of manufacturing companies, in order to estimate capital expenditures required to convert plants and equipment to produce new products. In certain industries, these conversion costs when new products are introduced can be far more significant than the basic cost of bricks and mortar for the original facility.

From a real estate perspective, within the context of broader Enterprise-wide models, Parametric Modeling can estimate changes in specific real estate variables (such as capital expenditures, facility occupancy, income and expense, and transactional proceeds) as a function of corporate operational decisions. Through such modeling, the potential real estate impact of very broad business strategies, such as the addition of new products or lines of business, the elimination of existing products or lines of business, or the outsourcing or relocation of various parts of a business, can be projected.

REQUIREMENTS OF ENTERPRISE AND PARAMETRIC MODELS

Admittedly, the data and analytical requirements of Enterprise-wide and Parametric models can be somewhat more complex than those of traditional real estate analysis. Most notably, they require a willingness to address business parameters well beyond the "comfort zone" of

Enterprise and Parametric Modeling

Exhibit 5a

Corporate Real Estate Profile: Occupancy

Corporate Real Estate Profile New Strategy Parameters			Occupancy Expense & Building Efficiency											
Use Sample Data for Strategy		Clear All Inputs		Occupancy Exp. & Bldg. Efficiency			Density		Impact of New Strategy - Deltas					
Expense & Efficiency		Personnel Economics		Workplace Density		\$ Pretax Occupancy Expense per RSF	Bldg Rental Efficiency (RSF/GSF)	Building Efficiency (USF/GSF)	Density (GSF per Workstation)	Density (GSF per Person)	Change in Personnel	Change in Facility Density (GSF per Person)	Change in Facility Demand (GSF)	Change in Annual Pre-tax Occupancy Expense
Summary														
Fitup		Work Patterns												
Executive				\$60.00 \$34.00 \$0.00	125% 105 75%	100% 70 50%	961.7	961.7	0	0.0	0	\$0		
Administration				\$60.00 \$30.00 \$0.00	125% 105 75%	100% 75 50%								
Sales & Marketing				\$60.00 \$38.00 \$0.00	125% 100 75%	100% 75 50%								
Product Development				\$60.00 \$25.00 \$0.00	125% 100 75%	100% 70 50%								
Operations				\$60.00 \$6.00 \$0.00	125% 95 75%	100% 80 50%								
Total Company				\$16.45	98.1%	76.2%	383.5	357.4	0	0.0	0	\$0		
\$50,000,000				\$2,939,300	175,380	178,710			500					
Company Total Revenue				\$5.879										\$0

many practitioners of real estate, including aspects of a corporation's core revenue generation. These may include elements of supply chain, production and sales, as well as expense-side variables such as operational labor expenses, product development costs, raw material cost, and sales and distribution expenses. On the revenue side, while traditional real estate analyses have no problem addressing building revenue and property sale proceeds, Enterprise models often involve the creation of the complete revenue side of a corporation's primary business, including specific product pricing and projections of future sales volume.

The need for such data stems from the goal of Enterprise models to portray a comprehensive view, not only of all aspects of corporate revenue and expenses, but of the sensitivity of performance metrics to business strategies such as outsourcing, supplier integration and after-market revenue potential.

ENTERPRISE SCALE BENEFITS

With the broad scope (and data challenges) of Enterprise-wide modeling come some fundamental advantages, including a high degree of philosophical clarity. While analysts of real estate transactions are often faced with vexing dilemmas regarding the "counting" or "exclusion" of what are commonly described as "shadow costs" and "non-quantifiable impacts," users of Enterprise-wide models generally don't have to qualify their results because, quite frankly, the intent of their models is to "count everything." Impacts felt at the corporate level, which may be "outside the scope" of departmentally defined transaction analyses, cannot be relegated to asterisk status, since the model, by definition, is intended to demonstrate impacts throughout the corporation. When dealing with relocation strategies, the analyst using an Enterprise-wide model need not make special provision to include the impact of vacant space in an abandoned location, since the model is incapable of excluding such costs from the analysis. The watchword of such models is, sim-

Exhibit 5b

Corporate Real Estate Profile: Density

Corporate Real Estate Profile New Strategy Parameters		Workplace Density					Impact of New Strategy - Deltas					Total Number of Personnel	Density (USF per Person)	
Use Sample Data for Strategy	Clear All Inputs	Private Offices as % of total Workplaces	Avg Private Office Size - net USF	Avg Workstation Size - net USF	Offices and Workstations as % of Net USF of all functions	Circulation as a % of Net USF (Circulation Factor)	Change in Personnel	Change in Facility Density (GSF per Person)	Change in Facility Demand (GSF)	Change in Annual Pre-tax Occupancy Expense	% of Company Personnel		Density (USF per Person)	Density (USF per Workstation)
Expense & Efficiency	Personnel Economics	Workplace Density												
Summary														
Fitup	Work Patterns													
Executive		100% 70 0%	500 300 0	100 48 0	100% 50 0%	100% 50 0%	0	0.0	0	\$0	100% 2 0%	10	673.2	673.2
Administration		100% 5 0%	500 180 0	100 48 0	100% 45 0%	100% 55 0%	0	0.0	0	\$0	100% 18 0%	90	188.1	169.3
Sales & Marketing		100% 10 0%	500 240 0	100 48 0	100% 40 0%	100% 50 0%	0	0.0	0	\$0	100% 5 0%	25	252.0	226.8
Product Development		100% 5 0%	500 180 0	100 110 0	100% 40 0%	100% 55 0%	0	0.0	0	\$0	100% 15 0%	75	439.8	417.8
Operations		100% 5 0%	500 150 0	100 48 0	100% 30 0%	100% 55 0%	0	0.0	0	\$0	100% 60 0%	300	274.3	257.2
Total Company		6.6%	197.9	57.6	35.4%	1.55	0	0.0	0	\$0	100.0%	500	292.1	272.3
\$50,000,000			31	435		136,130	500							
Company Total Revenue			\$2,939,300	\$5,879		175,380				\$0				

ply, "when in doubt, aggregate upward," rather than "when in doubt, cite it with an asterisk."

PARAMETRIC BENEFITS

Commensurate with the additional requirements of Parametric modeling are the additional benefits. All too often, those responsible for real estate and facilities in corporations are relegated to the province of "general services and support." By elevating the analysis of real estate and facilities to include operational impact and, most importantly, corporate revenues, parametric modeling can give corporate real estate executives a seat at a far more important table: that of strategic business planning.

EXAMPLE #1 -PRO-ACTIVE TOOLS
FOR PORTFOLIO OWNERSHIP AND DEPLOYMENT

Although discounted cash flow analysis has been a common tool in corporate real estate for decades, it is typically applied to single property transactions. Since decisions often follow guidelines set by corporate treasuries, analyses utilizing spreadsheet templates have sometimes been adopted by corporate real estate departments as a standard approach. All too often, however, the quirks of individual real estate transactions (and sometimes deference to outside brokerage and management firms) have forced

corporate real estate departments to veer away from standardized templates.

The added speed and capacity of personal computers, however, enabled one corporation to adopt a single model, not only as a template, but as a system in which analyses of multiple properties (or the entire portfolio) could be conducted. The "Corporate Real Estate Portfolio Analysis" system developed for this client provides simultaneous cash flow analyses for as many as 25 corporate properties. A single button instructs the model to create cash flows of specified duration (typically 10-25 years) under three different modes of ownership: 1) corporate ownership; 2) sale/leaseback and 3) leasing of facilities on the open market. Within seconds, the model can "assemble" the portfolio, combining groups of owned, leased back, or market leased properties. Both tabular and graphical results are displayed for individual properties, groups of properties and the entire portfolio. Results include 1) real estate metrics (such as Pre-tax and After-tax occupancy expense, expressed as an Net Present Values and annualized as Level Rent Annuities); and 2) corporate metrics (such as impact on earnings per share).

Enterprise and Parametric Modeling

Exhibit 5c

Corporate Real Estate Profile: Occupancy: Personnel

Corporate Real Estate Profile New Strategy Parameters		Personnel Economics				Work Patterns					
<input type="button" value="Use Sample Data for Strategy"/> <input type="button" value="Clear All Inputs"/>		Annual Revenue per Person	Annual Compensation per Person	2nd Shift Wage Premium	3rd Shift Wage Premium	% Personnel On-Site	% of Personnel Telecommuting	% of Workweek Telecommuting	% Dedicated Workstations	% Time away from Workstation	# of Shifts
<input type="button" value="Expense & Efficiency"/> <input type="button" value="Personnel Economics"/> <input type="button" value="Workplace Density"/>											
<input type="button" value="Summary"/>											
<input type="button" value="Fitup"/> <input type="button" value="Work Patterns"/>											
Executive		\$200.0 \$100.0 \$0.0	\$200.0 \$335.0 \$0.0	2.00 1.00 1.00	2.00 1.00 1.00	100% 100% 0%	100% 0% 0%	100% 100% 0%	100% 100% 0%	100% 100% 0%	3.00 1.00 1.00
Administration		\$200.0 \$100.0 \$0.0	\$200.0 \$80.0 \$0.0	2.00 1.00 1.00	2.00 1.00 1.00	100% 100% 0%	100% 10% 0%	100% 100% 0%	100% 100% 0%	100% 0% 0%	3.00 1.00 1.00
Sales & Marketing		\$200.0 \$100.0 \$0.0	\$200.0 \$135.0 \$0.0	2.00 1.00 1.00	2.00 1.00 1.00	100% 100% 0%	100% 25% 0%	100% 20% 0%	100% 75% 0%	100% 25% 0%	3.00 133 1.00
Product Development		\$200.0 \$100.0 \$0.0	\$200.0 \$95.0 \$0.0	2.00 1.10 1.00	2.00 1.20 1.00	100% 100% 0%	100% 5% 0%	100% 100% 0%	100% 100% 0%	100% 0% 0%	3.00 100 1.00
Operations		\$200.0 \$100.0 \$0.0	\$200.0 \$45.0 \$0.0	2.00 1.10 1.00	2.00 1.20 1.00	100% 100% 0%	100% 0% 0%	100% 0% 0%	100% 75% 0%	100% 25% 0%	3.00 195 1.00
Total Company											
\$50,000,000											
Company Total Revenue											

The primary purpose of this model is to provide directional guidance and sensitivity analysis to the corporate real estate department. Rather than simply responding to transactions proposed by others, analysts within corporate real estate can immediately investigate "what-if" scenarios as diverse as:

- 1) Selling and leasing back the entire facility portfolio;
- 2) Closing certain locations and either building or leasing facilities in new locations;
- 3) Selling entire facilities but leasing back only portions needed based on changing corporate facility demand; and
- 4) Adopting different strategies for different sub-sets of properties based on their physical characteristics, planned capital expenditures, or the success of certain business units occupying those facilities.

A side benefit of this model is, of course, the standardization of data describing each property, each prospective transaction and each market area in which the corporation currently or potentially operates.

Beyond its use as a property analysis tool, this model can serve as the property module of a broader suite of models dealing with the regional (or global) location of corporate operations. By adding modules on differential labor costs,

distribution costs and regional production goals, one can analyze the costs and benefits not only of property ownership or leasing, but alternative strategies for regional or global re-deployment of certain corporate functions.

EXAMPLE #2 - CAPITAL BUDGETING IN MANUFACTURING

One of the first applications of Parametric Modeling occurred in the real estate-related field of capital budgeting. At a major auto maker, parametric models were derived to provide a pragmatic way of estimating future capital expenditures for plant conversion, installation of equipment and new tooling at auto assembly plants. The independent variables driving these models were the "attributes" of new car and truck models to be assembled, combined with the attributes of each of the company's plants. Through successive work sessions with engineers responsible for more detailed "one-off" estimates, a series of mathematical models was derived for estimation of plant conversion, equipment and tooling, based on key parameters such as the size, structure, features and complexity of the company's products (in this case, cars and trucks). Using these models, capital costs associated with assembling each of the company's existing and planned future products could be estimated for hypothetical production of various volumes at each of the company's plants.

Enterprise and Parametric Modeling

The resulting model was capable of predicting future capital expenditures for the company's overall product plan under a variety of product : plant combinations. After several months of refinement, these models were capable of providing estimates within 5% of the traditional more detailed methods, based, most importantly, on far fewer attributes of vehicles and plants. The power of doing the accurate estimates with as few attributes as possible has inestimable value to an auto maker, since this allows them to estimate the financial consequences of a new vehicle model very early in the product development process, when the product is still very conceptual. This can greatly accelerate the testing of strategies to deploy new products to various assembly plants, something the previous method of cost estimating didn't allow until several years later, when new products had been completely designed.

As a result of this Parametric Model, which takes product information and applies it to real estate cost estimation, this corporation has made the team of real estate analysts essential participants in its Product Planning Process.

EXAMPLE #3 - WORKPLACE AND OCCUPANCY PROFILE

Summarizing corporate occupancy is the goal of a decision-support tool known as the workplace density, personnel work patterns and occupancy for a multi-divisional corporation. By designing screens composed of "graphic equalizers," the model can be used to test the impact of changing a variety of corporate parameters.

A Base Case, i.e., the current occupancy pattern of each division of the corporation, is used as a basis for comparison. A New Strategy can be designed by changing relevant parameters. The impact on overall occupancy expense, workplace efficiency and other facility performance metrics can be immediately observed. Using this tool, corporate decision-makers can hypothesize different facility strategies for different parts of the corporation and observe their impact on the corporation's bottom line.

The following types of variables are considered by the Parametric Model for each Division of the Corporation:

- Workplace Patterns—e.g., Telecommuting, Hoteling & non-dedicated Workstations
- Workplace Density—e.g., Private Offices vs. Open Plan Workstations vs. Team Spaces
- Support Spaces—e.g., File Storage, Office Equipment, Amenities & Circulation

- Tenant Installations—Since the model is driven by high-level corporate metrics, such as Revenue per Person in each Division, the relative impact of various Real Estate-oriented parameters can be seen in their appropriate context. This affords the corporation an objective and timely view through to assess the potential benefits of corporate relocation, or modification of existing facilities.

CONCLUSION

It should be noted that the goal of models of the type described here is to address comprehensively the types of questions being posed by corporate decision-makers, not to provide the most detailed analysis possible. Rather than creating tools that satisfy the most demanding perfectionist within each part of a corporation, the power of these models is their ability to provide timely directional support for high-level corporate decisions.

One of the primary hurdles of developing and applying Enterprise-wide or Parametric modeling to corporate real estate and planning functions can be the organizational structure of the corporation. These types of models cannot necessarily be recommended for every corporate real estate executive, nor for every corporation, because their effective use requires, by definition, a willingness to look beyond some of the traditional roles of corporate real estate departments. In fact, their value is often best conveyed by demonstration to decision-makers outside those departments. ■

Making Green Communities Work

BY STEVE KELLENBERG

THROUGHOUT THE NATION, THE BUILDING AND COMMUNITY development sectors of the real estate industry are looking more seriously at incorporating "Green" solutions into their projects. Of course, all of these programs cost money to implement, but this isn't stopping many of the enlightened builders and developers who believe the benefits of Green far outweigh the costs. But what exactly does "Green" mean?

Also referred to as sustainable development, Green development (or Green communities) offers an opportunity to create environmentally sound and resource-efficient buildings and communities by using an integrated approach to design that is sensitive to natural resources and their protection. Green development promotes resource conservation, including energy efficiency, renewable energy, and water conservation features. It also takes into account environmental impacts and waste minimization with the goal of creating a healthier and more comfortable environment; reducing operation and maintenance costs; and addressing issues such as historical preservation, access to public transportation and other community infrastructure systems.

With Green development, the entire lifecycle of a development and its components is considered, as well as the economic and environmental impact and performance. An increasing number of developers, land planners, designers, and real estate owners are becoming interested and involved in Green development. National and local programs encouraging Green development are growing and reporting successes, while hundreds of demonstration projects and private developments across the country provide tangible examples of what Green development can accomplish in terms of comfort, aesthetics, and energy and resource efficiency.

While there is a lot of information on Green development available for individual buildings, little exists for large-scale, master-planned communities. Major developers everywhere are trying to make sense of the hundreds of products and

applications that could lead to a more sustainable (and hopefully bankable) project. The approach described here attempts to provide a general roadmap for applying Green practices to large, complex, market-driven land development projects. It suggests a process that incorporates market demographics, probes consumer values, and filters Green building and development components through a cost/benefit analysis, all with the goal of assessing from different viewpoints what it would mean to integrate a Green program—or elements of a program—into a project's financial blueprint.

WHY DEVELOPERS ARE INTERESTED IN GREEN COMMUNITIES

Community developers are pursuing Green programs for four key reasons: 1) it is the right thing to do, 2) it improves public and civic image, 3) it accelerates jurisdictional approvals, or 4) it fills an unmet market demand.

About the Author

Steve Kellenberg is a principal with the Irvine, CA office of EDAW—one of the world's largest land and environment-based planning and design firms. Kellenberg is the leader of EDAW's Green Communities Initiative and has master planned a number of large new community and redevelopment projects that are implementing Green development practices at various levels. He has spoken frequently on sustainable planning methodologies for large complex projects and he co-authored an Urban Land Institute book, "Great Planned Communities." Founded in 1939, EDAW's core services—land planning, landscape architecture, urban design, environmental and economic planning—form a continuum of disciplines whose fusion enriches the solutions that it develops with its clients. As a member of the world community, EDAW's goals include responding to critical environmental and social issues by deepening its practice in design, urban regeneration, water resource management, green community planning, and support for federal projects. (E-mail: kellenbergs@edaw.com)

Making Green Communities Work

Aside from the financial benefits, such as reduced operating costs, value-added premiums and reduced capital costs, green development is appealing because it is development for the future, not just today. Many people like to be associated with projects or developments that are forward thinking and environmentally sound. Indeed, there is satisfaction and value from doing the right thing, both on the part of the developer/builder and the homebuyer.

Clearly consumers are interested in sustainable design. A 2001 survey for the Cahners Residential Group found that eight of 10 homebuyers interviewed say that new homes do not meet their expectations for environmental sustainability, and 96 percent said they would pay more for a home with "Green features." More than half would pay \$5,000 to \$10,000 extra for a Green home. In a 2001 Housing Zone/Professional Builder survey, consumer belief that new homes do not meet buyers' sustainability needs increased from 60 percent to 80 percent in one year, and the belief that energy efficiency is very important rose from 50 percent to 91 percent during the same period. The same survey noted that the usual new-home upgrades of kitchen cabinets, whirlpools, and exterior trim were on the decline at rates of 30 percent to 50 percent, while indoor air quality and xeriscaping (water-saving landscaping) upgrades were increasing at rates of 18 percent to 50 percent.

Throughout California, government agencies are encouraging, sometimes even requiring, developers to use Green development principles. Every indication is that this is a growing trend and that in many regions a Green program will soon be expected in tandem with the usual master plan and zoning submission. Meanwhile, applying Green measures can definitely win over communities and speed the entitlement process. Voluntarily restoring wetlands and other ecological areas, encouraging alternatives to automobile use, and creating open space for community use go a long way towards building support and reducing legal delays.

Because some Green program elements add costs, it's important to identify the degree to which buyers value the benefits and are willing to pay a sales premium, resulting in higher revenue. This "Green premium," supplemented by tax incentives and lower operating costs, is crucial to developing a balanced Green program. The challenge is to select the right mix of elements that will result in better financial performance in both the short and long run. In

regards to Leadership in Environmental Energy and Design (LEED™), one professional had this to say: "You really have to evaluate which products/techniques you want to concentrate on. It's a case-by-case analysis because each project is so different. It's impossible to achieve all 69 of the LEED points, but you don't need to—this is where you pick and choose," said Jorden Segraves, senior level job captain, TCA (Thomas P. Cox: Architects, Inc. of Irvine, Calif.).

The following six steps are suggested in developing a Green program at a community level. Not all projects will use every Green component equally—each region, market, and site is different.

1. Identify an Evaluation Process—The biggest challenge is developing a systematic approach to balancing and weighing the vast array of technologies, products, and systems. Several tools exist to assess a project's Green potential. For environmental planning, the Audubon Signature Cooperative Sanctuary Program provides comprehensive assistance and education, from design through construction. For balancing the environmental and economic performance of specific building products, the National Institute of Standards and Technology Building and Fire Research Laboratory has developed the Building for Environmental and Economic Sustainability (BEES) software. It provides environmental and economic performance data for nearly 200 building products. The popular LEED Green Building Rating System, developed by the U.S. Green Building Council, provides an accreditation system for individual buildings (commercial, office, industrial and residential over four stories).

The Sustainable Project Appraisal Routine (SPeAR™) Rating System developed by the engineering firm Arup measures sustainability more broadly. The system provides easy-to-understand exhibits illustrating the degree to which the Green program balances environmental, societal, natural resource, and economic aspects of a project, rather than addressing only easily achieved components. The systems cost evaluation tool is especially valuable in comparing Green component costs. Here each of the Green components, such as low-e windows ("low-emissivity" windows that slow the flow of heat through glass) or R-24 insulation, is categorized into one of four categories of cost recapture: no additional cost, cost recaptured within the current phase of development, cost recaptured at some point during the development process, and lastly, no

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Exhibit 1 CASE STUDIES

Ladera Ranch—Terramor, Orange County, CA

Responding to extensive consumer research, the Ladera Ranch's fifth village, Terramor, is planned to serve a target market searching for tightly knit, socially progressive neighborhoods that have a strong Green orientation and that are not focused around automobile use. Two cores of higher density housing are organized around the central open space for activities and recreation. The cores are linked by a bio-filtration open space corridor that serves as the central pedestrian and activity spine of the village. Automobiles are kept to the periphery, enabling residents to go almost anywhere in the village without crossing a street. The village represents one of the most ambitious Green building programs in Southern California. Ten builders are participating in a uniform program, which includes umbrella Energy Star rebate programs, energy-use reductions and cost savings exceeding 20 percent, neighborhood electric vehicle (NEV) promotion, photovoltaic panels, and coordinated waste management.

Stapleton Development Plan, Denver, CO

The redevelopment of the former Stapleton airport site provides one of the largest urban infill opportunities in the US. Surrounded by established residential neighborhoods, the 4,500-acre site lies directly east of downtown Denver. The challenge was to create a plan that would link economic and social objectives with development, integrate nature and wildlife with the urban environment on a permanent basis, and implement a more sustainable pattern of development that consumes fewer natural resources and impacts the natural environment less. The project required extensive environmental remediation: removal and recycling of existing runways, management and integration of water on site, and the creation of a strong open space system. All residential development must meet or exceed the requirements of the Home Builders' Association Green Builder Program.

Hidden Springs, Boise ID

In 2000, the Hidden Springs "green community" was selected for the prestigious Best Smart Growth Award from the National Association of Home Builders. The founding vision for Hidden Springs is to build a rural community in the tradition of Idaho's small towns, while carefully preserving the natural surroundings of Dry Creek Valley. This is reflected in the Hidden Springs land plan, which includes numerous environmental precautions and improvements, over 800 acres of permanent open space, and on-site retail and educational facilities to minimize car travel. The town is built by its founders and residents upon eight principles: 1. Rural character and farming traditions: To maintain the rural traditions of the property by incorporating older out buildings into landscape designs where practical, and allowing some of the open space for appropriate agricultural uses. 2. Small town: Traditional neighborhood design will be the foundation for the small-town lifestyle. 3. Natural environment: Respect the natural environment. 4. Traditional homes: Encourage the design and construction of homes that are comfortable and long-lasting; homes that will use energy and resources efficiently and responsibly. 5. Quality of life and healthy living: Set aside, and care for, large and diverse areas for outdoor living and recreation. 6. Education: The developer believes quality education starts at home, and will support neighborhood schools and lifelong learning opportunities. 7. Diversity: The community offers a variety of homes so that people of many ages, incomes, and backgrounds can live at Hidden Springs. 8. Value and values: Create a community that provides enrichment, enjoyment, and value for many generations to come; a place where residents will "be proud to watch your grandchildren grow up."

recapture of cost. This allows logical trade-offs to be made and the costs kept in perspective.

2. Using Market Analysis to Identify a Green Revenue Stream—Every developer knows that costs are more easily predicted than revenues, especially when dealing with less tangible amenities and their premiums. Given the lack of precedent in Green consumer spending, demographic and value-based consumer research is helpful in projecting a Green premium. First, demographics can suggest the level of Green innovation a target market can support. Higher-income, more sophisticated markets have the discretionary

buying power to better express their Green preferences than lower income, more value-oriented markets.

An emerging rationale is that there is a measurable, unmet demand for Green communities in the market place. Basic economic theory suggests that if a significant segment of the market is searching for greener living at the home and community levels, and little if any is being offered, then the projects that step forward should enjoy either higher pricing, faster absorption, or both.

Making Green Communities Work

Exhibit 2

EDUCATING THE TEAM

Building a Green community may require educating a broad spectrum of audiences. Contractors may need education about construction techniques and materials, as well as environmental regulations. For builders to support Green techniques, they must understand the rationale for changing some of their time-tested practices. Fresh market data, cost estimates, premium revenue assumptions, product availability, and logistical shortcuts provided early on can help build a sense of confidence for those new to Green building. Residents, workers, and other users may need education on their responsibilities. Educating government agencies and the surrounding community can facilitate permitting.

Educational components include:

Master developer—Experience has shown that some level of passion for greener building must go all the way to the top of the development organization for a project to be successful. This requires education at every level, not so that all become experts, but that all generally understand what and why a new initiative has been undertaken.

Builder—Senior management gives the green light, but the design team, purchasing, and field supervision also need to buy in.

Sub-contractor—Builder subcontractors need to be informed about why they are changing standard practice or products.

City staff and Public Works—Many Green technologies and practices differ from what the plan checkers and field inspectors are used to seeing. Early workshops with the jurisdiction are key.

End User Residents and Workers—The residents must be trained how to operate the sustainable living environment once it is completed. Recycling, waste management, irrigation practices, landscaping, and use of energy-saving devices require an ongoing education program funded and maintained by the master association.

Interpretation—Many Green communities have preserved or reconstructed wetlands and wildlife corridors, and preserved native and sensitive species. Interpretive centers, educational exhibits, nature trail systems, and stewardship programs can make the community aware of these elements.

Buyers seem to invest in Green measures for one of two reasons. Either they believe it is important to lead a more sustainable lifestyle, or they believe they can save money. The long-term savings delivered by some Green elements can be partially reflected in increased sales price if carefully communicated to the buyer. Increased insulation, overhangs/shades, ENERGY STAR® rated appliances, operable windows, and natural daylighting can reduce energy costs significantly. Water-saving measures include water-efficient fixtures and appliances, native and drought tolerant landscaping that requires less watering, efficient irrigation systems, and water reclamation programs. Visible Green features are the easiest to sell. Brooke Warrick, the founder of the market research firm American Lives, and a consultant to Green developers, comments, "All Green features are not equal in the consumers' eye. The cost and the perceived value need to be weighed. For example, in California, photovoltaic panels on a 2,000 square-foot house could reduce an energy bill by as much as 60 percent. With all of the incentives and credits, it may be possible for a Green homeowner to break even in a period as short as one year."

3. Select Horizontal (Land Development) Practices—

Horizontal land development elements are found at both a community (master developer) and neighborhood (builder) levels. The community level includes backbone systems such as the following: Ecologically Sensitive Areas; Land Use Planning; Transportation; Cultural Resources; Site Planning; Storm Water; and Community Landscape.

4. Select Vertical (Builder) Technologies—In a multi-builder new community or redevelopment project, the master developer must take the lead in selecting a concise set of Green vertical building practices. The most effective marketing impact comes from a uniform, consistent application by all builders, which is possible only when regulated, reviewed and implemented by the master developer. Given the hundreds of Green products and practices available, an evaluation process must sort out those most effective and rewarding for that particular target market and set of builders. Typical vertical building elements include: energy conservation, resources conservation, construction waste reduction, architectural design and indoor air quality.

5. Educate the Team—Building a Green community may require educating a broad spectrum of audiences.

Making Green Communities Work

Contractors may need education about construction techniques and materials, as well as environmental regulations. For builders to support Green techniques, they must understand the rationale for changing some of their time-tested practices. Fresh market data, cost estimates, premium revenue assumptions, product availability, and logistical shortcuts provided early on can help build a sense of confidence for those new to Green building. Residents, workers, and other users may need education on their responsibilities. Educating government agencies and the surrounding community can facilitate permitting.

6. Monitor Compliance—Having promised Green measures, a developer must ensure they are delivered. A commissioning authority is a third party that assists in monitoring builder to the Green guidelines. Design review during the various stages of design and spot-checking during construction are necessary to make sure the Green claims stand up to public scrutiny. A Green report card can be developed to inform builders of their compliance and manage success and failures in the field. "This is one of the hardest things," according to Jorden Segraves, senior level job captain, TCA (Thomas P. Cox: Architects, Inc. of Irvine, CA). "All of the subs don't necessarily use all of the products specified in green programs. You have to get your general contractor to understand and buy in from the beginning—all the way back to schematic design. If all parties aren't properly educated and involved, it's going to be difficult," said Segraves.

COST/BENEFIT ANALYSIS

A key step in designing a Green program is to initiate a cost-benefit analysis. After the Green team has developed an initial array of Green elements, the additional revenue, cost savings, or other compensating factors are identified for each element. Using the SPeAR™ evaluation program, elements can be categorized by timing of cost recapture, if there is any. The Green program can then be modified to better align not only the environmental objectives, but the market, political, and economic goals of the developer. On several projects this process has helped focus efforts on Green elements most likely to succeed, while jettisoning those that sounded good but were extremely expensive relative to either marketing or environmental impact.

To further refine the vertical building program, another tool—the residual impact analysis—can be used. The additional cost per square foot of each Green element is

adjusted by the projected increase in sales price. The remaining uncaptured cost is converted to the impact on the residual value per acre. The master developer determines its acceptable buy-down or risk level and adjusts the program to include those elements with the best cost-benefit relationship. The master developer often engages in price participation with the builders to later recapture the initial reduction on residual value. The total additional cost of Green can also be offset by other cost adjustments.

As the program goes into implementation, the builders will have many questions and comments about the program. This can have a tendency to disassemble the program if it is not channeled into a positive, constructive dialogue. With some projects, builders have been brought together in workshops to share their experiences and techniques with other builders.

SALES AND MARKETING

Communicating the value of the Green features to homebuyers is key. For example, a bamboo floor or a photovoltaic panel is readily visible, but water run-off is harder to see. It's important not to promise more than can be delivered. The type of consumer interested in Green communities is very sophisticated, educated, and questioning; they want quantifiable information. Minimizing the gap between expectations and delivery is critical for sales. Authenticity is often a shared value with sustainability. Sales and marketing must be careful not to commercialize or oversell Green design. Instead, marketing programs should communicate Green benefits as part of a larger quality-of-life proposition. Some builders seem to struggle when they market Green as the primary selling point, but when combined with others, such as trails, open space, and good neighborhood design, it's much more effective.

Since a number of Green items will probably be options, information on choice, cost, and benefit to the consumer must be clear and accurate. The master developer must take a hands on approach to assist builders in setting up an effective Green sales program, which should not be fully dependent on an individual project's sales staff.

The U.S. Green Building Council is currently developing a certification process for individual homes and neighborhood development. Until then, there is no uniform standard to measure the greenness of a new master-planned community, or more importantly, provide a methodology

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for balancing a project's unique environmental, market and economic objectives.

THE BEST STRATEGY

The best strategy is a step-by-step process that integrates local demographic and value based market drivers, identifies both a cost and a revenue stream for Green elements, and then uses a cost/benefit methodology to create a customized Green program consistent with the master developer's objectives and business plan.

Successful Green communities arise from a holistic approach that incorporates the marketplace. They are livable, healthy, enduring, human-scale places that are compatible with and considerate of the earth's natural ecosystems. If planned correctly Green communities will be viable—environmentally and economically. ■

FOCUS ON INVESTMENT CONDITIONS

Value Risk Management Key in this Economic Landscape

BY KEN RIGGS, JR., CRE



TO HEAR THE ELECTION-YEAR RHETORIC, ONE WOULD THINK the U.S. is mired in double-digit unemployment and that all our jobs are on the verge of being shipped offshore to workers in China or India for less than half of what U.S. workers are being paid. While we know that picture is inaccurate, it is true that the U.S. has lost over 2 million jobs since the recession began in 2001. However, we've cut that number in half during the last few months, and expect this trend to continue.

And to quote Paul Harvey, "the rest of the story" shows that at 5.6 percent, America's long-term unemployment rate remains the lowest among all the Western countries. In fact, our near-95 percent employment rate, along with continued strong GDP growth, rising manufacturing activity and business investment, a recovering stock market, record home sales, and other positive indicators show that the economic recovery is well-underway. In addition, an accommodative Federal Reserve has kept the federal funds rate low and the President has signed a series of tax cuts and refunds designed to stimulate consumer and business spending. Now that we've seen the successes of these stimuli, along with the fortitude of U.S. business, are joblessness and a slow economy only bad memories? Or is the job situation and economic risk, especially as they relate to real estate returns and values, still tenuous?

WHAT'S DIFFERENT IN THIS ECONOMIC CYCLE?

Some lingering joblessness and economic risk is to be expected after any recessionary period. However, there are a number of key factors affecting jobs in this economic recovery that did not impact previous recessionary cycles.

The most critical factor among these is exceptionally strong productivity. As noted last fall in our forecast report, *Expectations & Market Realities in Real Estate: 2004*, produced by Real Estate Research Corporation (RERC), Torto Wheaton Research, and Principal Real Estate Investors, we saw a significant likelihood that strong productivity would continue throughout 2004, resulting in low to moderate job growth. With productivity averaging 4.5 to 5 percent annually, and with each percentage point of productivity growth estimated to eliminate up to 1.3 million jobs, as outlined by the Bureau of Labor Statistics (BLS) and Forrester Research, Inc., some have commented that we were being too productive for our own good. We believe productivity increases will continue at this rate, as technology is further applied to business processes, additional jobs are outsourced, and corporate mergers continue.

Secondly, it is likely that there have been more jobs being created in this economy than were being reflected by the U.S. Census Bureau payroll/establishment survey. U.S. Treasury Secretary John Snow pointed out that a recent BLS household survey showed a gain of 2.4 million jobs since January 2002, although the BLS payroll/establishment survey showed a cumulative decline of 341,000 jobs over the same period. The household survey factors in critical employment characteristics not included in the establishment survey, such as self-employment, individuals on unpaid leave, and the development of new small businesses. Small business guru David Birch says that "the gazelles" (small businesses) create significantly more jobs than large businesses, noting that for the period 1994 to 1998, the largest firms lost 2 million jobs while during the

same time, small companies created 10 million jobs. Birch believes small business drives the nation's economic growth even more today.

In addition, having been burned by recent corporate and accounting scandals and falling stock prices, companies are more cautious and focused on the bottom line. Besides further streamlining processes and avoiding geopolitical and economic risk, they are seeking to minimize their biggest expense—labor—along with the associated overhead costs of healthcare benefits and pension contributions. According to the U.S. Department of Commerce, such measures are holding down price increases while boosting corporate profits by \$223 billion in 2003. This means that companies that have already gained all they can from internal efficiencies may look to outsource some labor costs to further maximize profit, but this creates opportunities for more small business growth.

Contrary to the political clamor, shipping certain types of jobs overseas actually benefits the economy, and adopting reactionary isolationist policies now would likely hamper U.S. job growth. Management expert Peter Drucker reminds us that the U.S. imports two to three times as many jobs as it exports. Often referred to as the "second wave of NAFTA," the U.S. is importing primarily high-skill, high-paying jobs, such as German or Japanese automobile manufacturing, drug research, and banking, while exporting basic manufacturing, clerical, simple programming, or routine service jobs. According to the Organization for International Investment, even the states complaining the loudest about outsourcing are benefiting from importing jobs. Ohio imported 242,000 jobs, Michigan brought in 244,000 jobs, and Pennsylvania imported 267,000 jobs, comprising approximately 6 percent of their respective workforces. In fact, new foreign direct investment in the U.S. increased by a record \$82 billion in 2003.

INVESTMENT FORECASTING NOT FOR THE FAINT OF HEART

So how will job growth affect commercial real estate investment throughout 2004? At present, space market fundamentals are finally bottoming out, and commercial real estate is still delivering a reasonable level of total return as compared to stocks, which recently caught up to

their pre-2000 levels. But with no home runs in sight, it is more important than ever to incorporate sound risk management as it relates to value preservation to successfully navigate the markets.

Contrary to the political clamor, shipping certain types of jobs overseas actually benefits the economy, and adopting reactionary isolationist policies now would likely hamper U.S. job growth. Management expert Peter Drucker reminds us that the U.S. imports two to three times as many jobs as it exports.

Looking ahead, no industry is demonstrating the kind of growth that requires significant new property outlays, although some industries such as energy, biotech, nanotech, telecom, and security are showing potential. For present, however, returns on office investment remain depressed, and yields on industrial properties are challenged. Apartments are oversupplied, but returns are expected to improve as jobs trickle in and interest rates begin to move up. Retail returns look good right now, but their sustainability is uncertain, especially if consumer purchases and retail sales are reduced due to the high cost of energy and other commodities.

It appears that secular capital will remain committed to the industry, while cyclical capital will move out of commercial real estate. This will relieve some unwanted capital

About our Featured Columnist

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pressures, however it will also create downward pressure on prices and increase the probability of write-downs.

As the stock market rebounds from the losses of a few years ago, household wealth has hit a new peak of \$45 trillion, due primarily to the strength of the housing market and low interest rates. Consumers have stood firm during the slow economy, but the question is, are they durable enough to continue doing so as interest rates kick in, inflation occurs, and energy prices go up? Will retail sales begin to suffer, along with returns on retail property investment? And assuming that jobs continue to increase, how does one manage the risk on office, industrial, apartment, and hotel property investment?

Based on RERC's required risk-adjusted returns for real estate, investors should:

- **Steer clear of speculative office investment.** U.S. office vacancy rates will remain relatively high in most areas. As a result, NOI will continue at or below current levels.
- **Expect downward pressure on rents, as industrial vacancy rates will remain relatively high.**
- **Expect office and industrial space to be utilized in smaller portions, often in secondary markets or suburban areas, since most new jobs are created by small business.**
- **Rents will begin improving later in the year as jobs continue to grow and demand increases.** As job growth continues, apartments will be the property type most likely to stand out.
- **Keep an eye out for signs that consumers might be unable to sustain their current purchasing power.** Retail continues to offer the best returns for the near term, with average retail rents stable to increasing as consumers continue to buy.
- **Watch for hotels to rebound strongly as business travel picks up and safety fears subside.**
- **Anticipate that certain property types will be exposed to greater value and risk, given the economic, space, and capital markets forecasts.** ■

FOCUS ON GLOBAL ISSUES

Real Estate Deals With a World in Transition

BY NICHOLAS BROOKE, FRICS



WHEN DEFINING THE CHARACTERISTICS OF A SUCCESSFUL CITY the term Sustainability or, in the more narrower context, Sustainable Development is usually high on the list of requirements, representing if you like the stamp of approval that National Governments, city authorities, plan makers and project promoters seek to attach to their various initiatives to demonstrate a caring and responsible attitude. But like smart buildings, or innovative design, the phrase Sustainable Development will mean different things to different people and have as many interpretations as there are persons in the audience. Not least whilst there is physical sustainability, there also is the sustainability associated with the test of time and changes in lifestyle, fashion, and aspirations. Important, too, is financial sustainability. Other than the case of initiatives undertaken for social reasons or in the interests of the community at large, projects have to be economically viable and sustainable.

Governments, advisory and professional bodies and those from the sustainability movement have gone to great lengths to devise a range of benchmarks against which to check and measure the sustainability of policies and projects. However, all these assessments and judgments are of necessity made in the context of conditions and circumstances today and wearing 2004 spectacles. I have to say that this is becoming of increasing concern.

We design and plan for future generations but the question has to be asked do we really know how our children will see things and what will be their priorities. Indeed you might ask what right have we to impose on future generations, solutions which may be appropriate today but irrelevant

or worse still a burden in 30 or 40 years time. We have seen far reaching changes in technology, communications and in business delivery and in the priorities now placed on lifestyle, leisure and the quality of life. This provokes concerns as to whether we should be trying to anticipate the nature of the changes that will take place over the next 50 or even 100 years.

We design buildings with a life of over 50 years, we design roads and infrastructure to last even longer and we plan with a degree of permanency which it could be argued on occasions verges on the arrogant. That permanency also comes at a significant cost either to the community, the tax payer or the project promoter.

The question has to be why? Basic standards to meet safety and other similar considerations are, of course, essential and not the issue. But is there not another definition or version of sustainability that involves creating projects where flexibility and the scope to adapt and to change are the main driving and motivating forces. In the extreme, should we perhaps not be designing for obsolescence? This would involve a very different mind-set to that which largely currently prevails, but how are we to know in reality, how buildings will be used in 20 or 30 years time and indeed whether they will be in the right location in the future. Similarly, modes of transportation could change dramatically as could the relationship between home and the workplace and we should not forget the ongoing impact that technology is going to have on how we live, work and play.

Given the nature of these changes which cannot be accurately anticipated at this stage, should we not at least be

stepping back as an industry and questioning where the concept of Sustainable Development may be driving us. At minimum should not flexibility of use, purpose and design be one of the principal criteria and should we not be studying more closely construction technologies which will enable us to dismantle and re-assemble even the largest of buildings and also sustainable methods of construction which do enable and indeed facilitate a decision that the project has been overtaken by time, is obsolete/redundant and can be demolished without recrimination about monies spent, having been wasted.

There is a growing school of thought that it is wrong for us to seek to impose solutions on future generations, which I sense we are doing under the banner of sustainable development in that many of the tests centre around the life and duration of the project. There seems to be a view, driven often by the size of the investment involved, that permanency measured in terms of the life of the project is the key objective. But what if we started from the opposite direction and said that flexibility rather than permanence was the prime goal and that we don't necessarily want or need to design with a 50 or 100 year life in mind? Might we not find that we achieve a rather more innova-

tive and less expensive solution? What if a design competition brief was so worded that the assignment was to be awarded to the team who produced the most flexible design from an occupational and user perspective and one which allowed either the building to be dismantled and moved elsewhere or re-assembled on site but to a different configuration? Perhaps a special bonus could go to the team which enabled a decision as to obsolescence to be taken after 10, 15 or even 20 years without financial penalty to the project promoters.

Very different thinking, I know. But it does trouble me as I look at the major investment currently being ploughed into buildings and infrastructure in many of our major cities. Will future generations will be cursing rather than praising us for our inflexibility and our assumption that we know what is right for them? ■

About our Featured Columnist

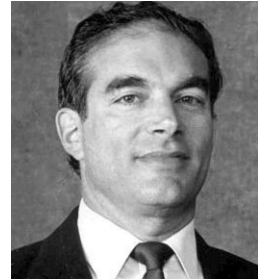
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FOCUS ON THE ECONOMY

Is Greenspan Wrong?

BY DR. MARK LEE LEVINE, CRE AND DR. LIBBI ROSE LEVINE SEGEV



IS GREENSPAN WRONG?

IT DOES SEEM WORTHWHILE TO ASK THIS QUESTION OF THE Federal Reserve Board Chairman, Alan Greenspan, based on his recent testimony before Congress as to mortgages. (He has also appeared before a number of professional groups, discussing the issue of the "right" type of mortgage that one should hold.)

The article by Ruth Simon and Rachel Emma Silberman, "Is Greenspan Right About Your Mortgage?" *Wall Street Journal* (Wednesday, February 25, 2004), raised the issue of the propriety or reasonableness of Mr. Greenspan's speech to credit unions. Mr. Greenspan mentioned that "Many homeowners might have saved tens of thousands of dollars had they held adjustable-rate mortgages rather than fixed-rate mortgages."

Historically, "corrective vision," in hindsight is 20-20! Notwithstanding that interest rates have fallen during the last several years and have stabilized at a low level, the lowest interest rates in 45 years, it is nevertheless clear that interest rates are rising. The issue is: When will interest rates rise? How much will they rise?

Mr. Greenspan said in essence that if one had chosen to undertake an adjustable-rate mortgage (ARM), the initial rate and continuing rate over the last few years would have been less than a fixed-rate mortgage. Clearly homeowners who financed or refinanced with an adjustable-rate mortgage, with rare exception, would have paid less interest over the past several years than one who had a fixed-rate mortgage.

Lenders often "fix" the interest rate on an ARM over a given period of time, such as 6 months, allowing for the

potential of increased interest rates over the entire term of the loan.

As stated in numerous pieces of research, the fixed interest rate of a 30-year loan is higher than the adjustable-interest rate. The article by Sue Kirchoff and Barbara Hagenbaugh, *USA Today* (Tuesday, February 24, 2004) noted the Mortgage Bankers Association (MBA) position that the average rate for a 30-year fixed mortgage was about 5.5%, as opposed to about 3.25% for a variable-rate mortgage (adjustable-rate mortgage). Over this time frame, Mr. Greenspan's comments are obviously correct: One could have saved approximately 2.25% simply by having an adjustable-rate mortgage at approximately 3.25%, as opposed to 5.5% with a fixed-rate mortgage.

One can win or lose by "gambling" in various ways, such as buying lottery tickets, picking correct stocks or other investments. Many argue that obtaining a mortgage determined by adjustable interest rates is not "gambling." However, unless one is clearly prophetic, it is difficult to determine exactly what interest rates will be over a given term. The penalty for being wrong on the adjustable-rate mortgage is obvious: Variable interest rates (adjustable interest rates) eventually could rise above fixed interest rates.

About our Featured Columnists

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Further, interest rate increases often result in greater difficulty for the homeowner to service a loan.

As a simple example, if a homeowner experiences a 2% increase on an adjustable-rate mortgage of \$300,000, obviously this is \$6,000 more annual interest on the \$300,000; and, the monthly interest would increase by \$500 per month. This is a substantial monthly increase and would be difficult for many homeowners to pay.

Likewise, if one assumes that the mortgage is \$150,000, a 2% adjustable-rate increase is \$3,000 per year in additional interest; this is \$250 per month more to pay, which could strain the budget of many homeowners.

Additionally, with such an increase in rates, new homeowners would have to qualify for the new home mortgage. Risk factors must also be considered, such as a potential job loss or a reduction in salary. In such event, homeowners may struggle all the more to keep mortgage payments current.

BACKGROUND ON CONTRASTING LOANS

A review of even basic real estate textbooks indicates over a dozen types of loans in the marketplace for home buyers. (One of the leading textbooks in this field was written by Fillmore Galaty, Wellington Allaway and Robert Kyle, *Modern Real Estate Practice*, 16th Edition, published by Dearborn Real Estate Education (2004). Such loans are reflected in this work.)

1. **BASIC AMORTIZING LOAN (BAL):** The Basic Amortizing Loan (BAL) has a fixed interest rate and the same amount of monthly payments are used to amortize a loan over a certain period of time (term) to pay off the entire loan. As an example, a \$200,000 BAL would result in the full loan being paid off over 30 years, at 6% fixed interest, by paying the same amount of amortized payments of approximately \$1,200 each month of principal and interest.

Although it is not the focus of this short note, other required costs must also be considered by the homeowner. Whether the loan is structured on a fixed interest rate, or adjustable-interest rate, these cash-flow items must be paid and can be added to the actual monthly mortgage payment. These additional costs often include taxes and insurance, among other items.

2. **ADJUSTABLE-RATE MORTGAGE (ARM):** As an example, a \$200,000 ARM loan would be paid in full in 30 years, at 4.25% adjustable-rate interest, by paying monthly payments of \$1,013 each month of principal and interest. The savings of approximately \$200 per month is very attractive with an ARM.

However, when the market changes—which it eventually will change—and interest rates increase so that the interest rate for the \$200,000 mortgage becomes a 7.5% adjustable interest rate, then the monthly payment increases to almost \$1,400 per month (which is approximately \$200 more per month over the 30-year fixed interest rate of 6%, as noted in the prior example).

3. **FLUCTUATING MARKETPLACE:** The above three simple examples illustrate the concern with volatility in the marketplace and fluctuating interest rates which can substantially impact monthly payments that a homeowner would face—especially with an Adjustable-Rate Mortgage (ARM), which payments may eventually be significantly higher than the originally contracted monthly payment.

It is important in many instances for the homeowner to have a "stable" payment amount in the monthly payments over the term of the loan.

Focusing specifically on the current "savings" using an "Adjustable-Rate Mortgage" (ARM) may distort the long-term view for some homeowners who do not have the financial sophistication to understand which type of loan is best and when to make important decisions to change the ARM loan to a "fixed" interest rate.

4. **MODIFIED ADJUSTABLE RATE MORTGAGE (MARM):** It is true that one might obtain a "Modified Adjustable-Rate Mortgage" (MARM) where the interest rate is actually fixed for a certain period of time, and the amount of adjustments each year may be limited. This type of loan will often limit the lender from increasing the loan rate by more than usually 1% during a 12-month period.
5. **LENDERS:** The lender must calculate into the cost of the mortgage the interest rate over a longer period of time, and the risk factors to the lender, as opposed to the borrower (homeowner).

ADVANTAGES TO USING THE "ADJUSTABLE-RATE MORTGAGE" (ARM) IN THE FIRST PLACE?

The main advantage to using the "Adjustable-Rate Mortgage" (ARM) is that the ARM has an initial lower interest rate, when compared with "fixed" interest rate loans.

Another major advantage in using the ARM is that interest rates may decrease during a certain time period, if rates are falling; therefore, monthly payments can also decrease.

DISADVANTAGES TO USING THE "ADJUSTABLE-RATE MORTGAGE" (ARM)

Since interest rates have recently been the lowest in the past 45 years, it seems incredible that one would assume that interest rates for the Adjustable Rate Mortgage (ARM) would continue to be low, or move much lower than the current rates.

Ultimately, the ARM interest rate will increase over a longer-term loan. In such event, the lender is normally able to increase the interest rate, based on the terms of the contract.

There is substantial risk to the homeowner/borrower insofar as the borrower may not be able to make the payments on the new, increased monthly payments when interest rates increase!

The uncertainty that interest rates may increase can create a discomfort level for many borrowers.

If a homeowner anticipates living in the property for only a short period of time, then the risk factor is very low that interest rates could significantly increase during the short term of the "Adjustable-Rate Mortgage" (ARM), such as over a period of 3 years to 5 years. As an example, the contractual agreement with the lender may restrict the ability of the lender to increase the interest rate by only 1% per year up to 3 years or 5 years, at which time the borrower (homeowner) must refinance or pay off the mortgage.

However, the counter to this argument is that perhaps one should not even purchase a home in the first place, given acquisition costs, closing costs and related costs, if one is only to be in a home for a short period of time. (Financial consultants argue that one should generally not acquire a home if the owner will not keep the home for a minimum of between 2 to 5 years, to recoup costs. Too short a term of ownership would probably defeat the financial rewards and desire to acquire the home.)

Therefore, the argument of using the ARM to "save" when one anticipates keeping the home for only a "short time" is not particularly financially sound advice in most settings.

It is entirely unlikely that interest rates will significantly decrease much lower, especially from the time of Mr. Greenspan's recent comments, as noted.

Homeowners and investors with a current "Adjustable-Rate Mortgage" (ARM) may consider refinancing to "fix" interest rate at this time. An "Adjustable-Rate Mortgage" (ARM) contract with the lender may have a "prepayment penalty," if the homeowner/investor breaks the mortgage contract early. The cost of paying an additional "prepayment penalty" should be weighed as to when the homeowner/investor should refinance over the time the homeowner/investor keeps the home.

CONCLUSION

One can argue that the proof of the "savings," as Mr. Greenspan has indicated, can be reflected by looking to only recent years in comparing the lower "Adjustable-Rate Mortgage" (ARM) interest rate to that of a "fixed-rate mortgage."

The article by John D. McKinnon, and James R. Hagerty, *Wall Street Journal*, Page 1 (February 25, 2004) noted that Federal Reserve Chairman Alan Greenspan concluded that mortgage giants FANNIE MAE and FREDDIE MAC involved "... very serious risks relative to our financial structure." Mr. Greenspan also suggested that Congress should certainly pull in or curb the amount of activity by these two giant mortgage entities that acquire loans within the marketplace. Mr. Greenspan's concern was that these two entities borrow a great deal of money to finance the acquisition of the mortgages that they acquire from lenders.

One quote by Mr. Greenspan indicated this concern: "The Federal Reserve is concerned about the growth and scale ..." "of the mortgage entities in question." The article went on to note that Mr. Greenspan feels the outstanding debt involved with these two entities is so great that if they falter, there will be a huge burden on the Federal government. And, the Federal government cannot afford to allow these two entities to be in a default position. Do these comments mean, as seen by Mr. Greenspan, that rates are about to move up?

Many ingredients impact current interest rates, such as concerns with the changing marketplace, increased deficit spending by the Federal government, strains on the economy as a result of war, loss of jobs, increasing unemployment, etc. If these factors turn negative, such as defaults by a major institution, and interest rates increase because of tightening of the money supply, or for other reasons, those holding an "Adjustable-Rate Mortgage" (ARM) are exposed. Homeowners/borrowers should consider "fixing" their interest rates. It might be worthwhile to consider terminating the "gamble" of these adjustable interest rates and to "fix" interest rates at this time to avoid what might be a substantial increase in future ARM monthly payments.

The likelihood of the ARM producing a much stronger benefit to the homeowner/borrower today is fairly limited. Prognostications by most economists, including Mr. Greenspan, are that interest rates are on the increase. The real questions are: When will interest rates increase? By how much will interest rates increase?

There is very little justification that in the near term interest rates will significantly decrease.

Therefore, the factors of knowing that interest rates will rise, coupled with the uncertainty of when interest rates will rise, should convince most borrowers for home loans to refinance to lower "fixed" interest rates now available. This issue also applies to commercial property.

As Chairman of the Federal Reserve Board, Mr. Greenspan is recognized as being the key to U.S.A. monetary policies and positions. However, notwithstanding Mr. Greenspan's position and his comments, homeowners/borrowers should not focus, today, on past "savings" from using the ARM and project comparable future "savings" using the "Adjustable-Rate Mortgage" (ARM). Interest rates will not likely fall much lower.

Past performance is no guarantee of future performance! ■

FOCUS ON REITS

REITs Continue Global March

The U.K. Joins Other Countries in Considering REITs

BY DAVID M. EINHORN, ADAM O. EMMERICH, ROBIN PANOVKA, DAVID E. SHAPIRO, AND DAVID B. SILVA

THE U.K.'S RECENT ANNOUNCEMENT OF THE LIKELY ADOPTION of the U.S. REIT model underscores an important global trend that could spell opportunity for U.S. REITs and other U.S. real estate players by facilitating both foreign investment and foreign capital raising.

Earlier this year, in his annual budget statement to Parliament, U.K. Chancellor of the Exchequer Gordon Brown, accepted the recommendations of the so called "Barker Review" that calls for the introduction of REITs in the U.K. The Barker Review concluded that "there is merit in the Government considering a vehicle, based on the U.S. Real Estate Investment Trust model, to encourage increased institutional investment" and suggested that the introduction of a REIT-like regime could revitalize the U.K.'s stagnant property sector and "improve liquidity, transparency and scrutiny, [and] provide access to property for long-term savings" Concurrently with the acceptance of the Barker Review's interim recommendations, the U.K. Treasury and the Inland Revenue issued a consultation paper entitled "Promoting More Flexible Investment in Property" available at:

http://www.hm-treasury.gov.uk/budget/budget_04/associated_documents/bud_bud04_adproperty.cfm

The consultation paper considers a wide-ranging reform of the tax treatment of property investment and explores various proposals for the structure of the U.K. version of REITs that are likely to be known as *Property Investment Funds* ("PIFs"). Although it does not include specific recommendations for the structure of PIFs, the consultation paper considers structures from other national experi-

ments with REITs including Australia, Belgium, Canada, France, Hong Kong, Japan and Singapore, in addition to U.S. rules. The consultation paper does suggest, however, that the U.K. government would likely support a high earnings redistribution level (perhaps 90%) and that PIFs would be required to be listed on an exchange. In addition, there will likely be an as yet unspecified conversion charge from an existing form of property ownership to a PIF that will offset the immediate tax loss to the Inland Revenue as a result of conversions. Final details of the structure of PIFs will be considered as part of a public consultation period.

The U.K. REIT experiment is part of a growing trend among countries to adopt REIT and REIT-like structures. In recent years, REIT-like rules have emerged in over twenty countries on six continents from South Korea to South Africa—each with its own unique set of regulations. In the last three years alone, France, South Korea, Japan, Singapore, Taiwan and Hong Kong have adopted legislation creating REIT-like regimes. Although Hong Kong REITs are subject to a geographical limitation on investment to Hong Kong properties only, lobbying efforts are underway to remove that restriction to permit investment in mainland China. In addition, the European Union is said to be in the early stages of considering a "EuroREIT" structure that would be applicable anywhere in the Eurozone.

While these new REIT regimes are likely to experience their own local variety of growing pains, it remains unclear exactly what impact they will have on U.S. REITs.

Although direct foreign investment by U.S. REITs has been relatively insignificant to date, there is a growing trend towards offshore investment through joint ventures with local owners and investors. The following are just several examples of U.S. REIT foreign investment: (1) Macquarie Bank Ltd. (ASX: MBL) has entered into separate joint ventures with ProLogis, Inc. (NYSE: PLD) (which itself established funds in North America, Europe and Japan), CBL & Associates Properties, Inc. (NYSE: CBL) (which itself has foreign investment through various funds in Europe and Asia), and Developers Diversified Realty (NYSE: DDR) to establish three listed Australian property trusts, (2) Simon Property Group (NYSE: SPG) (which already holds interests in assets in Europe and Canada) and Italy's Rinascente Group have entered into a joint venture to develop shopping malls in Italy, (3) Shurgard Properties, Inc. (NYSE: SHU) holds a minority interest in an entity that owns storage centers in six countries, (4) Chelsea Property Group (NYSE: CPG, which recently announced that it has entered into an agreement to be acquired by Simon Property Group) has entered into joint ventures with Mexican and Japanese partners to develop outlet centers in major metropolitan markets in those countries, (5) AMB Property Corporation (NYSE: AMB) has acquired a global network of air cargo and logistics facilities in Paris, Frankfurt, Madrid and Tokyo and is developing various facilities in Mexico with a local partner, and (6) Kimco Realty Corporation (NYSE: KIM) has entered into a joint venture with RioCan Real Estate Investment Trust, a Canadian REIT (TSE: REI.UN) to purchase shopping centers in Canada.

As U.S. REITs consider making foreign investments for the first time, joint ventures may be the investment vehicles of choice to test foreign markets. If they are structured properly, joint ventures can provide access to partners with local expertise and capital while also limiting a REIT's foreign investment risk in an uncertain new market. Seasoned U.S. REITs may be in a unique position to manage the risks of foreign investment by using lessons learned at home and, as a result, may be able to take advantage of emerging REIT regimes as an opportunity to become global players. ■

About our Featured Columnists

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FOCUS ON LEGAL ISSUES

City Mouse, Country Mouse

BY EDWIN "BRICK" HOWE, CRE



EVERYBODY'S HEARD THE ONE ABOUT THE COUNTRY MOUSE who visits his cousin in the city. That is, everybody's heard it in one version or another.

One of the beauties of this tool in the writer's lexicon is that it has no set dénouement. The writer can actually tailor the balance of the parable to match the point espoused by the writer. Fortunately, this parable nearly always ends happily.

Flipping the story on its head—sending the city mouse to the country—boasts the same virtues, and in at least one case I myself can testify that thus far the ending is happy, if a trifle surprising.

Having spent 35 years as an international lawyer in New York City (pop. ca. 8 million) specializing in real-estate matters, I pulled up stakes (with my wife) just under three years ago to relocate to Ticonderoga, NY (pop. ca. 5,500), in the Adirondack Mountains, where we had been house-holders, but never permanent residents, for some twenty years. Instead of the retirement I had expected, I have found a second career as a real-estate lawyer in our little town that is busy, stimulating and far more like what I had been used to for 35 years than most would guess.

There is a material difference, however. With all those lawyers in "The City," as we slickers inevitably call it, there is an attorney for every 200 souls and a lawyer is unlikely ever to see his adversary again, a fact which normally evolves into hours of table-pounding that is counter-productive in all respects, save the size of the legal fees. Here the local Bar consists of 5 members (6, now that I'm here), or some 916 potential clients for each of us. Given the numbers, both the parties and the lawyers are likely to see one another again, even often, in the future.

One result is a gentility, openness and trustworthiness among the Bar that is a refreshing change for this mouse. Another result, however, is the blood feuds among the populace that go back at least as far as high school and often have been around for generations, notwithstanding the degree of intermarriage among the warring clans.

One of our local contractors who has become a client mentioned to me just now that practicing law "sure must be a lot different up here from what you're used to." To an extent that's true: For example I have yet to garner my first billion-dollar deal—not even a paltry \$100 million.

But in pretty well every other sense, what I'm doing now is "same old, same old." Surveys are as tricky as ever—even trickier if you take into account the number of them whose first words are, "Beginning at a large boulder marked with an 'X' and proceeding thence 15 degrees north, 29 minutes, 20 seconds west, more or less, a distance of 142.6 feet, more or less, to the side nearest to Lake George of an oak tree approximately 6 inches in girth . . ."

Reserved mineral estates now owned by 102 identified heirs and by many others who are unidentified are the

About our Featured Columnist

Edwin "Brick" Howe, Jr., CRE, is a lawyer specializing in real-estate and corporate law and litigation and other forms of dispute resolution, a real-estate broker and a marketing consultant based in Ticonderoga, New York, where he is president of The Roseville Company LLC. For over thirty years, he was a partner in and senior counsel to the law firm of Howe & Addington LLP, the international-law firm he founded in New York City in 1970. (E-mail: eahowe@rosevilleco.com)

rule, rather than the exception, in these parts. Hiatuses, overlaps and missing deeds make for a land-office business in quiet-title actions. Assemblages of considerable tracts via the use of nominees are our third-most-popular sport, following on the heels of marriage and consumption of beer. And jealous guardianship of the four-inch strip that separates the two parts of what is supposed to be a single contiguous parcel would make a Brooklyn lawyer blush.

As for the "entitlement" process (as Californians call permits), forget it. Indeed the California fish and game agency that reputedly claimed jurisdiction over a parcel some 900 feet above sea level on the ground that, millions of years ago, the parcel was under water has much to learn from the Adirondack Park Agency.

So, at least here in Ti, as our town is affectionately called, I'm enjoying the real estate business enormously and find that it is pretty much like anywhere else. Perhaps that's because, as far as land is concerned, they're not making any more of it. ■

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