

SCHOLARS THEME

Case Study

CRE WORKSHOP PART 1: COMPREHENDING THE CONTEXT

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ABSTRACT

CRE (Corporate Real Estate) decisions should not simply deal with the management of individual facilities, but should especially be concerned with the relationships that a facility has with the corporate business strategy and with the larger real estate markets. Both the practice and the research of CRE management have historically tended to emphasize real estate issues and ignore the corporation's business issues, causing real estate strategies to be disconnected from the goal and priorities of the corporation's senior management. With regard to office cycles, a large number of econometric models have been proposed during the last 20 years. However, evidence from historical data and previous research in the field of real estate forecasting seem to agree only on one thing: the existence of interconnected property cycles that are concentrated on vacancy rates (demand).

Vacancy also represents the linkage between the inadequacy of existing CRE strategies and the inability of existing econometric models to correctly forecast office rent cycles. Business cycles, across different industry sectors, have decreased from 5-7 years to 1-3 years today, yet corporations are still entering into leases of 5-10 years, causing hidden vacancy levels to rise. Possibly, once CRE strategies are totally in tune with the overall business, hidden vacancy will fade away providing forecasters with better quality data.

The aim of this paper is not to investigate whether and when the supply-side will eventually evolve to provide flexible occupancy arrangements to accommodate corporate agility requirements, but rather to propose a general framework for corporations to improve the decision making process of their CRE executives, while emphasizing the importance of understanding the context as a precondition to effective real estate involvements.

Keywords: CRE, Hidden Vacancy, Office Cycles, System Complexity

1. INTRODUCTION

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In many industry sectors today, the leaders of business cannot predict where they will be marketing their products, which business units will be added and which will be sold off, whether they will merge or be taken over by a competitor, or even what the nature of their products will be. However, the long-term nature of real estate commitments restrains the ability of an organization to be agile and ready to adapt to new market conditions (Timm, 2004). While waiting for property owners to come up with more flexible occupancy arrangements, corporations can still improve their real estate decisions in other ways:

1. By understanding the office market in which they operate – external analysis
2. By incorporating CRE strategies in their overall business strategy – internal analysis

Linking corporate property/real estate strategies with the overall corporate strategy is necessary to accommodate changing corporate business needs, but firstly CRE executives need to have a good understanding of the larger real estate market in which their facilities are located. As a matter of fact, *“comprehending the context is a precondition to effective real estate involvements”*. (Roulac 1995, p.499)

Initially an ideal framework in which CRE decisions should be made is proposed and thereafter the mapping of a model for a generic office market is illustrated. While model testing for the Brisbane office market is still underway, structural design and selection of the explanatory variables are discussed in detail.

Demand for office space in a metropolitan area is subject to its economic growth, but identifying the drivers of economic growth is a complex task. There are a large number of interrelated variables to be considered that exist at different levels that sometimes conflict with one another. Those at the local regional (white-collar employment growth, construction costs), and the state (business investment, consumer spending) levels have often been identified as the most influential determinants, but also variables at the national (inflation, interest rates, drought), and even international (oil price, wars, USD) levels should not be overlooked. Having a large number of variables to deal with is not the only challenge, in fact the identified variables are in continuous motion; many are unpredictable – especially those that derive from International geo-political events; and different lag times apply.

The design of the forecasting model for office property cycles is done by joining qualitative data, in the form of the findings of previous researchers, with quantitative data from the Brisbane metropolitan area. Particular attention is also given to the concepts of dynamic complexity and data quality, two issues that previous research has identified among the most difficult to overcome (Phyrr, Born, Manning, and Roulac, 2003).

2. THE CRE EXECUTIVE PERSPECTIVE

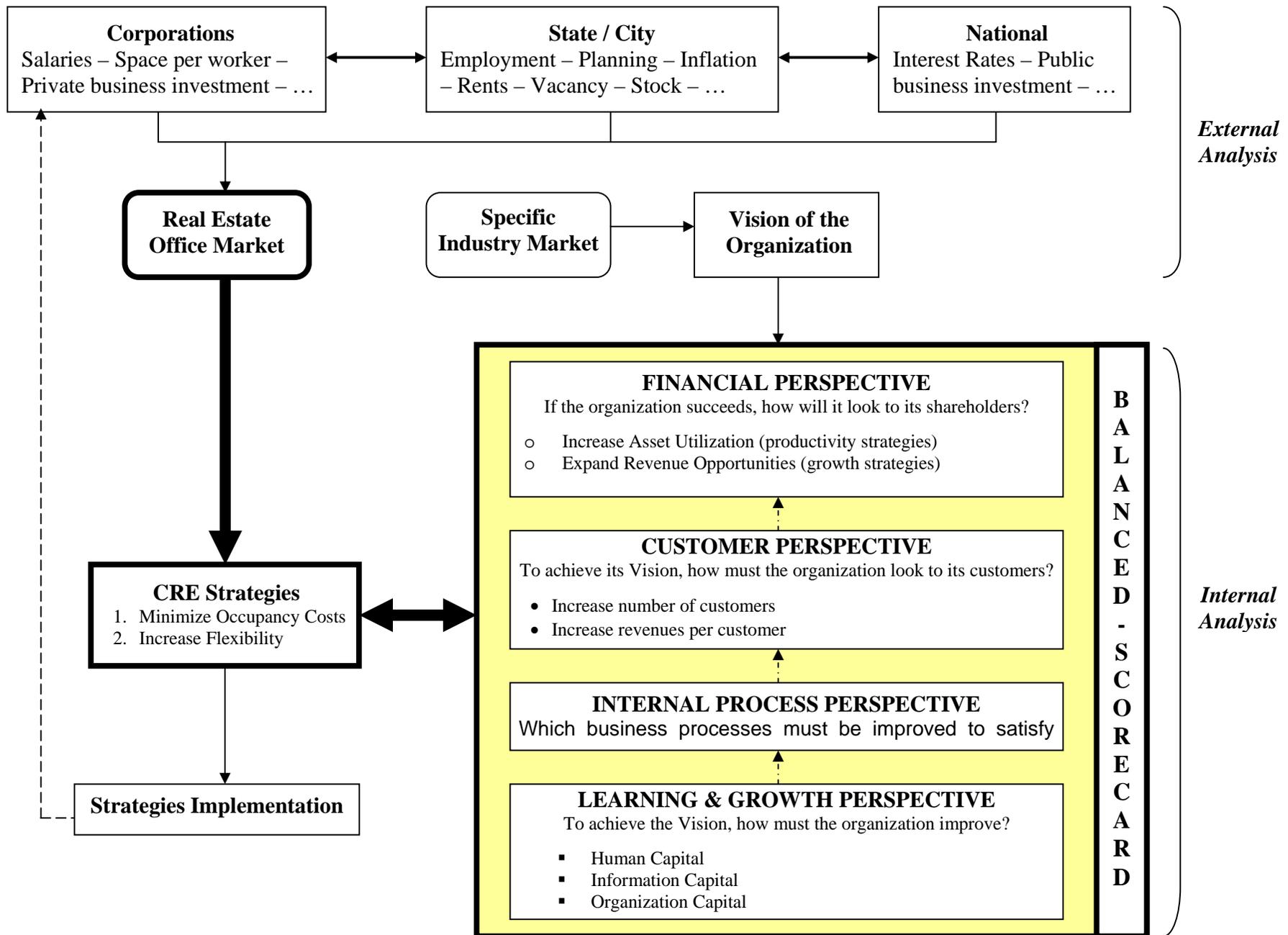
Real estate represents the environment in which business operations are conducted and in which different categories of players interact. Customers, employees, suppliers and internal processes are all profoundly impacted by CRE decisions (Roulac, 1995; Apgar, 1995; Timm, 2004). The successful implementation of appropriate corporate property strategies can impact positively on shareholders, internal operations, business opportunities and employee satisfaction, while cheap and delayed real estate strategies will more than likely induce the opposite effects.

A particular perspective for business real estate decisions in a strategic planning context is graphically presented in Figure 1. The diagram shows only two of the CRE strategies that have been identified by previous researchers (Nourse and Roulac, 1993; Roulac 2001; Nourse, 1994), while Table 1 summarizes them all. The arbitrary selection of CRE strategies had to do with the fact that contribution from lower occupancy costs and higher flexibility to corporate competitive advantage seems more direct and easy to estimate than any of the other six strategies. Furthermore, recent research shows that business executives, under pressure to deliver bottom-line results to shareholders, are chasing CRE solutions that allow flexibility and cost reductions. (Timm, 2004)

1. Minimize Occupancy Costs
2. Increase Flexibility
3. Promote Human Resource Objectives
4. Promote Marketing Message
5. Promote Sales and Selling Process
6. Facilitate Production, Operations, Services & Delivery
7. Facilitate Managerial Process
8. Capture Real Estate Value Creation of Business

Table_1. Real Estate Strategies

The big challenge for future research remains to be able to quantify the effects of implementing CRE strategies, in terms of risk reduction and increased net income. A study of the interrelationships that exist between real estate and other corporate infrastructure support groups is currently underway, considering the use of a dynamic balanced scorecard to strategically map and quantify how an organization can create value through the implementation of real estate strategies that are consistent with the organization's strategic goals and vision. The four perspectives – learning and growth, internal process, customer, and financial – identified by Kaplan and Norton (2004) are possibly all impacted by real estate decisions.



Figure_1. Framework for CRE Strategic Planning

3. UNDERSTANDING THE CONTEXT

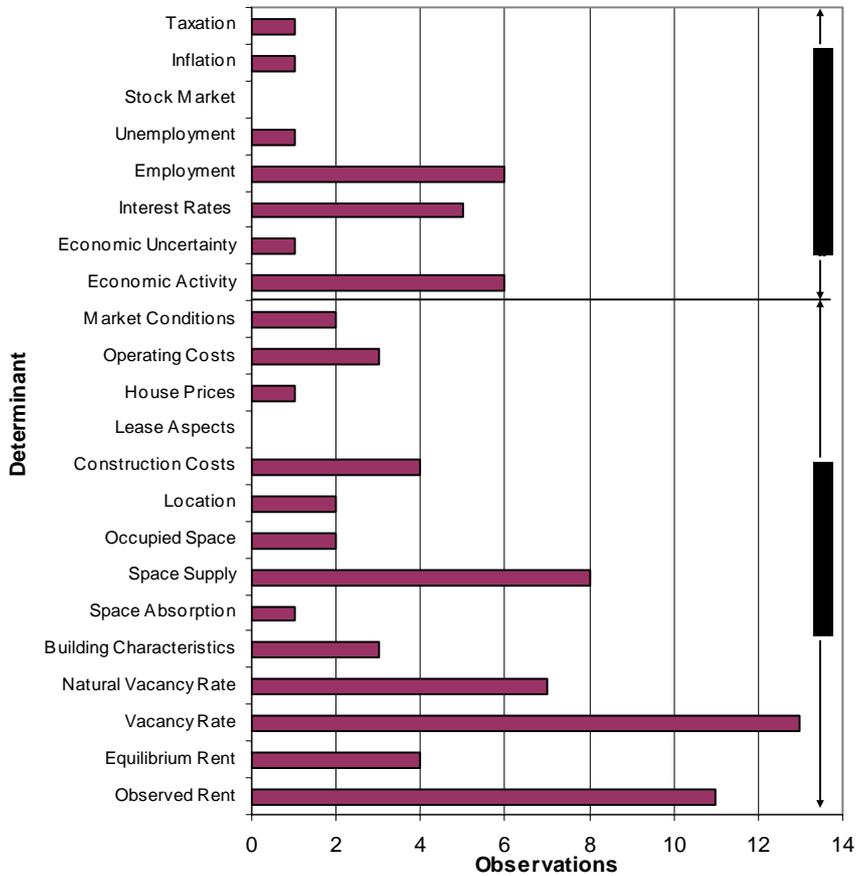
According to Lyneis (2000), the use of forecasts in decision-making is inevitable as it usually represents a basis for taking action (DeLurgio 1998). But he also argues that even if the forecasting industry is widespread across different sectors, models generally should not be used for forecasting the future. His view follows that of many others. Forrester argued that “... forecasting is not an appropriate or valid test for either an econometric model or a system dynamics model” (Forrester 1980, p.574). According to Greenberger (1976), the first principle of modeling is that “models are to be used but not to be believed” (Theil 1971, p.vi.)

The main reason for limiting the use of models to purely forecasting purposes is that forecasts are likely to be wrong as they do make assumptions on historical and future events. As Forrester clearly demonstrated, even an accurate model can produce point predictions that diverge from reality as a result of unknowable random elements impinging on a system (Forrester 1961, Appendix K). Higgins (2000, p.16) pointed to the fact that “... forecasts based on past and current knowledge are limited, as any unexpected natural, economic and political event can provide unanticipated shocks and so restrict the relevance of past similarities”.

CRE executives are major players in the office property market and therefore should have a clear understanding of real estate cycles before making any real estate decision. Even if precise forecasts are unlikely, whatever methodology is used, some models can still provide a good understanding of office market interactions, the necessary ground to build up an educated guess of where the market is today and where it is going to be tomorrow.

Before heading into the development of a forecasting model it is important to clarify a few concepts. The causes of failure in forecasting office market cycles are probably many, but two seem to be the main reasons: incompleteness in the model structure and poor quality of the data (Jones, 1995; Mitchell and McNamara, 1997; Tsolacos and McGough, 1999; Mueller, 2002; McFarlane *et al* 2002). If a softer methodology like system dynamics may allow for a more complete acknowledgment of the complexity of the system, data remains a major issue. Many businesses lease office space which is neither occupied nor marketed as available for sub-lease, thus not accounted for in overall vacancy data. Until improved CRE strategies will drastically reduce the ‘hidden’ vacancy level, the demand signal for new office space will not be ‘real’, causing a continuous state of oversupply.

Models from around the world do not even agree on the most basic supply-demand relationship for office space, the reason being that regression models purely rely on historical data, causing different variables to be the most influential for different markets. This inconsistency represents the major challenge in designing a common model that could be easily adaptable to different markets throughout the world. Tonelli, Cowley & Boyd (2004) performed an analysis of most of the existing office rent models that have been developed over the past 20 years. Figure 2 shows the wide array of explanatory variables used by the different authors throughout the years and the frequency of adoption.



Figure_2. Explanatory Variables – Frequency of Adoption by Researchers

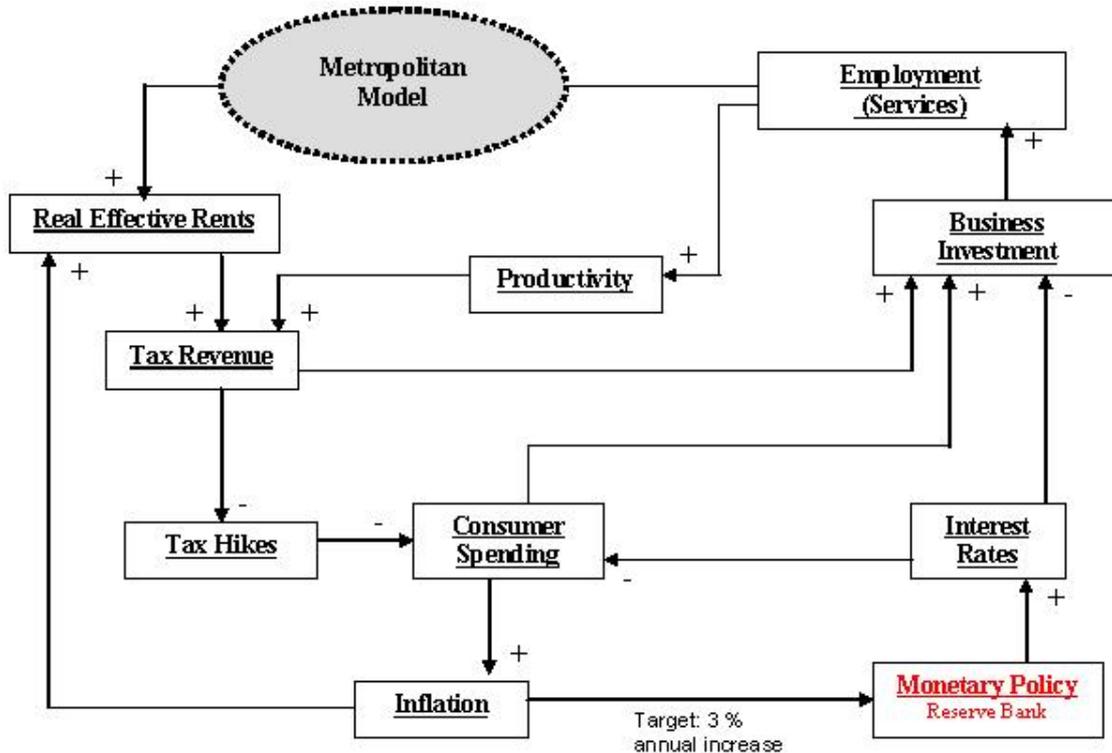
SOURCE – Tonelli et al (2004)

On the other hand, qualitative forecasting uses little or no quantitative information, relying heavily on qualitative knowledge in order to select the determinants and link them together. Statisticians often criticize and/or express doubts towards qualitative approaches. Makridakis *et al* (1998, p.12) emphasizes how “it is more difficult to measure the usefulness of qualitative forecasts. They are mainly used to provide hints ... rather than to provide a specific numerical forecast”. However he also argues that “The big challenge in arriving at accurate forecasts is to utilize the best aspects of statistical predictions while exploiting the value of knowledge and judgmental information, while also capitalizing on the experience of top and other managers.” In his conclusions Makridakis again emphasizes that “Judgmental forecasts are indeed indispensable, for they present the only alternative to predicting systematic changes from established patterns and/or existing relationships. At the same time, we must be careful in avoiding the biases and other limitations that characterize our judgment while reducing their negative consequences on forecasting. The challenge is to exploit both advantages of statistical predictions (including their low costs) and the unique ability of human judgment to deal with systematic changes in patterns/relationships which statistical methods cannot predict as they can only extrapolate the continuation of such patterns/relationships. (1998, p.508)”

4. THE FORECASTER PERSPECTIVE

Acknowledging the complexity of a system is the starting point to move towards the understanding of the interactions of its agents over time (Sterman, 2001). The variables and the relationships necessary to map the office property market within a defined urban area are pretty straight forward. The real challenge instead arises when we look outside of the basic demand-supply loop and we try to forecast demand. Forecasting demand is the real challenge because it is a consequence of economic growth, which is complex, volatile, and often subject to unpredictable events. However, the purpose of this ongoing research is not to forecast economic growth, but simply to identify those macroeconomic variables that, kept exogenous to the model, will still link economic cycles with local property market cycles.

A model like the one described below (Figure 3), which looks at the macro-economy and tries to map and predict its behavior to quantify the effects on the office construction industry within the local market is full of challenges. At a least, model developers would have to acknowledge that a growth in employment would cause greater productivity, which, together with rental growth, would increase tax revenues. An increase in tax revenues would probably induce governments to reduce taxes and/or invest more money in business development. Lower taxes would then translate into more consumer spending and therefore more economic activity, which would then lead to lower vacancy, higher rents and even higher tax revenue. On the other hand, increasing consumer spending would also drive up inflation, which would trigger changes in monetary policy. Higher interest rates will in fact slow down the economy and eventually (2-3 years later) bring inflation back to the target.



Figure_3. Conceptual Map of Selected Macroeconomic Variables

Furthermore, a multitude of other variables would probably have to be added into the model to have something more than a purely educational tool. Such additional variables would probably include import/export activities, immigration, farm economy, private housing investment, local currency, but also events that have an impact on the world economy such as fluctuations of the American dollar, wars, oil price, terrorism, etc.

In order to confine the model to a manageable size, inflation and private business investment – together with building costs index – have been kept exogenous to the system. The result is a metropolitan office market model that is very basic, but logical and complete within its simplicity (Figure 4).

Practical reasons for choosing this approach rather than building an enormous model that encompasses all aspects of the national economy include the following:

- CRE decision makers are simply interested in growth within the selected urban region, while events that occur outside of the delimited area of study may or may not have an impact.
- By using an extremely large number of variables forecasters would be faced with huge amounts of data, direct and indirect relationships, and additional lag times.
- Precise data is not always available.
- Strong subjective assumptions would have to be made for most of the qualitative variables.
- At one stage model developers would have to “pull the plug” anyway and define the boundaries of the model. Even the most complete national models still have to rely on exogenous variables.

This study does not look at the micro focus of the individual property, therefore variables such as location, lease aspects, building characteristics, and operating costs have not been included. Of the explanatory variables identified in Figure 2 also house prices, market conditions, taxation, stock market, and unemployment have not been used because they seem too detached from the office property market and, as previously discussed, their inclusion would have significantly complicated the model. Nevertheless, the top nine explanatory variables identified by previous researchers are in the model and three of those belong to economic/behavioral cycles.

The need to include macroeconomic variables that directly and indirectly impact real estate cycles is stressed by Phyr, Born, Manning, and Roulac (2003), who also agree on other important aspects of model design:

1. Cycles are dynamic, complex, and interrelated. Available theory on the interdependency of real estate related cycles is not well developed. Future research should look at the integration of macro and micro cycle theory in a decision-making framework.
2. Available market data is generally of poor quality and often unreliable.
3. Qualitative variables need to be integrated into realistic frameworks for forecasting of economic and market scenarios.

The relationships among the explanatory variables were tested in the Brisbane metropolitan office market and for the most part co validated the findings from the mental and written databases (qualitative data). Interest rates and number of submitted proposals showed an unexpected positive correlation, but the coefficient was too small to support any case against the logical relationship illustrated in Figure 4. Same consideration can be made regarding the correlation between rental growth and inflation.

Correlations of Variables for the Metropolitan Office Market Model		National		State			City			
		Inflation	Interest Rates	Private Busi Invest	Public Busi Invest	Submitted Proposals	Employment	Vacancy	Rent	Building Cost Index
N a t	Inflation	1						-0.242		
	Interest Rates		1			0.297				
S t a t e	Private Busi Invest			1		0.950				
	Public Busi Invest				1	0.780				
	Submitted Proposals		0.297			1	-0.406	0.745		
C i t y	Employment			0.950	0.780		1			
	Vacancy					-0.406		1	-0.899	
	Rent	-0.242				0.745		-0.899	1	
	Building Cost Index									1
	Completions									-0.723

Table_2. Correlation Coefficients of the Explanatory Variables in the Brisbane Metropolitan Office Market

5. CONCLUSION

Research is currently underway to define the mathematical equations of the office market model described in this article as well as to select the testing procedures for its actual forecasting within the Brisbane metropolitan area. However, it is already clear that its application can help CRE executives in making more informed real estate decisions.

Then again, CRE executives should not only account for the relationships that exist between their individual facility and the larger real estate markets, but also for those with the overall corporate business strategy. Understanding the context is the prerequisite for successfully linking corporate property/real estate strategies with business strategies, but once performed an external analysis, the emphasis should shift towards identifying ways in which places and spaces can contribute to competitive advantage and possibly be able to quantify the effects of specific real estate strategies.

To date there has been little published research on strategic approaches to corporate real estate, yet the prospective payoff of an improved CRE strategy is enormous since it has impact in different directions, including but not limited to wealth creation, business growth, customers, innovation, and human resources.

REFERENCES

- Apgar, M. IV. "Managing Real Estate to Build Value." *Harvard Business Review* (1995): 2-11.
- DeLurgio, S. *Forecasting Principles and Applications*. Boston: Irwin McGraw-Hill, 1998.
- Forrester, Jay W. *Industrial Dynamics*. Cambridge, Mass.: M.I.T. Press, 1961.
- Forrester, JW. "Information Sources for Modeling the National Economy." *Journal of the American Statistical Association* September (1980): 568-74.
- Greenberger, M. *Models in the Policy Process*. New York: Russell Sage Foundation, 1976.
- Higgins, DM. "The Determinants of Commercial Property Market Performance." Doctor of Philosophy, University of Technology Sydney, 2000.
- Jones, C. "An Economic Basis for the Analysis and Prediction of Local Office Property Markets." *Journal of Property Valuation and Investment* 13, no. 2 (1995): 16-30.
- Kaplan, R. S., and D. P. Norton. "How Strategy Maps Frame an Organization's Objectives." *Financial Executive*, no. March/April (2004): 40-45.
- Lyneis, J. "System Dynamics for Market Forecasting and Structural Analysis." *System Dynamics Review* Vol. 16, no. No.1 (2000): pp.3-24.
- MacFarlane, J, J Murray, D Parker, and V Peng. "Forecasting Property Market Cycles: An Application of the RICS Model to the Sydney CBD Office Market." Paper presented at the 8th PRRES Conference, Christchurch 2002.
- Makridakis, S., S. Wheelwright, and R Hyndman. *Forecasting Methods and Application*. 3rd ed. New York: John Wiley & Sons, 1998.
- Mitchell, PM, and PF McNamara. "Issues in the Development and Application of Property Market Forecasting: The Investor's Perspective" *Journal of Property Finance* 8, no. 4 (1997): 363-76.
- Mueller, GR. "What Will the Next Real Estate Cycle Look Like?" *Journal of Real Estate Portfolio Management* 18, no. 2 (2002): 115.
- Nourse, H.O. "Measuring Business Real Property Performance" *The Journal of Real Estate Research* 9, no. 4 (1994): 431-44.
- Nourse, H.O., and Roulac S.E. "Linking Real Estate Decisions to Corporate Strategy." *Journal of Real Estate Research* 8, no. 1 (1993): 475-94.
- Pyhrr, S, W Born, C Manning, and S Roulac. "Project and Portfolio Management Decisions: A Framework and Body of Knowledge Model for Cycle Research." *Journal of Real Estate Portfolio Management* Vol. 9, No. 1 (2003): pp 1-16.
- Roulac, S. "Corporate Property Strategy Is Integral to Corporate Business Strategy." *Journal of Real Estate Research* 22, no. 1/2 (2001): 129-52.
- . "Strategic Decision Models: Multiple Perceptions, Unifying Structure." *The Journal of Real Estate Research* 10, no. 5 (1995): 495-508.
- Sterman, J. D. "System Dynamics Modeling: Tools for Learning in a Complex World." *California Management Review* 43, no. 4 (2001).
- Theil, H. *Principles of Econometrics*. New York: Wiley, 1971.
- Timm, R. "Align Real Estate and Business Strategy but Do Not Get Caught Out." *Property Australia* 18, no. 10 (2004): 44-45.
- Tsolacos, S., and T. McGough. "Rational Expectations, Uncertainty and Cyclical Activity in British Office Market." *Urban Studies* 36, no. 7 (1999): 1137-49.