

Judgement Analysis and Decision Making In Property Development

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Abstract

Property development is regarded as a complex decision making activity, involving entrepreneurial flair, risk assessment, patience, skill and if successful, a great sense of satisfaction. The decision maker normally analyses available information and makes the best judgement. It has been discovered that, in most decision making situations where the problems is complicated, highly unstructured and characterised by risk, complexity and uncertainly the decision makers' judgement is bounded in its rationality due to the decision maker's own limited decision making ability and capacity. Further it has been suggested that decision makers rely on a number of simplifying strategies called heuristics, or ruler of thumb, in making decisions.

1.0 INTRODUCTION

Property development is a complex decisions making activity, involving entrepreneurial flair, risk assessment, patience, skill and, if successful, a great sense of satisfaction. Objectively, the decision maker analyses available information and makes the best judgement. Judgement refers to the cognitive aspects of the decision making process namely, the decision makers' perception of and attitude towards the external environment factors as well as the internal character and structure of the decision making organization. These perceptions and attitudinal factors and characteristics are often labelled as soft data in decision making process.

This concern for human information processing and choice capabilities has led to the study of descriptive, as opposed to prescriptive models of decision making behaviour. Descriptive theory of human behaviour describes what people actually do, while prescriptive theory specifies what they should do. Kahneman and Tversky (1972, 1973, 1979) who carried on the work of Simon (1957) and March and Simon (1958), suggested that decision makers rely on a number of simplifying strategies called heuristics or rules of thumb, in making decisions. They are the standard rules that implicitly direct one's judgement.

What degree of correlation does the intuitive judgement or descriptive factors have with the outcome performance of the matter upon which one has decided? Specifically, does the intuitive judgement of the developers have an effect on the outcome of the development carried out? In brief, therefore, are human cognitive limitations and willingness to accept risks the determining factors for performance? These are the queries that this paper is to address and their answers will possibly facilitate a greater understanding of some of the human behavioural aspects in this type of decision making process.

2.0 PROPERTY DEVELOPMENT AND DECISION MAKING

There is no model of the development process that can be applied universally. However, for the purpose of investigating decision makers' perceptions of property development decision making factors, the process can be viewed in eight stages namely; inception, evaluation, acquisition, design and costing, permissions, commitment, construction and disposal and/or let.

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2.3 Judgement and Decision Making

2.3.1 Bounded rationality and judgement biases

Judgement refers to the cognitive aspects of the decision making process. Under perfect knowledge and perfect judgement conditions, decision makers are assumed to perfectly define the problem, know all relevant alternatives, identify all decision making factors, accurately weigh all of the factors according to their preferences, accurately assess each alternative based on each factor and accurately calculate and choose the alternative with the highest perceived value. However, in most decision making situations where the problem is complicated, highly unstructured and characterised by risk, complexity and uncertainty the decision makers' judgement is bounded in its rationality due to the decision makers' own limited decision making ability and capacity. These limitations keep decision makers from making the optimal decisions assumed in the rational model. Instead, March and Simon (1958) suggest that decision makers will forego the best solution in favour of one that is acceptable or reasonable. That is decision makers satisfice.

Further to the concept of bounded rationality and satisficing, Tversky and Kahneman (1974) suggest that decision makers rely on a number of simplifying strategies called heuristics, or rules of thumb in making decisions. The heuristics commonly adopted by decision makers are the availability heuristics, representative heuristic and anchoring and adjustment. In general, heuristics are helpful, but they can sometimes lead to errors due to cognitive bias. Biases emanating from availability heuristics are ease of recall, retrievability and presumed associations. From the use of the representative heuristic the biases that may occur are insensitivity to base rates and sample size, misconception of chance, regression to the mean and the conjunction fallacy. Biases emanating from anchoring and adjustment are insufficient anchor adjustment, conjunctive and disjunctive events bias and over-confidence. Other general biases that may occur are hindsight and the confirmation trap.

2.3.2 Improving decision making

Decision makers aspire to make good decisions although "the capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behaviour in the real world ..." (Simon 1957) which results in judgemental errors. However, there are a number of correcting strategies that help to adjust decision makers' intuition towards rationality in making decisions. Bazerman (1990) suggested four alternative and complementary strategies for making better decisions namely :

- i) acquiring experience and expertise
- ii) debiasing adjustment
- iii) using linear models based on expert judgement
- iv) adjusting intuitive predictions

The first two strategies seek to create broad change to the intuitive responses to decision making situations by increasing the awareness of the decision makers' cognitive limitations and susceptibility to bias. The second two strategies, using linear models and adjusting intuitive predictions, provide techniques for improving specific decisions in specific contexts and offer concrete methods for testing and adjusting actual decisions.

3.0 STUDY OF PROPERTY DEVELOPERS & DEVELOPMENT PERFORMANCE

3.1 Research Objectives

The study of property developers and their development performance is to pursue three major areas of inquiry:

- i) What relationship does the performance of the development at the time of its completion have, with developers' attitude and perception of decision making factors considered in the decision making process?
- ii) What degree of influence does the developer's willingness to accept risks have on the performance of the development at the time of its completion?
- iii) To what extent does the hard or the soft data contribute towards a greater influence in the performance of the development?
- iv) To what extent do the personality, the education, training and experience of the decision makers correlate with decision successes?

This paper sets out to discuss two contributions to the research relating to decision making in commercial property development. The first contribution centres on the question of "What degree of correlation does intuitive judgement or soft data have with the performance of commercial property development at its time of completion?"

The second contribution of this research, which is an extension of the first, is to formulate a decision support system incorporating the subjective cognitive elements that enable decision makers to have a greater consistency in their decision making process. This approach will identify the deficiencies or otherwise of the heuristics adopted by property developers in their decision making process. The decision making model will provide guidance for decision makers in the selection of appropriate courses of action.

3.2 Research Methodology

The data derived for this study are not available from any existing sources, therefore, collection of primary data was inevitable. The research methods adopted consist of gathering data from decision makers in property development of various property development companies. The sample frame was the entire population of 1004 property development and investor companies throughout the UK, derived from the combined list of the UK Directory of Property Developers, Investors and Financiers (1990) and Estates Gazette Directory (Feb. 1992). Out of this population, 123 companies were randomly sampled.

On completing the pilot study on five property companies, the first questionnaires comprising simple questions regarding the companies' background and matters related to decision making factors in property development, were sent to the 123 property companies. Fifty six replies were received and forty one (33%) were usable. A second follow up questionnaire which requested further details was sent to the forty one respondents. Twenty usable responses were obtained.

The following stage of data gathering was the carrying out of interviews with all the twenty companies which responded to the second questionnaire. The purpose of these interviews was to elicit the decision makers' views, perceptions and attitudes towards all the factors they had considered in their decision making processes and the extent to which they had influenced the outcome of the development. In the interviews the Repertory Grid Technique, which is a tool for eliciting the construct system of individuals, was used. This technique was introduced in 1955 by a psychologist named George Kelly and has been widely applied in the field of management since then.

3.3 Development Performance

Out of the one property development companies surveyed 17 or 42% had over twenty years experience in property development, 12 or 29% had experience between ten to twenty years and the same figure of 12 or 29% had ten to less than five years experience. This even distribution of companies sampled, in terms of their experience in property development involvement, will give an unbiased reflection of their development performance. For the period between 1985-1990 the companies carried out a total of 127 commercial property development between them and 83 or 65% of the developments performed above the companies' expectation while the balance of 44 or 35% gave a profit return below the companies' expectation at the time of completion.

These data, which roughly indicate only one out of three commercial property developments carried out were unsuccessful or performed below the companies' expectation, were confirmed by the detailed study carried out on twenty companies as indicated in Table 1. Similarly, it is also observed that only about 30% of the developments carried out were unsuccessful while 70% were successful and highly successful. Highly successful developments were those having a profit return above 20%, successful developments were those having a profit between 10% - 20% and unsuccessful developments were those having a profit return below 10%. This research therefore reveals that, for the period 1985-1990, property development companies experience a fairly even distribution of highly successful, successful and unsuccessful outcomes in their property development undertakings.

3.4 Decision Making Methods

Questions pertaining to companies' policies and organizations which may effect the decision making environment were put to the companies. It was revealed that 77% of the companies have no written policy or guide-lines of the selection of properties for development and 59% do not have any staff members specifically designated to collate information on factors related to the properties to be selected for development. It is thus not surprising that 65% of the companies engage the services of property consultants in preparing feasibility reports on the properties to be considered for development. Further, more than half, i.e. 54.5% of the companies, do not have any computer systems to support data processing with regard to the selection of properties to be developed.

In the decision making process, 95.5% of the companies utilise group decision making based upon informal discussion and the experience and intuition of the decision making team members together with the study of the various consultants reports. The consultants are usually not members of the decision making team. With regard to the use of computers, as already mentioned above 91% stated that they did not use computers nor decision making software packages to support their decision making processes.

3.5 Decision Making Factors

The decision makers have provided factors that have influenced the outcome of the property developments as listed in Table 2. A frequency count established the following list of the factors in descending order :

- i) right timing
- ii) high demand
- iii) easily let/sold or prelet/presold
- iv) good location
- v) good building design
- vi) tenants satisfaction
- vii) availability of money or good funding terms
- viii) good land acquisition
- ix) build to design / fix price contract
- x) good quality building

It is interesting to note that the main influential factors are in the category of economic determinants, location and project related factors confirming the connotation that for property development to be successful it must be built at the *right time, right location and right design.*

ECONOMIC DETERMINANTS	LOCAL FACTORS	PROJECTED RELATED FACTORS
<p>General</p> <ul style="list-style-type: none"> · Good/strong economics <p>Specific</p> <ul style="list-style-type: none"> · Right timing · High demand · Easily let/sold or prelet/presold · Good land acquisition · Growth of rental values · Fall in yield 	<p>General</p> <ul style="list-style-type: none"> · Good location · Good surrounding facilities · Secure or attract tenants <p>Specific</p> <ul style="list-style-type: none"> · Right development size · New development 	<p>Building Design</p> <ul style="list-style-type: none"> · Good building design · Tenants' satisfaction · Good quality building <p>Financial</p> <ul style="list-style-type: none"> · Availability of money or good funding terms · Build to design / fix price contracts · Low building cost <p>Management</p> <ul style="list-style-type: none"> · Completion on time · Short const. period · Initial team selection · Bldg. cost under control · Within budget

Table 2: Property development decision making factors

3.6 Decision Makers

3.6.1 Attitude towards risk

Matters related to the decision makers are essential to this research. It is revealed that the decision makers are notably good managers of risk. Table 3 illustrates this fact which explained the low percentage in the outcome of unsuccessful developments. On the other hand, the occurrence of a similar small number of highly successful developments was because not many of the decision makers or developers were 'gamblers' or risk seekers.

	RISK FACTORS	YES	NO
1.	Identify risk outset	20 (100%)	
2.	Convert risk into opportunity	17 (85%)	3 (15%)
3.	Protect and devolve risk	16 (80%)	4 (20%)
4.	Completely avoid risky situation	5 (25%)	15 (75%)
5.	Disregard risk		20 (100%)
6.	Seek different appropriate approach	14 (70%)	6 (30%)

Table 3: Decision makers' attitude to risk

3.6.2 Decision makers performance

Table 4 illustrates the decision makers' educational background, academic and professional qualifications, experience and the performance of the developments in which they were involved with the decision making activities.

	VARIABLES	COVARIANCE	CORRELATION	R-SQUARED
1.	Academic qualification	0.039	0.119	0.014
2.	Professional qualification	0.134	0.368	0.135
3.	Experience in property development	0.405	0.562	0.316
4.	Decision making involvement	0.405	0.562	0.316

Table 5: Performance correlation

RESP.	ACADEMIC QUALIFICATION	PROFESSIONAL QUALIFICATION	EXP. IN PROP. DEV. (years)	DEC. MKG. INVOLV. (years)	PERFORMANCE			
					OFFICE DEV.		SHOP DEV.	
					SUCCESS	UNSUC.	SUCCESS	UNSUC.
1.	B.Sc. (Est. Mgt.)	F.R.I.C.S.	20	16	3	1	2	1
2.	C.E.M.(Est.Mgt.)	F.R.I.C.S.	25	16	6	3	3	
3.	B.Sc. (Land Mgt.)	A.R.I.C.S.	5	2	2	2	4	
4.	-	A.R.I.C.S.	17	5	4	3	3	
5.	Dip. (Gen. Surv.)	A.R.I.C.S.	6	3	5	3	1	
6.	B.Sc. (Land Mgt.)	A.R.I.C.S.	5	3	9	1		2
7.	Dip. (Land Econ.)	A.R.I.C.S.	6	6	3	2	1	
8.	Civil Eng.	-	20	12	4	1		
9.	-	A.R.I.C.S.	6	3	1	4		
10.	-	-	20	10	3		4	1
11.	B.Sc. (Est. Mgt.)	F.R.I.C.S.	10	10	3		2	
12.	Dip. (Land Econ.)	F.R.I.C.S.	11	11	3			
13.	B.Sc. (Est. Mgt.)	A.R.I.C.S.	7	5		1	1	1
14.	B.A., M.A., Ph.D	A.R.I.C.S.	11	6		1	2	
15.	B.Sc. (Est. Mgt.)	A.R.I.C.S.	5	5	2		1	
16.	B.Sc. (Est. Mgt.)	F.R.I.C.S.	30	25	3			
17.	LLB	-	12	12	2		2	
18.	-	F.R.I.C.S.	20	10	1	1	1	
19.	-	F.R.I.C.S.	15	10	3	1		
20.	B.Sc. (Est. Mgt.)	A.R.I.C.S.	5	5	2	1		

Table 4: Decision makers profile and performance

This research identified a positive correlation between the development performance and the decision makers' academic and professional attainments as well as with their skill and experience. The results of statistical tests are shown in Table 5. A weak correlation was established between academic qualification and the successful performance outcome, a slightly stronger correlation exists between professional qualification and performance and there is certainly strong correlation between experience and the successful outcome of the developments carried out. This is perhaps emphasised most by respondent number 10.

4.0 DECISION MAKING MODELS

Preparations are being made to develop a linear model utilising the weightings obtained through the Repertory Grid analysis and this intend to be developed into a knowledge base expert system.

5.0 CONCLUSION AND FUTURE RESEARCH

Experience and skill are the salient elements influencing successful outcomes of property development. However, many decision makers reluctant to admit their impotence. Most argue that successful development outcomes depend on the availability of information and the thoroughness of their analysis. In the decision making process it is difficult to draw a line separating this consideration of hard data and the judgement preceding the final decision. Nevertheless, the findings, to date, support the assertions made in section 2.3 of this paper.

However, having established the importance of the decision makers' skill in the decision making process consequently, their cognitive aspects are equally influential. This encourages the development of a linear model to be based on the weightings obtained from the decision makers through the Repertory Grid analysis. Future research will make possible the development of a full knowledge base expert system to assist in the decision making process.

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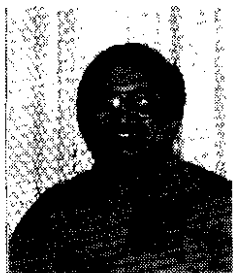
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Graduated from Universiti Teknologi Malaysia with B. Surv. (Property Management) in 1979. Served the Valuation Division, Ministry of Finance as Valuation Officer before taking the appointment as Assistant Lecturer 'A' at the Department of Property Management, Faculty of Surveying, UTM in June, 1979. Subsequently, in 1984 he obtained his M.Sc. (Town Planning) from the University of Wales, Cardiff, U.K.

He was appointed the Head of Department of Valuation and Property Management, Faculty of Surveying, UTM on 1st. July, 1985. He held the post until 31st. December, 1988. He pursued his Ph.D in Land Development in October 1990 at Heriot-Watt University, Edinburgh, Scotland. Following the transfer of his supervisor to Loughborough, England; he was awarded his doctorate from Loughborough University of Technology, England in March, 1994