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DECISION THEORY: ANALYSING DECISION-MAKING PROCESSES OF BUSINESSES INVESTING IN REAL ESTATE IN UGANDA - A LITERATURE REVIEW

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Abstract

The decision-making processes and the factors influencing the decision that finally leads businesses to the acquisition of real estate in Uganda is at the heart of most feasibility appraisals targeting high-performing real estate portfolios. Yet, over time, we see an increasing sophistication of real estate investments decision-making as strategy formulation, analysis and decision-making in entrepreneurial settings continue to be problematic in the face of business challenges such as lack of real estate investment knowledge and skills, limited resources to finance real estate investments, inadequate availability of serviced land for development and the absence of reliable market data creating a lot of market uncertainty in-turn affecting the decision-making processes and quality of decisions. This paper reviews literature with a view of identifying the challenges to real estate decision making as well as finding the existence and use of decision theory and decision support systems therein for businesses in Uganda while navigating these challenges. The findings of the research, from the analysis of the descriptions, confirms that there is lack of credible economic and market data in practice as regards real estate operations in Uganda as well as a lack of real estate investment knowledge and skills by businesses which creates challenges for well informed decision making. It is also evident that the decision processes are usually subjective and depend, to a great extent, on the experience of the decision-maker and their intuition. Biases and heuristics are evident in these decisions. The research has based itself on analysing the extent of application of both descriptive and normative decision models lending detail to the Utility approach for decision making of businesses investing in real estate under market uncertainty as regards the real estate practice in Uganda. We conclude by proposing the development of a real estate investment framework for business in Uganda that will provide a package of implementable solutions as a plausible approach to addressing the challenge.

Keywords: Decision Making, Decision Theory, Real Estate, Investment Choices, Uncertainty, Utility.

1. INTRODUCTION

Demand for real estate continues to increase in recent years with many investors believing that real estate investment will continue to be a major source of competitive advantage in the future (Ali & Anwar 2021: 35). Ullah and Sepasgozar (2020: 2) quote a 2018 report on *The Global Outlook for 2018 in Real Estate* by Morrison and Phillips putting the global real estate transaction for commercial properties in 2017 to be valued at $873 billion.

In Uganda, the real estate sector continues to play a very significant role in the country's economy with the recent years witnessing dramatic increases in real estate investments across all major cities in Uganda. In the financial year 2019/20 real estate investments contributed 6.3 percent to the Gross Domestic Product (GDP) and 7.8 percent to the employment opportunities

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of the country (Uganda Bureau of Statistics 2021: 110). Despite this significant role, businesses as main participants in real estate investments processes have encountered several challenges that hinder their efforts to speedily and successfully invest in real estate. A recent report by Knight Frank Uganda (2022: 1) identified: lack of skills in real estate investment strategy formulation, analysis and decision-making among businesses; shortage of well-trained and skilled real estate investment professionals; inadequate real estate investments mentorship programmes for businesses; and inadequate real estate investment financing sources and institutions as major challenges for real estate investing businesses.

However, so far, there are questions as regards the challenges related to real estate decision making for businesses investing in Uganda's real estate whether there is existence and use of decision theory and decision support systems for real estate investing businesses while navigating these challenges. The study presupposes that current theory (knowledge) and practice for businesses undertaking real estate investment decisions in Uganda does not follow the rational analysis and correct decision-making models depicted by normative theorists and Tversky's (1979) Prospect Theory quoted by Nsibande (2020: 7).

Furthermore, within uncertain contexts, human aspects (the underlying biases and heuristics) become prevalent, hence analysis models should appropriately consider these aspects when modelling a decision-making process. The Utility approach has formed the basis of investigation. The objectives of the study therefore were to:

- Identify challenges related to real estate decision making for businesses investing in Uganda's real estate.
- Identify the existence and use of decision theory and decision support systems therein for real estate investing businesses in Uganda while navigating these challenges.
- Suggest the development of a real estate investment framework for business in Uganda that will entail a package of implementable solutions

2. RESEARCH METHODOLOGY

This research study is a qualitative meta-analysis based on reviewing literature on key terms related to the theme of the study, keyword and adjacency searches on; real estate, real estate businesses, decision making, decision theory, decision support systems, utility theory and market uncertainty.

The general aim of this study was to ascertain the decision-making processes for businesses investing in Uganda's real estate given the challenges of real estate investment decision making in light of the high levels of market uncertainty associated with the real estate sector as well as the importance and existence of decision theory and decision support systems in the decision-making processes of real estate businesses.

The empirical context of the study is therefore the real estate business, specifically, an analysis of the decision-making process of businesses investing in real estate in Uganda.

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3. LITERATURE REVIEW

This section reviews some of the existing evidence on the analysis of the decision-making processes of businesses investing in real estate, identifying the challenges to real estate decision making, decision support systems that businesses can rely on while undertaking critical investment decisions in real property, establishing emerging facts as regards decision making theory. Some of the first studies to explore the extent to which investors in real estate use rigorous investment decision-making practices as quoted by Farragher E. J, and Savage A, (2008: 29) where conducted in the mid-1970s and 1980s (Wiley, 1976; Farragher, 1982; Page, 1983; Webb, 1984; Webb and Mcintosh, 1986; Louargand, 1992; Farragher and Kleiman, 1996). While these research studies ask different questions, provide different ways of answering these questions, and survey different populations, their results suggest that real estate investment decision-making has become more sophisticated over time (Farragher E. J, and Savage A, 2008: 29).

For most if not all business, international research on this topic suggests a range of challenges to real estate investment decisions. They reveal that aspects such as optimal pricing, investor intuition, would be required return on a real estate investment and the location of a property have a significant impact on investment decisions (Dreger 2021: 22). For Nick Frech (2001: 400), decisions of whether or not to invest in a particular real estate property will often lie in the interface between the physical, legal and financial aspects of land and property, with a decision on investment in a particular asset being made on the basis of some criteria which takes into account current expectations and current business constraints.

At the same time, the risk of investment and difficulties of making decisions keep on increasing on the account of the specialties and uncertainties of the property being invested in and therefore, the analysis in accordance of the indicators becomes very essential (Du, X. and Zhou, Y. 2022: 891). It now seems evident according to Dreger (2021: 22) quoting several studies (Farragher, 1982; Farragher & California, 2008; Farragher & Kleiman, 1995) that the topic of real estate investment decision-making process has received considerable research at the international level.

However, so far, no study has attempted to explore real estate decision making criteria for businesses investing in real estate development in Uganda. Therefore, the question about the challenges related to real estate decision making for businesses investing in Uganda's real estate and the existence and use of decision theory and decision support systems therein for real estate investing businesses in Uganda while navigating these challenges remains open. This is where the research gap exists in this topic and is what this research paper aims to fill.

3.1 Decision Making

Like all other real estate businesses globally, businesses investing in Uganda's real estate are always faced with several questions requiring investment decisions such as: 'What is the investment goal?'. 'What is the appropriate location for the property?'. 'What will be the required rate of return on investment?'. 'Which type of property should be invested in?'. 'What are the financing options?'. 'How will the tenants be managed?'.

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These are often complex questions for businesses requiring multi-attribute decisions with multiple risks and uncertainties. Dreger makes a very important observation that real estate investment decisions are a relevant but often an understudied topic (Dreger 2021: 1). For the businesses that are making these decisions, balancing the multiple questions and ensuring that the right decisions are made is often a painstaking task that once not made well often has devastating impacts over time on the health and wellbeing of the business as regards its cashflows, its capacity to meet/service financier expectations as well as maintaining the property in a serviceable state. The emphasis then for any business seeking to invest in real estate shifts to ensuring that the decision making is a choice of the option that leads to a successful outcome. The challenges related to this decision making to achieve a successful outcome and the decision support systems available to help businesses navigate these challenges forms an interesting inquiry.

Banks and Gamblin (2022: 1256), quote several lines of research (e.g., Bruine de Bruin, Parker and Fischoff, 2007; Edwards and Fasolo, 2001; Milkman, Chugh and Bazerman, 2009) as concluding that many of the approaches to decision making will recommend selecting the option that maximizes utility in order to achieve the best decision outcome. They are however quick to caution that these methods are difficult to apply to complex decisions and have rarely been evaluated to test if they predict choices that lead to successful outcomes (Banks and Gamblin 2022: 1256). The increasing sophistication in real estate investment decision making in entrepreneurial settings by businesses makes matters even worse for businesses as analysis and decision making becomes more problematic (Nickols 2008: 4 and Farragher and Savage 2008: 29).

3.2 Real Estate and Decision Making

Suhail, M. et.al., (2020: 2) referencing David Sirota et.al., (2016) defined real estate as land and all natural and human-made improvements permanently attached there to, including air and mineral rights. Accordingly, David Sirota urges that owning real estate is not only to possess the physical property but also to acquire certain legal rights to its continual peaceful use and redistribution. These are the rights of use, possession, control, enjoyment, exclusion, and disposition, including the right to pass the property on by means of a will (David Sirota et.al., 2016). On the other hand, to invest in real estate will involve a decision to commit resources often expressed in terms of money by acquiring rights in a property, hoping to realize benefits such as the preservation and/or increase of capital and also earn profits that are expected to occur over a reasonably long period of time in future.

The discussion about real estate investment decision making is one that has been going for a sometime especially at the international level. As earlier intimated, the focus of this research regards the challenges related to real estate decision making for businesses investing in Uganda's real estate and the existence and use of decision theory and decision support systems therein for real estate investing businesses in Uganda while navigating these challenges. To appropriately guide ourselves and reach the research aim, we found it useful to understand what former researchers have identified as challenges related to real estate decision making for businesses investing in real estate.

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Some of the earliest research on investment decisions in real estate is in the mid-1970s. Dreger (2021: 32) quotes Wiley's research in 1976 among the first to investigate decision-making process in real estate investing. According to Dreger, Wiley had performed a study on 159 real estate investment trusts (REITs), insurance firms and real estate companies about the circumstances under which they conducted real estate decisions. In this study, 91% of the participants had used return analysis measures, with majority relying on cash flow projections. About 67% had considered risk measurement by adjusting the required return upwards or the expected future cash flows downwards. Only 27% of respondents had used computers for investment analysis purposes rather not surprising given the low computer usage at the time. The results also suggested that there were generally no significant differences in decision-making between different types of real estate investors (Dreger 2021:32).

On the other hand, a study by Page (1983) almost seven years later surveyed 101 REITs, insurance companies and real estate firms intending to update and extend Wiley's (1976) study. According to Dreger (2021: 33), Page's results showed that 95% of respondents used before-tax decision-making criteria, with the internal rate of return (IRR) (57%) and the overall capitalisation rate (45%) – classified as a rule of thumb – as the most relevant impacting factors. Risk-adjustment techniques remained similar to those discovered in the earlier study (Dreger 2021:32). By this time, reliance on computer technology had increased with more than 80% using technology to assess the return and cash flows of the investments.

Considerations for location as a factor that can affect decision making for real estate investment has also been considered in studies. Location variables for Uganda's real estate decision making can take the form of proximity to the main transport route, the taxi park, central business district, amenities availability, nature and form of developments of a given area (slum or organised) and visibility on the main road (commonly referred to as frontage). According to Dreger (2021: 37), 64% of participants in Webb and McIntosh's (1986) study diversified their portfolio by geography.

3.3 Overview of Decision Theory

The term "decision theory" can be defined in a variety of ways. North D. Warber in his 1968 Introductory Tutorial to Decision Theory summarized Decision theory as providing a rational framework for choosing between alternative courses of action when the consequences resulting from the choice are imperfectly known. According to Sven Ove Hansson (1994:5), almost everything that a human being does involves decisions, somehow involving how we exercise our freedom to choose whenever we are faced with situations that present us with options. Hansson observes that in such situations of several options, our choices become goal-directed activities.

He therefore defines decision theory as being concerned with goal-directed behaviour in the presence of options (Hansson, O.S. 1994: 5). For Nick French (2001: 400), decision theory is about studying models of judgements involved in, and leading to, deliberate, and usually a rational, choice. These may be probability based, loss functions models, or other forms of statistical representations of judgements.

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Atherton, E., et.al (2008: 164) defined decision theory as the study of how people model "judgement" and from that how they determine their choice. These may be probability-based models; loss functions models or other forms of statistical representations of judgements. They went ahead to argue that much of decision theory concentrates on "how decisions are actually made" with hindsight to previous decisions.

To appreciate whether businesses engaged in real estate investment in Uganda have considerations for decision theory and whether there are any criteria considered for decision making among such businesses, it is perhaps important to discuss the decision models and how they support decision processes for businesses engaged in real estate. That notwithstanding, there is a strong body of evidence according to Atherton, E., et.al (2008: 164) suggesting that the decisions that people should do in theory is often very different from the final decision.

This school of thought is attributed to the original predictive model either being erroneous or failing to encompass the whole thought process which influenced the final decision. The typical example is where a business investing in real estate makes a decision to locate a building in a new City in Jinja in the Eastern part of Uganda as opposed to locating along a strategic commercial road on downtown Kampala in the Central Business District as suggested by a development appraisal in which instance the focus of the business is on presence in a new City instead of profit maximisation.

3.4 Uncertainty and Real Estate Market Data Opaqueness in Uganda

Before analyzing the decision models that are meant to guide businesses seeking to invest in Uganda's real estate, it is important to appreciate the context in which these real estate investment decisions are being made.

What amount of information is available to a person making a decision to invest in a particular real estate? The availability, quality and depth of real estate market data across the different segments and coverage of geographies, real estate sectors and types of data continue to pose a challenge for businesses. As Bradley (2014: 7) pointed out, highlighting certain features of the problem and in particular those upon which the decision depends should help us provide a proper representation of the decision problem.

The 2022 Global Real Estate Transparency Index (GRETI), scored Uganda's real estate market information as being opaque and inefficient (JLL and LaSalle. 2022: 23). GRETI measures real estate transparency among property markets using six indicators of: investment performance, market fundamentals, listed vehicles, regulatory and legal framework, transaction processes, and sustainability.

According to the GRETI index, scores from 1 to 1.7 are for countries that are ranked as highly transparent, 1.7 to 2.6 as transparent, 2.6 to 3.76 as semi-transparent, 3.76 - 4.2 as having a low transparency and above 4.2 as being opaque. A score of 5 indicates total market opaqueness. Mature markets post high ranking levels (1 to 1.7), while the reverse is true for immature markets (3.76-4.2 and below), commonly referred to as opaque in the GRETI (JLL and LaSalle.

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2022: 17). Figure 1 below shows the real estate transparency of Uganda as per the GRETI Report.

Level	Composite rank 2022	Market	Composite score 2022
Transparent	26	South Africa	2.40
Semi	48	Kenya	3.27
	51	Mauritius	3.35
	54	Botswana	3.46
Low	60	Nigeria	3.60
	65	Zambia	3.67
	75	Rwanda	4.11
	76	Ghana	4.13
Opaque	79	Angola	4.30
	81	Uganda	4.40
	82	Mozambique	4.41
	86	Ivory Coast	4.44
	88	Senegal	4.49
	90	Tanzania	4.52
	94	Ethiopia	4.60

South Africa registers moderate improvements with mandatory display of EPCs and implementation of the Property Practitioners Act

Digitization of land registry and new beneficial ownership regulations boost **Kenya**'s score

Implementation of Lagos State Real Estate Regulatory Authority and beneficial ownership legislation in **Nigeria**

Stalling progress leads several markets including **Ivory Coast**, **Senegal**, **Tanzania** and **Ethiopia** to slip in the rankings

Source: JLL, LaSalle, 2022

Figure 1: The Global Real Estate Transparency Index for the African Countries

(Source: JLL and LaSalle 2022:17)

Faced with this level of uncertainty and real estate market data opaqueness, the necessity of making real estate investment decisions in the face of uncertainty then becomes an integral part of all businesses that seek to invest in real estate in Uganda. Often times, businesses seeking to invest in real estate will find themselves in a situation where they must act without fully appreciating the consequences that will result from the action. This rather uncomfortable situation is particularly acute for the business owner, real estate manager or real estate institutional investor who must make far-reaching decisions on complex issues in a rapidly changing technological environment.

The criteria that businesses investing in Uganda's real estate are using to navigate these challenges while undertaking real estate investment decisions then becomes a dominant consideration for inquiry. The concern is in actually making a decision, i.e., making a choice between alternative ways of allocating resources in the face of very many considerations that businesses investing in real estate face as regards; cost of capital, required rate of return, location optimization, level of technology adoption, market data uncertainty, budget constraints, etc.

To deal with these problems on a rational basis, and get some understanding of the criteria for decision-making among real estate investing businesses, we shall go back as far as 1944 to the works of John von Neumann and Oskar Morgenstern on modern utility theory in their seminal book "Theory of Games and Economic Behavior," published in 1944, which laid the foundation for modern decision theory and mathematical economics.

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We assume that a business will be faced with at least two or more distinct alternatives (or else there is no element of choice and, consequently, no problem). According to North (1968: 200), alternatives are distinct only if they result in different (uncertain) rewards or penalties for the decision maker; once the decision has been made and the uncertainty resolved, the resource allocation can be changed only by incurring some penalty. The traditional assumption for purposes of making a proper analysis is that the decision makers referred to in this study consists of businesses, agents and investors that constitute the real estate investment environment of Uganda or those that seek to invest in Uganda's real estate sector.

The behavior of these decision makers is investigated with the assumption that their involvement in Uganda's real estate sector rallies behind a great desire to maximize profits for their businesses. To restate this position, the decision maker is a business seeking to engage in Uganda's real estate business possessing a clear intuition of profit maximization. To achieve this position, the business investing in Uganda's real estate sector must engage in some form of decision making and analysis that realizes the best outcome for its decision albeit faced with constraints of cost of capital, required rate of return, location optimization, level of technology adoption, market data uncertainty, budget constraints, etc.

If this perspective is indeed accepted, then one would assume that there is a criterion with which businesses are comparing and making preferences of these alternatives/constraints while undertaking investment decisions in Uganda's real estate sector. It now becomes imperative to look into two of the major decision models according to literature i.e., normative and descriptive decision models.

3.5 Decision Theories

Nick French (2001: 400) contrasts two distinct approaches used in decision-making theory to understand and explain how individuals or organizations make decisions i.e., ***descriptiv***e and ***normative*** with a principal distinction that normative models concentrate on 'how decisions should be made', whereas descriptive models look at 'how decisions are actually made'.

3.5.1 Descriptive Models:

These models do not prescribe how decisions should be made but instead, they seek to explain how decisions are made based on observed behaviors and psychological processes. Ideally, descriptive models acknowledge that decision-makers may deviate from rationality due to cognitive biases, limited information, and bounded rationality. Accordingly, descriptive models in the view of researchers Remeňová and Jankelova (2020: 10) are looking at the description, analysis and evaluation of the decisions that have already taken place, a description of their course, the behavior of the people in decision-making and so on.

Understanding of descriptive decision models provides valuable insights into real-world decision-making processes, showing us that rationality will sometimes have its limitations especially if the person making the decision decided to take advantages of the influence of psychological factors around them. When cognitive biases are addressed and the person making

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the decision is made aware of their decision processes, it is possible to improve a decision being made.

3.5.2 Normative Models:

Simon (1959) cited by Remeňová and Jankelova (2020: 10) views normative theories as focusing on providing guidance on how to solve decision making problems and what procedures and models to use in decision-making types. Often based on assumptions of perfect information, consistent preferences, and utility maximization, according to Nick (2001: 400), normative models prescribe how decisions should ideally be made usually establishing a rational criterion for decision-making and providing guidelines for optimal choices. Normative models then become concentrated about creating certain standards for decision-making in order to achieve the required quality of decision. Nick (2001: 401) argues that asset allocation models such as Utility Model (explained in the next section below), are actually normative in nature suggesting what sort of decisions should be taken.

Since normative models tell us how to solve a decision problem, the next section discusses in a little more detail how real estate businesses should be making their decisions as regards real estate investment to contrast with the reality of decision making for businesses investing in real estate. We discuss the notion of utility and according to Neumann and Morgenstern (1944: 18) it is well known that utilities - or rather differences of utilities are numerically measurable making it possible for a business to actually make decision of whether or not to invest in a particular real estate. It is not the intention of this research to extend into the numerical measurement of the utilities of real estate investment decision making in Uganda but rather only focusing on the descriptions of utility.

3.5.3 Utility Theory

In general, decision problems for real estate investment will involve a sequence of decisions often forming part of the investment appraisal to inform the businesses decision of whether or not to invest in a particular real estate product. First, a decision is made that will lead to the observation of some uncertain outcome after which another decision is made, and an outcome equally observed. This process can be repeated several times until a final investment decision is made. For example, the decision to *purchase and develop* a commercial plot of land on a busy road in downtown Kampala might go as follows; a decision is made as to whether or not the commercial plot is purchased.

If the decision is to the affirmative, the plot will be bought thereafter which the business will conduct a business appraisal to inform a decision as to which real estate investment (given alternatives of Office block, Commercial City Mall, Hotel Complex, Mixed Retail and Office Block, etc) forms the highest and best use for the plot as well as bringing the most optimal return on investment for the plot in which case an uncertain investment appraisal cost for the development will be incurred. At this point, a decision is made to develop the plot and the choice of the development is taken; let’s say a City Mall is chosen.

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The development/construction cost for the City Mall is uncertain. After the construction cost is known perhaps through the development of a Bill of Quantities, the cost of financing the development costs is then determined considering alternative financing options and the budget constraints to that financing. Once the cost of financing and financing option is decided on, the city mall shall be constructed but this is also uncertain as the construction has several considerations ranging from the required level of finish, cost management to avoid cost escalations, construction quality as well as time and schedule management, considering required return on investment as well as the risk is determined. The rent per square meter for the mall is set on a market basis but also considering the time it will take to complete construction and bring the Mall to the market. Finally, the uncertain annual rental income determines the profit or loss of the city mall real estate investment to the business.

The above example can equally be represented as a decision tree by assigning values to the final outcomes, and probabilities to the various uncertain outcomes resulting into the adoption of a decision alternative which would make it conceptually easy to understand (Fig. 2). Start at the final outcome, annual rental income of the city mall (the ends of the tree). Go in to the first decision, set the rent per square meter (the last to be made chronologically). Compute the utility of the decision alternatives, and choose the one with the highest value. This value becomes the utility of the choice outcome leading to that decision (e.g., construction of the city mall). The corresponding certain equivalent in Uganda Shillings reflects the expected utility of reaching that point in the tree. In this fashion, work backwards to the start of the tree, finding the best decision alternatives and their values at each step.

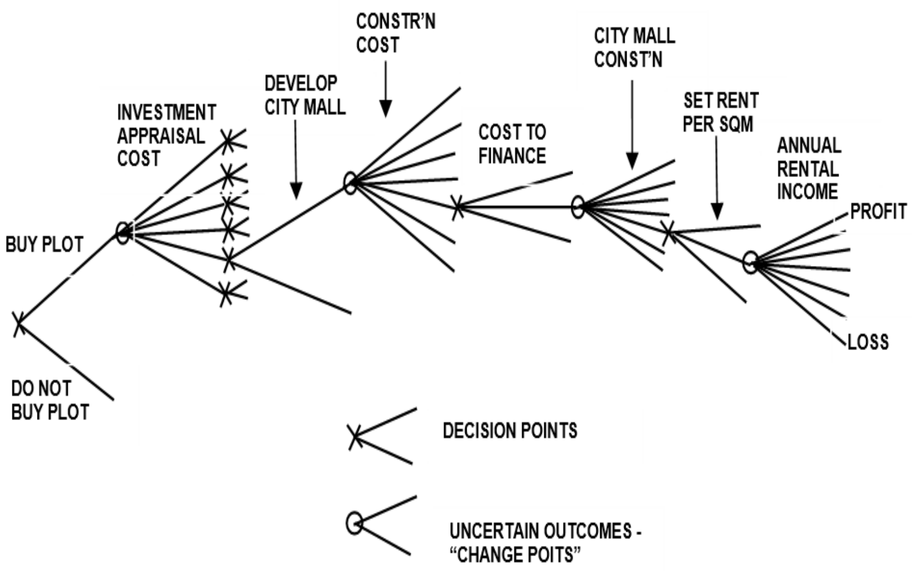

Figure 2: Real estate investment decision tree (Source: Adapted from North 1968:209)

North (1968: 208) argues that if all quantities concerned in the problem are considered uncertain, the decision problem to invest in the real estate might be computationally intractable. He therefore advises to solve the model deterministically by first approximating all uncertain

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quantities with a single best estimate and then examine the decision; i.e., if investment appraisal costs, constructions costs, financing costs and annual rental income took the values we consider most likely, perhaps it would then be advisable to develop the City Mall. This deterministic phase will usually give us some insight into the decision. At this point, it is even possible to perform a sensitivity analysis by varying the uncertain quantities to determine how they affect the decision. The decision may be quite insensitive to some quantities (e.g. the political climate in the country), and these quantities may be treated as certain (uncertainty is neglected if it appears not to affect the decision). On the other hand, if a variation that lies within the range of uncertainty of a factor causes a major shift in the decision (i.e., from "develop the Mall" to "do not develop the Mall"), then the developer, real estate manager, real estate business may certainly wish to encode their feelings about the uncertainty of that quantity (North 1968: 209).

To put the above more broadly, businesses investing in real estate will have a number of options on their table and the actions they exercise of each option will always be associated with a number of possible consequences, some of which are desirable and others are not. The consequences that result from the exercise of an option will be dependent on the prevailing features of the real estate environment in the country: interest rates on loans/mortgages, increasing/declining land prices, increasing/declining market rents for properties, returns on alternative investments, increasing/declining construction costs, regulatory environment, and so on. While theory doesn’t say that decision problems of real estate are always framed this way, if indeed they are framed this way, utility theory suggests that the businesses will have to consider the options that maximizes the utility that is derived from a given decision.

But as was pointed out by Nickols (2008: 4) and Farragher and Savage (2008: 29), the increasing sophistication in real estate investment decision making in entrepreneurial settings would imply that a decision tree approach may not always be appropriate when undertaking real estate investment decisions in actual practice.

The complexity involved in decisions of real estate investment would then require considering the several alternative options available for reducing the uncertainty associated with the unknown factors. Alternative options lie in gathering as much information as possible about the real estate investment environment in Uganda to reduce the uncertainties before the investment decision is finally made. A business should consider conducting extensive information-gathering activities such as expected returns including their volatility and correlations across different assets, market surveys, pilot studies, prototype construction, test marketing, or consulting with experts. Expectations will base on a number of different information sources, historic data, current market price, market sentiment as well as the personal intuition of the decision maker of the real estate business.

These activities invariably cost the decision maker time and resources; a price must be paid for resolving the uncertainty (North 1964: 206). This new information regarding the forecasted amount, timing, and uncertainty of a project's expected costs and returns (translating the forecast into a risk-adjusted evaluation) then forms the basis of whether to accept or reject the investment opportunity by a real estate business. This is incorporated in the decision-making process which will most certainly modify the likely outcomes of the decision.

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The decision outcomes at any given time reflect a state of information in the mind of the decision maker. However, according to Bradley (2014: 7), it is important to consider only that information that is relevant to the features of the possible outcomes and the conditions pertaining to those outcomes. Too much information is complex and expensive to analyze often leading to inefficient decision making and requiring more resources than justified to analyze.

4. IMPLICATIONS FOR BUSINESSES INVESTING IN UGANDA'S REAL ESTATE

Without a formal law regulating the real estate sector, Uganda's real estate industry is still immature according to Mirembe (2022: 50) as young as less than 35 years in real estate activity with no central place to get market data about the real estate industry such as past sales and performance, real estate demand and supply in the market, yields, the amount of floor space in different sectors of real estate for example office, retail or even residential. At the same time, Uganda's real estate market is segmented into two broad categories of formal and informal real estate sector with the formal real estate sector symbolizing the regulated real estate while the informal real estate symbolizing the non-regulated real estate sector often with no legal registrations for land information.

Real estate activities in these two worlds are totally different and while the decision procedures and decision support systems can generally remain the same, the practical application of the decision will involve taking into account the general realities of the real estate market context within which the decision is being made by the investing business. Like Bradley (2014: 7) pointed out, highlighting certain features of the problem and in particular those upon which the decision depends should provide a proper representation of the decision problem. This then makes it imperative for businesses investing in Uganda's real estate sector to contend with these challenges whilst undertaking their real estate investment decisions. In decision theory, possible outcomes of a particular decision will relate to the obtaining information about the states of nature which then sets in the notion of "decision making under uncertainty" already described above.

From the general descriptions of decision theory, the general perception would be that Uganda's real estate investing businesses make rational decisions when undertaking real estate to investment decisions. That they will seek to maximize utility derived from every real estate investment decision by following the approach described above in the Utility theory model with the aim of making a decision that is based on objective and unbiased facts.

On the contrary however, with the foregoing challenges related to investing in Uganda's real estate and the desire to make the best decisions that derives success for a business, the extent of application of the utility theory and the various decision support systems for a majority of businesses investing in Uganda's real estate will be based on their own growth level as a businesses (describing the formality/informality of the business' internal structures and processes) as well as the nature of the real estate market (formal or informal) that forms the context in which the particular real estate decision is being made.

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The relatively more formal businesses in Uganda seem to undertake real estate investment decisions by applying a certain degree of analysis through investment strategy, gathering information of market conditions and performing analysis of possible outcomes of their decision more like what the utility model described above follows. They exercise a certain degree of rationality when undertaking real estate investing decisions often making predictions of possible outcomes and a profitability analysis of the investment decision that is synonymous with the normative models of decision making.

For the less formal businesses with less and/or completely no formal internal structures that can form restrictions on the decisions made by the real estate investing business head, there is a deviation from the normative models towards the descriptive models due to behavioral aspects as the business will rely more on the experience of its head and previous investment decisions made often guided by confirmation bias.

The foregoing notwithstanding, across all businesses investing in Uganda's real estate (formal and informal), the reality for most of them is that there are anomalies between the behaviour suggested by the normative theories and how these businesses are actually undertaking their real estate investment decisions. We therefore argue that normative theories may be of little use in guiding real estate investment decisions for investing businesses as they fail to account for the internal inconsistencies of businesses and how their values can be influenced and changed. Aspects such as regret, anticipation, fear of failure, cognitive limitations in calculations are not included in the normative models yet empirical studies show these affecting the choices of decision makers (French, 1986). It is also evident that the decision processes are usually subjective and depend, to a great extent, on the experience of the decision-maker and their intuition. Biases and heuristics are evident in these decisions.

Furthermore, as was pointed out by Nickols (2008: 4) and Farragher and Savage (2008: 29), the increasing sophistication in real estate investment decision making in entrepreneurial means that for all businesses investing in Uganda's real estate, a proper structuring of their investment portfolio that informs a well-structured decision-making approach is critical. The formulation of a real estate investment framework becomes key for businesses investing in real estate. Beyond proposing the development of a real estate investment framework for businesses investing in real estate in Uganda, this paper doesn't go into the extra detail to actually develop the real estate investment framework. That is beyond the scope and intentions of this literature review.

5. CONCLUSION AND FURTHER RESEARCH

This study has focused on analyzing decision-making processes of businesses investing in real estate in Uganda with the aim of gaining a deeper understanding challenges to decision making when investing in Uganda's real estate and the existence of decision support systems for businesses investing in Uganda's real estate given the level of market uncertainty associated with the real estate sector as well as the importance of decision theory in the decision-making processes of real estate businesses. The objective was to identify the challenges related to real estate decision making for businesses investing in Uganda's real estate and the existence and

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use of decision theory and decision support systems therein for real estate investing businesses in Uganda while navigating these challenges as well as proposing the development of a real estate investment framework with implementable packages for businesses investing in real estate in Uganda.

As regards areas for further research, this study has focused on challenged related to real estate decision making to invest in Uganda's real estate by businesses in general without categorizing whether they are informal or formal businesses. It would be interesting to perform a study on the decision-making processes of businesses in the informal sector and those in the formal sector to see differences if any in the decision-making processes of these different types of businesses.

The level of reliance on the business head and the benefits inherent in constraints provided in a formal business structure can provide valuable information on decision processes of formal and informal businesses investing in Uganda's real estate. Further, beyond proposing the development of a real estate investment framework for businesses investing in real estate in Uganda, this paper doesn't go into the extra detail to actually develop the real estate investment framework. That is beyond the scope and intentions of this literature review.

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