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O L L S C O I L L U I M N I G H

The role intuitive decision making plays in project selection in the residential property market: A case study of a medium sized property development company.

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Abstract

This thesis addresses the role of intuition in project selection in residential property development. The paper provides a comprehensive review of existing literature in relation to project selection and decision making. In addition, the examination of the project files of M.A. Ryan & Sons Ltd., a medium sized property development company, has enabled a case study to be carried out on three projects carried out by the organisation. Through the case study, the paper analyses how decision making in project selection can impact on the success or failure of a project. The use of a rational decision making process in project selection is contrasted with projects where intuition alone was used to select a project and where a combination of both intuition and rationality were used.

The evidence from this case study would suggest that intuition does have a role in project selection within the Irish residential property development industry. Nevertheless, this paper finds that intuitive decision making is not preferable to rational decision making processes in project selection. The report finds that decision making processes within project selection are most effective when a comprehensive rational analysis of the feasibility of the project is used in conjunction with intuition, although the results are tempered by the limited range of the study. Despite its restricted scope, the case study gives an indication as to how property development companies in Ireland operated throughout the 'Celtic Tiger' period in the country. Research encompassing more property developers and far more projects is required in order to definitively determine the value of intuition in making project selection decisions in property development.

Executive Summary

The role intuition and rational decision making processes have played in project selection within the residential property market has received very little attention to date. Traditional property development companies that purchase land, receive planning permission and build speculative housing estates, operate in extremely competitive environments where selecting the wrong project could mean insolvency. This thesis explores the types of decision making that can impact on project selection in the Irish residential property market through an examination of literature on the topic and a case study of three different construction projects carried out by one property development company, M.A. Ryan & Sons Ltd. The study focuses on the decision making techniques used in the selection of each project and compares the outcome of each development.

In the first project included in the study, an industrial development in Limerick City was selected using rational analysis. Intuition was mainly relied upon in the purchase of development lands in West Clare, whereas a combination of both was used in the selection of a mixed residential project in Co. Limerick. The project that was chosen following a rational decision making process was marginally successful, while the project that relied on intuition alone was a complete failure. The most profitable project examined in the study was the project where a combination of both the rational decision making process and intuition were used in the project selection process, which would indicate that combining both techniques is preferable.

While the results of this study are limited by the narrow range of the case study and the difficulty in measuring all of the factors that can impact the success or failure of a project, it nevertheless gives a snapshot of how one medium sized property development company made decisions and the impact intuition had. The answer to the question in relation to the role of intuition in project selection in the residential property market remains elusive. In order to firmly establish the benefits of rational decision making, intuition, or a combination of both, more extensive research is required and it is hoped that this paper can provide a foundation for such a study.

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CHAPTER 1 - INTRODUCTION

1.1 Background

This research paper examines the role of intuitive decision making in the project selection process for Irish residential property developers. It does so through an evaluation of existing literature on project selection, the Irish residential property market, decision making, intuition, and a case study on the project selection methods used within M.A. Ryan & Sons, a medium sized property development company based in Limerick that focuses largely on speculative housing. As well as examining the effects of intuition on decision making procedures in the project selection process, this paper compares the outcome of two developments where intuition contributed to project selection to the outcome of a development that was selected using a rational analysis approach.

During the late 1970's, M.A Ryan & Sons was a small construction contracting company operating in Limerick City whose primary activity consisted of tendering for house extensions and small renovation works. In the 1980's, the company began tendering for larger projects that would yield greater turnover and increase profitability. This strategy proved successful, and the company developed a relationship with an architectural firm in Limerick and began tendering and directly negotiating for work. During the early 1990's a crucial strategic decision was made to begin some small speculative housing developments. Although the company had increased its turnover and its workload through tendering for larger jobs and negotiating contracts directly with architects, the uncertainty of work in the construction industry where tendering was very competitive meant that profit margins were varied and unpredictable. Initially, there was a marked reluctance on the part of some of the directors of the organisation to enter the speculative property development market, however it was decided that the company would continue to tender for contract work as a more assured means of income, while also pursuing some development opportunities. Until this decision had been made, project selection was never a major issue for the company as there were a limited number of contracts that could be tendered for. Now, the company began selecting

projects carefully and devised a rational decision making procedure that would assist in the project selection process.

The initial developments carried out by the company were all moderately successful and were characterised by relatively small capital outlay, with bank borrowings kept to a minimum and loans repaid immediately on the closing of the sale of each house. Feasibility studies of the potentially positive and negative consequences of each development were carried out and decisions were based on the outcomes of these studies. The environment in which these projects were carried out was largely stable and predictable and intuitive decision making in project selection was minimal. Sometime during the mid-1990's, the company stopped tendering for contract work and began to focus exclusively on property development. The directors of M.A Ryan & Sons were greatly encouraged by the relative success of the initial development work that had been carried out. The company had experienced a significant increase in turnover and this, allied with the increased demand for housing by a growing Irish economy, made it clear that there were potentially much greater profits to be made by constructing speculative housing developments.

Since the company began focusing exclusively on property development as opposed to contract work, M.A. Ryan & Sons have completed fifteen residential, industrial and commercial property development projects with varying degrees of success. Three of these projects have been selected for discussion and analysis in this case study. The decision making techniques used in selecting these projects and their impact on project success/failure are analysed in this study to determine whether or not intuition is beneficial in the project selection process within M.A. Ryan & Sons.

1.2 Research Question

Is intuition beneficial in the project selection process in property development?

There are various definitions for intuitive decision making, but it essentially relates to decision making based on an individual's instinct rather than on the information that is available to assist the decision maker. This research paper aims to analyse intuitive decisions that have contributed to project selection

within M.A. Ryan & Sons, and will seek to identify whether the projects selected on the basis of intuition were successful or not. While acknowledging that there are a variety of factors that can contribute to the success or failure of a project, the study will investigate whether intuitive decision making prejudiced the project selection process, thereby affecting the likelihood of project success. Determining the effectiveness of decision making within M.A. Ryan & Sons could impact on the way the company approaches project selection in the future and ensure that the optimal methodologies are put in place.

1.3 Research Objectives

The main objectives of the study are:

- To establish whether intuitive decision making in project selection is beneficial or not.
- To investigate whether or not intuitive decision making is preferable to using a rational decision making process.
- To investigate the extent of intuitive decision making in project selection within M.A. Ryan & Sons.
- To examine how decision making in project selection has contributed to successful & unsuccessful property development projects for M.A. Ryan & Sons

1.4 Rationale

Investment in property, particularly residential property, was considered a safe option for investors to achieve financial growth during the period 1999-2007 and was viewed as an ideal method of capital appreciation. Many saw residential property investment as the perfect solution for producing an income in retirement and invested heavily as a result. This capital investment, combined with an increase in employment, availability of bank credit and government tax incentives, led to a rapid expansion of the residential property development market. The demand for residential housing reached seismic proportions throughout this period and the high levels of demand correlated with massive increases in house prices, construction inflation and the cost of development

sites. The high cost of land suitable for development along with the extremely competitive nature of the bidding between developers meant that project selection became complicated and risky. Rational, structured decision making processes exist along with decision analysis tools that use algorithms and calculations that analyse the benefits of investments. Despite this, it is unclear whether residential property developers use such methods or use their intuition to select projects without careful consideration of the risks that are involved.

The extent of the failure of residential property development projects in Ireland has been the topic of much debate in the national media, but whether or not poor decision making can be blamed for this failure has not been analysed and this research will attempt to identify if intuitive decision making in project selection was a contributory factor. This thesis will study the role that the intuition of the project sponsor plays in the successful or unsuccessful selection of projects, and whether intuitive decisions are as effective as decisions that are made on the basis of careful consideration of the available data. The success and failure of construction development projects often hinge on decisions that are made by senior management in the project selection phase, and the impact that intuition has on these decisions is worthy of further research.

In the residential property market, projects are often selected under time constraints where there are high levels of risk due to the unreliability of information at the decision maker's disposal. The time constraints under which projects must be selected mean that the intuition of the decision maker may be required and this paper will research this area in particular. It is hoped that this paper will contribute to determining whether or not intuition in project selection is beneficial and will outline how intuitive decision making can be of use to senior management within the construction industry. Determining whether or not intuition is beneficial in project selection could also have a positive impact on how M.A. Ryan & Sons approach project selection as more emphasis can be placed on rational analysis if required.

CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to give an overview into managerial decision making in project selection and the different approaches that are available. It begins by describing the residential property market in Ireland and will provide an outline of project selection techniques that are used, followed by an analysis of decision making theory. Within decision making theory, the rational decision making process and the unstructured decision making process are examined in detail. Following the discussion on decision making theory, focus will be placed on intuition and intuitive decision making. The benefits and limitations of intuitive decision making are explored, along with the use of intuition in management.

2.2 Residential Property Market

From 2002-2007, the residential property market in Ireland experienced a substantial period of growth. An average of 75,000 houses per annum were built throughout this period, a massive output considering that in the United Kingdom just two and a half times that amount of houses were built despite its population being fourteen times greater than Ireland's (Addison-Smyth & McQuinn, 2010). Major contributory factors in the booming housing market in Ireland during this period included; increased consumer income, a significant reduction in bank borrowing rates, an increase in land zoned for development use, improvements in infrastructure, immigration, and government tax incentives including the reduction of stamp duty and capital gains tax rates and the elimination of the residential property tax (Fitzpatrick & McQuinn, 2007). Research has also suggested that consumer behaviour has a substantial bearing in the housing market (Daly et al, 2003). Consumer demand for property was not only fuelled by fundamentals such a rising income, immigration, population age and demographics, but the perception that property investment was a safe option. At present, residential property development in Ireland has almost ground to a halt, with fewer than 8,500 houses built in 2012, the majority of which were one-off houses (O'Connell, 2013).

The reckless spending of residential property developers on development land has been widely criticised in the Irish national media, but the decision making processes that led to such reckless spending have not been explored in great detail. From as early as 1999, experts forecasted problems with spiralling house prices in Ireland (Roche, 1999). Despite the increased frequency of the warnings of a potential housing market collapse from academics and researchers towards the latter years of the 'Celtic Tiger' era in Ireland (Kelly, 2007), developers continued to invest heavily in projects. This normalisation of deviance as described by Vaughan (1998), (where falling standards become acceptable and poor performance becomes the norm), became prevalent in the actions of many residential property developers. There was an obvious failure to identify the weak signals in the market place, i.e. the unsustainability of such high levels of demand for new housing. Developers knew that all was not right, yet proceeded as normal in any event. Even when the collapse of the residential property market in Ireland began, developers continued to pour money and resources into projects when the need to halt construction was obvious. This showed a clear and illogical escalation of commitment from developers. Escalation of commitment occurs when organisations fail to accept that a venture is failing and increase their investment rather than terminate the project (Staw, 1981). Normalisation of deviance and escalation of commitment are traits that are commonly associated with rationality in managerial decision making, and their role in the selection of projects within the Irish residential property market may have contributed to the failure of many developments.

2.3 Project Selection

When selecting projects, decision makers must select one or more projects from a variety of alternatives, although the choice is limited by the available resources (Graves & Ringuest, 2003). Project selection is often a complex decision making process due to the variety of parties (senior management level down to the project management level with different professional backgrounds, cultures, and social experiences) who may have an input in the process along with the range of factors that must be taken into consideration i.e. market conditions, raw materials availability, probability of technical success, resources

and government regulations (Wang et al, 2009). Specifically for construction projects, some of the key factors that affect the project selection decision process include: high capital commitment; irreversibility of the decision process; limited information for making estimates; performance uncertainties; and that invariably the knowledge to make critical evaluations lies with only a few individuals within the organisation (Ebrahimnejada et al, 2012).

There are a variety of different techniques that can be used to assist the project selection decision process. Due to the unique nature of projects, the benefits and drawbacks of each approach can vary on a project to project basis (Kumar Dey, 2006). A commonly used approach to analysing the benefits of investing in a project is the accounting rate of return (ARR). The ARR is a percentage return that estimates the profits to be generated from the net income of the proposed investment in a project (Gordon, 1974). Critics argue that the ARR is an inadequate measure of the potential profitability of a venture, and should not be entirely relied upon due to its limited analysis (Penman, 1991) (Brief & Lawson, 1992). Another approach to project selection involves calculating the net present value (NPV) of the proposed investment. The NPV of an investment measures the time series of cash flows, both incoming and outgoing, and is defined as the sum of the present values of the individual cash flows of the same entity (Lin & Nagalingam, 2000). Essentially, NPV takes inflation and returns into account and compares the present value of money now to the present value of money in the future. The profitability index (PI) is the ratio of returns versus the initial investment required for a proposed project and is regularly used to rank projects based on their profitability during the project selection process (Lang & Litzemberger, 1989). There are a variety of factors that need to be taken into consideration when deciding whether or not to bid for a project. Wang et al (2009) provide a model outlining four distinct phases in how the project selection process works, see figure 1, which may be readily applied to the residential property industry in Ireland.

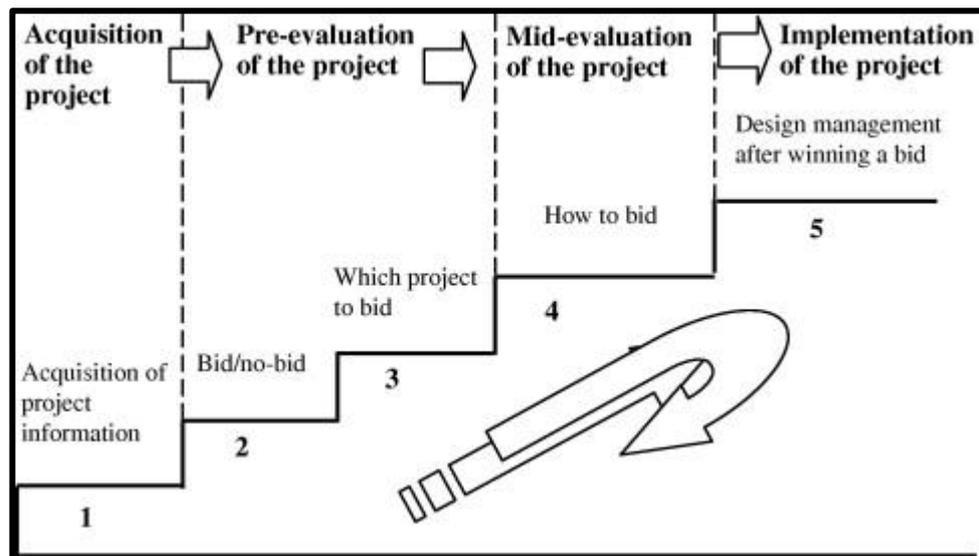


Figure 1; Project selection process. Source; Wang et al (2009).

The first phase of the project selection process as outlined by Wang et al (2009) is merely the pre-investment stage involving the acquisition of information regarding the potential new project or number of projects. For Irish residential property developers, this could involve gathering information on site services, zoning, planning, ground conditions and the potential number of bidders. There are two steps in the second phase, the pre-evaluation of the project; whether or not to bid for a project and which project to bid for. During the Celtic tiger period in Ireland, property developers would have had a number of competitors for the acquisition of development land, and would have to carefully analyse which of the potential projects were worth bidding on. The project selection evaluation techniques as discussed above are used extensively throughout this phase of the process. The third phase involves a careful analysis of how to bid for the potential project i.e. what bid to lodge/analysis of competitors etc. The final phase assumes that the desired project has been won and is concerned with its implementation. Throughout each phase outlined in this model, the decision making processes that exist within the organisation are crucial in determining how to proceed.

2.4 Decision Making

Decision making is effectively concerned with choosing between two or more alternatives. It occurs through two reactions; a problem or an opportunity, and

decision makers try to choose between the available alternatives in order to meet their objective (Hon-Tat et al, 2011). Within industry, a decision is a conscious, irrevocable allocation of resources with the objective of achieving a desired target (Skinner, 2009). Decision making plays a crucial role in the strategic direction of any business and company strategy is often not formally written, but communicated through the sequence of decisions that are made by an organisation. Strategy can be therefore described as ‘a pattern in a stream of decisions’ (Mintzberg and Waters, 1985). As decision making bears such significance, organisations try to be as rational and deliberate as possible in their decision making processes. It is generally an organisational requirement that managers have to be analytical, rational and possess the ability to make timely, accurate and objective judgements (Panagiotou, 2008). Decision analysis is an iterative process of gaining insight and promoting creative alternatives to help decision makers make better decisions (Skinner, 2009), and there are a range of tools and methodologies that are designed to analyse the possible consequences of decisions.

2.4.1 Rational Decision Making

Much research has been conducted into organisational decision making and strategic decisions can be categorised into two distinct types; programmed/structured decisions and non-programmed/unstructured decisions. The classical school of decision making prescribes a rational, structured decision making process. Simon (1997) describes rationality in decision making as being concerned with the “selection of preferred behaviour alternatives in terms of some system of values whereby the consequences of behaviour can be evaluated”. This essentially outlines how rational procedures select alternatives, assign weightings to the alternatives (system of values), allows individuals to make decisions and make evaluations on the potential consequences of the decision.

In the rational decision making process, strategic decisions are made without prejudice after a structured process of careful collection and analysis of information and circumstances, formulation of alternatives and having explored the potential consequences of the decision (Sadler-Smith & Shafy, 2004)

(Citroen, 2011). Drucker (1967) prescribes six steps that should form the decision making process; the classification of the problem, the definition of the problem, the specifications (boundary conditions) which the answer to the problem must satisfy, the decision as to what will fully satisfy the boundary conditions before the actions required are considered, factoring into the decision the actions required to carry it out, and the feedback which tests the validity and effectiveness of the decision against the actual course of events. Citroen (2011) summarises into seven key points the conditions that must be in place in order for such a rational, structured decision making process to be effective;

1. The issue is properly identified and the objectives of the decision are clearly defined by the decision-makers
2. The decision-makers can actively search for information on potential alternatives
3. They can carefully evaluate the advantages and the disadvantages of these options and their probability of success
4. Even when a preliminary solution appears, further new information or expert judgement is accepted, studied and analysed, even if it contradicts earlier ideas and preferences
5. Prior to the final decision, the positive and negative consequences of all alternatives are re-examined
6. Provisions for implementation of the decision are arranged, including a contingency plan in the event of failure during implementation
7. A procedure is outlined for reviewing the decision, in order to assess if the objectives have been achieved or whether the process needs to be reconsidered.

The process as described by Citroen (2011) is one approach to multiple criteria decision making. Multiple criteria decision making (MCDM), also known as multiple criteria decision analysis, is a rational decision making process that considers a variety of criteria when evaluating decisions. Problem solving when there are numerous conflicting objectives is a regular occurrence within management and project selection and the purpose of MCDM models is to assist in such situations. Although there are a variety of different approaches to MCDM problem solving processes, they typically include the phases of problem

structuring, appraisal of criteria and options, ranking, and synthesis (Bryson & Mobolurin, 1995). The classic MCDM model assumes that decision makers have a defined set of criteria to meet and a clear picture of all available alternatives when making a decision. The MCDM model then calculates a score for each alternative, thereby producing a ranking of the alternatives in order of their maximum value (Campanella & Riberio, 2011). Recently the limitations of MCDM models in a variety of settings have been exposed and researchers have produced a newer version of the classic MCDM models, the Exploratory Multi Criteria Decision Analysis (EMCDA). EMCDA is based on exploratory modelling, which is a modelling approach that allows policy makers to explore multiple hypotheses about the decision making prospects using different consequence models, different scenarios, and different weightings for alternatives (Van der Pas et al, 2011). EMCDA models are generally computer based, and computer based applications that assist in decision making are known as decision tools.

2.4.1.1 Decision Tools

Advancements in technology have meant that there are a variety of different decision tools available that are designed to analyse potential outcomes in order to assist decision makers. Decision tools and decision support systems (DSS) emerged as a response to the need from management across a number of disciplines for assistance in their decision making process (Hogue & Watson, 1986). DSS are computer technology solutions that can be used to support and improve the efficiency, effectiveness and productivity of managerial decision making (Keen, 1986) (Shim et al, 2002). Some of the characteristics of a DSS include; they are aimed at less well structured and underspecified problems that managers typically face, they try to combine decision making models with traditional data retrieval techniques, they focus on specific aspects of decision making which make them easier to use, and they try to emphasise flexibility and adaptability to accommodate environmental changes and the decision making approach of the user (Sprague, 1980).

The use of DSS and mathematical models allows the decision maker to run a sensitivity analysis that can test the potential consequences of the decision

implementation. The principle behind performing a sensitivity analysis is to run each variable from its lowest possible input value to its highest possible input value and to record the change in the output value (Skinner, 2009). By using this method, the potential impact of each variable on the final decision made can be determined. However, this approach can be quite cumbersome and time consuming in cases where there are a number of variables to contend with (Doubilet et al, 1985), and may not be entirely appropriate for project selection.

Influence diagrams and decision trees are two commonly used tools to assist the decision making process. An influence diagram is a graphical illustration used for modelling variables or alternative decisions, which can explicitly reveal probabilistic dependence and the flow of information (Schachter, 1986). Influence diagrams provide a concise method of clearly defining the issues that require decision and are useful for generating communication between decision makers. Decision trees, like influence diagrams, illustrate the decision problem and the related variables but also provide all of the detailed information associated with the each variable in a highly structured and logical way (Skinner, 2009). Although useful, a common problem with the decision tree is the difficulty and subjectivity involved in the design of the model (Sadler-Smith, 2008).

2.4.1.2 Limitations of the rational decision making process

When discussing the rational decision making process, Zionts (1979) suggests that there are three common assumptions that are normally made; there are a fixed set of alternatives of which one can be chosen, there is a decision maker who knows the alternatives, and the alternative selected is in some sense the best of the choices available. These assumptions are problematic in a number of ways. The most important decisions in an organisation are often required during times of crisis and the exact nature of the problem must be discovered before decision choices can be generated. Once the problem has been identified, a variety of different choices can be created. Although decision makers try to consider all of the possible alternatives, it very rarely occurs that all of the options are considered prior to a decision being made. In such crisis

situations, making the optimal decision or selecting the best choice can be extremely difficult due to the responsive nature of the decision that is required.

Perhaps the biggest difficulty with the rational decision making process is the lack of room for risk and the role of uncertainty. Generally, project selection occurs under time constraints and it can be unrealistic to expect such a decision process to be adequate. Comprehensive processes are time consuming and in dynamic environments, slow decision making methods would clearly be inappropriate (Goll & Rasheed, 1997). Over time, it has been accepted that it is unrealistic to expect all of the required conditions for effective rational decision making to be present when making decisions. MCDM models fail to capture the dynamicity of real world decision making problems due to the simplified assumptions that are made regarding the alternative choices (Campanella & Riberio, 2011). The same can be said for DSS models. In order for DSS to be more effective for organisations, they should be capable of handling 'softer' information and much broader concerns than the mathematical models and knowledge-based systems that are generally available (Shim et al, 2002).

Hogarth (2002) notes that another flaw in the rational decision making process lies in the application of the defined procedure. A decision maker is anyone with the necessary authority to allocate the necessary resources for the decision that is being made (Skinner, 2009), and the manner in which the issue requiring decision is presented to decision makers, combined with its complexity can lead to different interpretations as to how rational decision making procedures are implemented. Rational, structured decision making often fails to respond to the reality of the environment, where a wide variety of criteria may be encountered when making a decision. Despite the processes that an organisation can have in place, human error remains a factor, which reduces the likelihood of optimal decisions being made despite using rational decision making techniques.

2.4.2 Unstructured Decision Making

Research has shown that the classical school of decision making theory has proven to be largely ineffective for decision making within organisations. Simon (1979) describes how classical theory can possibly work in situations where uncertainty is not a major issue, but advocates that other approaches need to

be taken. Although the structured process can lead to effective decisions, when outcomes are difficult to predict through rational means, decision makers must acknowledge the uncertainties and prepare for changes. Using the rational decision making process alone generally has a negative effect on the outcome of the decision made (Simon, 1979). Unstructured decisions refer to situations where the decisions required have not been encountered in the same form and for which no predetermined and defined procedures exist within an organisation (Mintzberg et al, 1976). In the residential property market, developers must be able to respond to complex issues quickly and make effective decisions. Where decisions have to be taken quickly and in the face of an overwhelming lack (or mass) of information or tight deadlines, decision makers may have no choice but to depend on judgments rather than on ineffective or unsuitable routines and processes (Sadler-Smith & Shafy, 2004).

A simplified version of the rational decision making process as discussed includes; broadly viewing the alternatives before making decisions, considering the whole range of consequences of the chosen decision, and designing a system of values that would single out one of the options as the most suitable. Simon (1997) describes how human behaviour in this rational decision making process is inadequate in three primary ways;

1. Rationality requires a complete knowledge and anticipation of the consequences that will follow the implementation of each decision.
2. As the potential consequences lie in the future, imagination must be used to attach weightings to each option, but these values can only be imperfectly estimated.
3. Rationality requires a choice among all possible alternative behaviours. In reality, only a very few of the possible alternatives are ever thought of by the decision maker.

When considering project selection in the residential property market, risk and uncertainty must be evaluated and more emergent forms of decision making theory should be considered. The concept of bounded rationality as discussed by Simon (1997) is particularly relevant when discussing multiple criteria decisions such as those relating to project selection. Bounded rationality is the idea that in decision making, the rationality of individuals is limited due to the

amount of information available, the experience/cognitive ability of the decision maker, and the amount of time in which the decision must be made. While acknowledging that truly optimal decisions can never be made, Simon (1997) described the concept of “satisficing”. Satisficing is the concept that decision makers should not accept their limitations and should try to satisfy/optimize the time, information and experience available, i.e. look for a course of action that is ‘good enough’. When rational analysis proves ineffective or inconclusive, an individual’s intuition is often relied upon to satisfice.

2.5 Intuitive Decision Making

There are a variety of definitions available for the term ‘intuition’, and the lack of consensus about what constitutes intuition is highlighted by a shortage of terminology and an excess of inconsistent or even contradictory definitions (Sinclair & Ashkanasy, 2005). The meaning of the word intuition can have various applications, from common sense to professional judgement to basic instinct (Bonabeau, 2003). Intuition is credited when decision makers suddenly find the solution to problems and have the ‘aha’ experience (Franz, 2003). The Oxford English Dictionary (2006) defines intuition as “the ability to understand something instinctively, without the need for conscious reasoning”, which corresponds with Sadler-Smith (2008) who describes intuition as spontaneous judgements whose reasoning is difficult to articulate. Knowledge can be categorised into two distinct categories; explicit knowledge and tacit knowledge (Polanyi, 1966). Explicit knowledge refers to information that can be easily shared with others, while tacit knowledge is more challenging to share, and refers to the knowledge that dwells within the mind of an individual. It is their tacit knowledge base that individuals draw upon when intuitive decisions are made.

2.5.1 Intuition in management

The disputes over whether rational or intuitive decision making is more effective have lasted for many years and attitudes towards intuitive judgement in management vary considerably (Simon, 1997). It has been noted that people

need to rationalise their beliefs and make them plausible and that there is an increasing requirement for rational explanations in order to account for decision making in business and that appearing to make decisions based on intuition is unacceptable (Franz, 2003) (Hartman, 2008). Bonabeau (2003) argues that any intuitive decisions that end up with positive outcomes can be attributed to luck and that there are as many examples of terrible intuitive decisions as there are good ones.

Despite the questions raised in relation to whether intuition is of use or not, there is a body of thought that argues in favour of intuition. Hayashi (2001) and Sadler-Smith (2008) argue that intuition is a necessary requirement in guiding decision makers to effective problem solving and is a vitally important element of creativity. Intuition is often crucial for managers and decision makers when plans fail at precisely the moment when they are most needed (Leybourne & Smith, 2006). Prietula & Simon (1989) describe intuitive decision making in relation to specific professions as an accumulation of experience in handling similar type problems, which allows experts to use intuition to overcome the limits of reasoning. Leybourne & Smith (2006) define intuition in relation to management decision making as “a cognitive conclusion based on previous experiences and emotional inputs”. This would suggest that the success of intuitive decision making is dependent on the experience level of the decision maker and any personal bias that is held in relation to the decision alternatives.

This notion of intuition as a skill that can be developed is explored by Burke & Miller (1999), who also argue that intuitive decision making skills can be enhanced by researching and becoming informed about the intuitive decision making process.. Their research suggests approaches in which managers can develop their intuitive decision making skills by; paying attention to the decision making process; challenging decisions they are not comfortable with; analysing the role of intuition in past decisions; practising the application of intuitive decision making in hypothetical situations; observing how intuition is employed by others; researching intuitive decision making; and learning to take risky decisions without becoming overly concerned about the consequences. Hartman (2008) also advocates becoming well versed in the decision making process in order to help an individual’s intuitive skills, and states that intuitive decision making is of value when it is based on knowledge and experience that

has been gained through assessing and interpreting similar situations. Philips et al (2004) argue that expertise and intuition are not developed through experience alone. According to Sadler-Smith (2008), intuition and expertise is gained through a compression of prior knowledge, learning and experience, into a capability to respond in ways that do not appear to use an overt rational reasoning process.

2.5.2 Limitations of intuitive decision making

While intuition can be developed in management, decision makers who rely too heavily on their intuition can ignore relevant facts when it is imprudent to do so (Sauter, 1999). Decision makers should not confuse intuition with a hope that the outcome they favour most will occur. It is not uncommon for decision makers to project their own conscious or unconscious process onto a situation, thereby transforming the reality of the scenario so that it will fit with what they would like to be true rather than what is actually true (Agor, 1989). The development of an individual's intuition and decision making skills is restricted by cognition (Schwenk, 1984). Prietula & Simon (1989) discuss three limits on a person's ability to achieve expertise in a certain knowledge area; the *limit on attention* recognises that people can have difficulty in focusing their mind on a topic, and that serious matters require the undivided attention if the decision maker is to make a sound choice; the amount of information a person is able to store and refer to is known as *the limit to working memory*, the brain can only hold so much information, and this can be restrictive in the development of a person's intuition; *the limit on long-term memory* is in reference to how a person is likely to forget information stored in his/her long term memory unless it is used regularly.

Campbell et al (2009) also identify cognitive ability as an obstacle to effective use of intuition. They discuss two key obstacles in the human brain to effective decision making, pattern recognition and emotional tagging. Pattern recognition is when decisions are made based on prior experiences and judgements, which can be conducive to ineffective decisions when the brain causes the decision makers to think they have an understanding of seemingly similar situations, when in fact they do not. Emotional tagging occurs when the emotions of a

decision maker attach themselves to memories that affect the outcome of decisions. While this process generally helps the decision maker to reach the correct resolution in the majority of cases, it can also lead to poor decision making due to a subconscious bias that may exist in the mind of the decision maker. Campbell et al further explored the impact of emotional tags on the decision making process and found three “red flag conditions” that distort the decision maker’s ability to make an objective decision: the presence of self-interest, the presence of distorting attachments; and the presence of misleading memories.

2.6 Summary

The arguments for and against the use of rational procedures and intuition in decision making are many, and human error certainly remains a factor in both methods. The quality of intuitive decisions would appear to be dependent on the experience of the decision maker, whereas the objectivity of rational decisions remains questionable. According to Gladwell (2005), both intuitive and analytical decision making are appropriate in different circumstances. Successful senior managers do not closely adhere to the rational decision making process, but rely heavily on a combination of intuition and detailed analysis when diagnosing a problem (Isenberg, 1989). Emotion works with reason when it attaches to broad and permanent goals, assuring that action will not be narrowly conceived. It works against reason when it rushes decisions and restricts the range of possibilities and consequences that receive consideration in the decision process (Simon, 1997). Elbanna et al (2013) propose a model for decision making that incorporates both the rational decision process and the intuition of the decision maker (see figure 2). This model incorporates the range of variables that can have an effect on an individual’s intuition, combined with rational analysis. In this model, it is suggested that intuition can assist in bridging the gaps in rational analysis that arise from environmental uncertainty and incomplete information.

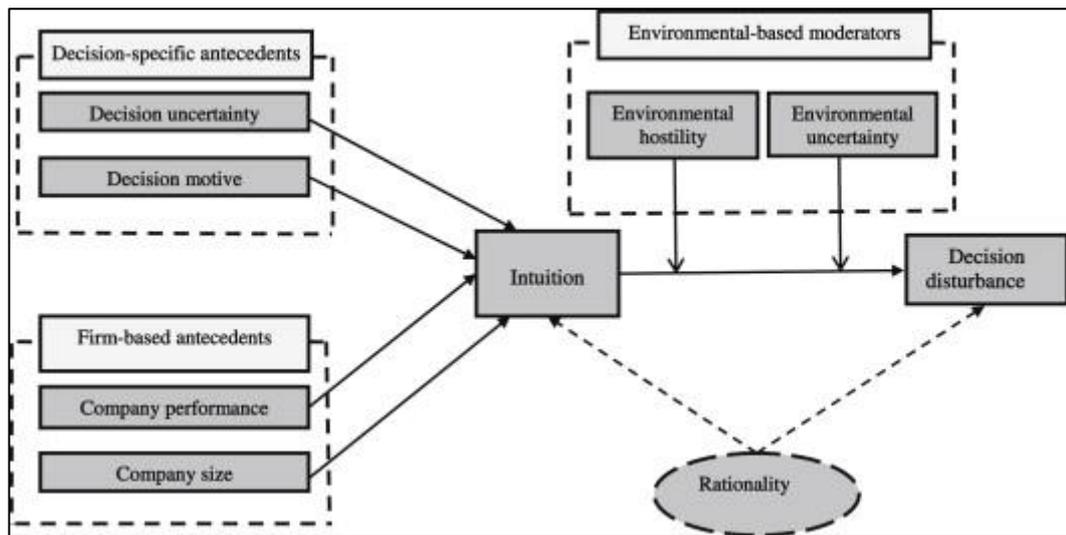


Figure 2; Decision making incorporating rationality and intuition. Source; Elbana et al (2013).

Is the combination of rational decision making and intuition applicable to the project selection process in the residential property market? Kumar Dey (2006) argues that while intuition should be used in conjunction with rational decision making, judgement should only be considered following a holistic rational approach that carefully analyses the consequences of the alternative options that are available. Many researchers argue the merits of combining rationality and intuition in decision making, and it would seem prudent for residential property developers not to make project selection decisions without considering both approaches.

CHAPTER 3 - RESEARCH METHODOLOGY

3.1 Introduction

The goal of this study is to explore how residential property developers in Ireland make project selection decisions and to determine whether or not intuition has a role in these decisions. To achieve this aim, an exploratory case study has been carried out on M.A. Ryan & Sons Ltd. The literature review formed the basis for the research design, and it is hoped that the research conducted will be useful in analysing how intuitive decision making can impact project selection.

3.2 Research Design

In order to establish whether or not intuition is beneficial in the project selection process in property development, an exploratory case study on decision making within M.A. Ryan & Sons has been carried out. The study, consisting of three projects completed by M.A. Ryan & Sons, was undertaken in order to give a reasonable overview of the decision making techniques used in the project selection process by the company. The literature review outlines three main schools of thought in relation to how decisions are made: using predetermined rational analysis processes; using intuition; and using a combination of both. This made the selection of projects for the case study straightforward. The first development included in the case study was the construction of five industrial units in Limerick City. The decision by M.A. Ryan & Sons to select this project was based purely on the predetermined rational analysis carried out, whereas the second project included in the case study, the development of eighty one residential units in County Limerick, was selected using a combination of both rational analysis and intuition. The third project included in the case study was the purchase of development land in a popular seaside resort in County Clare, which was selected almost entirely on the basis of the intuition of senior management rather than using the accepted rational processes that existed.

The research strategy consisted of analysing these three entirely different projects with their varying results. Although the risks and potential rewards for

each project differed greatly, the projects were deemed suitable for inclusion due to the decision making techniques that occurred throughout the project selection process. To help reduce the contextual differences in the manner in which the projects were executed, each project selected for this study was carried out during a period of sustained growth for the construction industry in Ireland. Despite the prosperity that existed in the Irish property market at the time, the decisions made by M.A. Ryan & Sons throughout the project selection process contributed to the entirely different outcomes that occurred for each development.

3.2 Data Collection

The literature review provided a guide as to how the collection and analysis of data should be carried out. Yin (2004) describes how multiple cases within a study can have contrasting results for predictable reasons that have been identified through a thorough literature review. A qualitative approach to data collection was deemed most suitable due to the size and nature of the organisation in question. The primary method of data collection was through a desktop survey of the project files, as access to information was never an issue.

The project files provided a wide range of documents (letters, feasibility studies, progress reports, decision analyses, architectural drawings, legal documents, photographs, sales letters, and planning files) and archival records (minutes of meetings, correspondence with auctioneers, letters from purchasers and vendors, schedules, memorandums, and development budgets) which provided a chain of evidence that maintained a link with the research question and research objectives throughout.

Aside from the desktop survey, informal face to face interviews were conducted with a company director who was readily available to clarify any issues that arose. One instance where clarity was sought on documentation recovered in the project files was when the decision analysis documents for each project were located. These key documents formed a large part of the study and outlined how project selection decisions were being assessed. The decision analysis process used for project selection by M.A. Ryan & Sons is straightforward, and involves generating the potential positive and negative

factors that can impact on the success of the proposed development and assigning weightings based on their importance to the overall decision. Despite the simplicity of the weighting system, there were a wide variety of supporting documents that needed to be scrutinised. When explanations could not be found in the project files for the positive and negative consequences of each development that were listed in the rational analysis, informal interviews were conducted to ensure clarity.

3.3 Limitations of the case study

The benefits of intuition and rational analysis in project selection are measured in this case study against the commercial success of the project. Measuring success in this way is problematic as there are clearly a variety of factors that can influence the profitability of a project. Despite this, the study looks at how decision making impacted on the project selection process and whether intuition is beneficial in selecting potentially successful projects or whether it clouds the judgement of decision makers, thereby increasing the likelihood of project failure. Two additional key limitations of case studies as described by Schell (1992) are the bias of the researcher and the lack of a basis for generalisation, particularly when the case focuses on one project or one organisation. As an employee of M.A. Ryan & Sons, self-delusion and bias were guarded against throughout the duration of the study in order to try to remain as objective as possible when analysing the findings, however it is accepted that complete impartiality is rarely achieved. This case study focuses on three projects within one company which means that the results cannot be made applicable to the entire property development industry in Ireland, but it is hoped that the results could form the basis for future research that could possibly encompass a greater range of projects than those included in this study.

CHAPTER 4 - DECISION MAKING IN M.A. RYAN & SONS

4.1 Introduction

This chapter will examine the decision making that led to the selection of three projects by M.A. Ryan & Sons. The three projects that have been chosen for this study are: the construction of five factory units in an industrial estate in Limerick City; the purchase of development land in a popular seaside resort in County Clare; and the construction of eighty one mixed residential units in County Limerick. The rational decision making process used for project selection by M.A. Ryan & Sons is straightforward, and involves generating the potential positive and negative factors that can impact the success of the development and assigning weightings based on their importance to the overall decision. Along with the decision making in the project selection process, the outcome of the projects will also be discussed.

4.2 Industrial development in Limerick City

M.A. Ryan & Sons relied heavily on their standard rational decision making method when choosing to purchase land in an industrial estate in Limerick City in July, 1999. Figure 3.0 (below) outlines the factors that were taken into consideration during the process. The positive aspects of the proposed project are listed in the left hand column and the negatives on the right. Each positive and negative factor was then assigned a weighting based on their potential importance to the success of the project.

Galvone Land Purchase			
<u>Positive</u>		<u>Negative</u>	
Low site purchase cost	3	Location - very near Southill	2
Planning Dept. favours planning for 5 units	3	History of burglary in the area	2
Land is zoned industrial	2	Several idle units in the estate	1
Favourable developers budget	2	Many factory units for sale in Limerick	2
Land is serviceable	2	Almost at full construction capacity	1
Easy construction, mostly one sub contractor	3	Profit margin lower than house building	1
Total:		15	Total: 9

Figure 3: Positive/negative aspects of the proposed industrial project in Limerick City

The major attraction to this project from M.A. Ryan & Sons perspective was the low cost of the development land. The land owner in this instance seemed unaware of the potential of the site and agreed to sell the land for £51,300, apparently without looking for other bidders. The low cost of the land was given a weighting of 3 due to its direct association with the potential profitability of the project. During pre-planning meetings with Limerick City Council, senior planning officials indicated to M.A. Ryan & Sons that the council would look favourably on a planning application for five factory units. This was deemed highly important and was also assigned a weighting of 3 as it removed much of the uncertainty of whether planning would be approved for the site. Similarly the land was zoned industrial which added to the likelihood of receiving planning permission, and was given a weighting of 2. Prior to each development, a developers budget would be completed that would assess the profitability of the venture. The developers budget for this particular project anticipated that the project would be lucrative should all of the units sell, and this was given a weighting of 2. That the land was serviceable was given a weighting of 2. Serviceable in this context means that there was ready access to foul and surface water sewers, water mains, electricity and telecommunications networks. Finally, the ease of construction was assigned a weighting of 3. Prior to this project, M.A. Ryan & Sons had been strictly house-builders and had no experience in constructing industrial units, but the simplicity with which the substructure and the structural frame could be constructed was considered an additional incentive to carry out the project.

Several of the potentially negative consequences related to the possibility that the units, if constructed, would not sell. The site in question is in an undesirable part of Limerick City, in an industrial estate that already had a number of vacant units. These factors were given weightings of 2 and 1 respectively due to the anticipation that the factory units proposed were to be much bigger than the vacant units in the estate and it was hoped that the quality of the new units would compensate for the location. The history of burglary in the area was given a weighting of 2 as the company had experienced theft during a previous project in the vicinity which proved disruptive to the project schedule. That there were a large number of factory units for sale and under construction in Limerick was assigned a weighting of 2. Although the new units would face stiff

competition to sell from others in the city, they could be sold at a much lower price due to the low purchase cost of the site. A potentially negative aspect of the project was that the company was working at full capacity the time, which was given a weighting of 1. A large residential development was being constructed concurrently and it was feared that there may have been inadequate resources available to complete both projects simultaneously. The profit margin for the construction of residential property at the time was much higher than for industrial property, however the company did not consider this a major problem and was given a weighting of 1.

4.2.1 Outcome of the development

M.A. Ryan & Sons bought the site for £51,300 and proceeded with the development of five factory units. While planning permission was granted in 1999, construction did not commence until 2003. Although the units were advertised at cheaper rates than similar properties in Limerick City, they did not sell initially. Three of the five units were sold in 2007 and 2008, covering the cost of the project and making a very marginal profit. At present, M.A. Ryan & Sons still own the two remaining units, one of which is rented and the other remains vacant. The lack of success experienced in this project could be attributed to flaws within the rational decision making process used in the project selection process. One of the limitations of rational decision making processes as discussed by Zionts (1979) is that it is assumed that the decision maker knows all of the alternatives or consequences. The rational decision making process used in selecting this project is severely limited by its subjectivity in that the decision maker can only generate a limited amount of potentially negative and positive consequences and is likely to overlook a number of factors that should be considered during the selection process.

4.3 Residential development in County Limerick

M.A. Ryan & Sons followed established convention in 2003 when choosing whether or not to purchase development land in a much sought after area in County Limerick. Figure 3.1 (below) outlines the factors that were taken into consideration using the same rational project selection process as the one used for the purchase of land in the industrial estate in 1998.

Annacotty Land Purchase			
<u>Positive</u>		<u>Negative</u>	
Need work - Dooradoyle nearly finished	3	Duplex units may not sell outside city	3
Site has full planning permission	3	Problems with sewer connection	3
Relatively low cost per unit	2	Poor ground conditions	2
Purchase cost spread over 12 months	1	Overhead high voltage electricity lines	1
No initial borrowings required	2	Infill site, disruptive neighbours	1
Well established residential location	2	Awkward planning permission	2
Total:		Total:	
13		12	

Figure 4: Positive/negative aspects of the proposed residential project in County Limerick

In this instance, the outcome of the rational decision making process was by no means as straightforward as it had been previously. In 2003 M.A. Ryan & Sons were approaching the end of a significant five-year residential property development in another part of County Limerick. This project had required a substantial capital outlay for new plant and equipment and the company had established a skilled workforce who were familiar with their on-site operations. Keeping this workforce and plant/equipment employed had a significant bearing on the decision to initiate the new project in question, and this was given a weighting of 3. The site had full planning permission for eighty one mixed residential units (i.e. 2,3 & 4 bedroom houses) which was considered an extremely important factor due to the cost and uncertainty that could be incurred during the planning application. The land was valued at €3.3 million, which was relatively low considering the price of development land at the time. At this purchase price, the site cost per unit was an average of €40,740.74. Considering the potential to sell the units for approximately €170,000 for an apartment and €350,000 for a detached house, this seemed an exceptionally good deal and was given a weighting of 2. In order to incentivise the deal, the

vendor had offered to spread the purchase cost of the land over twelve months, a factor which was given a weighting of 1. More importantly, the company had considerable retained profits from previous developments and did not require initial borrowings to finance the purchase of the land or the first construction phase of the project. The location of the proposed new project was deemed important and given a weighting of 2. The site was in a much sought after residential area with no social problems and within close proximity of schools, shops, cinema and the University of Limerick. These were considered strong selling points for any potential new development.

Despite the potentially positive aspects of the development, there were a number of negative factors to contend with, the most important of which was the possibility that duplex units would not sell in a suburban area. The planning permission consisted of forty two duplex units (an apartment beneath a two storey maisonette), five terraced units, twenty semi-detached units and fourteen detached units. It was unusual at the time for such high density developments to be constructed outside the immediate city environs, and there were serious concerns that the duplex units would not sell so far away from the city centre. This, along with another major problem regarding the sewer connections was given a weighting of 3. The issue in relation to the sewer connection surrounded the ownership of the sewer. The sewer had been constructed by a developer who had constructed the adjoining estate, which posed a real dilemma as to whether M.A. Ryan & Sons could connect to into this sewer as required by the conditions of the planning permission. One option was to wait for the local authority to take the adjoining estate in charge, which would allow M.A. Ryan & Sons to connect to the sewer for a nominal charge. However, this option was unrealistic as the taking in charge process can take years. The alternative was to negotiate with the adjoining developer for the sewer connection which could have cost up to €400,000. Another difficulty to be considered was in relation to the poor, swampy ground conditions that were present on site, which was given a weighting of 2. A weighting of 2 was also assigned to the fact that the site itself was an infill site, meaning that it was bordered on all sides by other housing estates and properties, many of whom had objected to the planning application and were deemed likely to be as disruptive as possible to the progress of works. The existing planning permission that was granted for the

development was also considered to be problematic as it contained a number of expensive and difficult construction details, and was deemed reasonably important and given a weighting of 2.

4.3.1 Outcome of the development

The rational decision making process in relation to this project selection process had proved inconclusive, and a judgement call was required from the decision makers within M.A. Ryan & Sons. Decision makers within M.A. Ryan & Sons describe the nerves and doubts that existed regarding the construction of the duplex units so far from the city centre, but nevertheless there was an overriding feeling that the project was right for the company at the time and would be profitable. The land was purchased for €3.3 million in March 2003, and construction began in February 2004. As it transpired, demand for houses in the area soared and many of the duplex units were sold from plans prior to construction. Legal opinion received by M.A. Ryan & Sons allowed them to connect into the sewer owned by the adjoining developer cost-free, and there was minimal disruption from the neighbouring properties throughout the execution phase of the project. The combination of rational analysis and intuition in selecting this project proved successful, which is supportive of the claims of Kumar Dey (2006) who advocates the use of intuitive decision making following a rational process that thoroughly assesses the consequences of a decision.

4.4 Holiday home development in West Clare

In 2007, a development site was advertised for sale on the outskirts of a highly popular seaside town in West Clare. At the time, the market for holiday homes in this town and in other Co. Clare resorts was booming and the high levels of demand meant that prices had become extremely inflated. The site in question had scenic views and was close to a golf club, beach, town centre and other amenities. Although it was without planning permission, the land was zoned for residential development. Interest from other property developers in the site was high and bids had already been tabled, the highest of which was for €2.35 million. In order to have a chance of purchasing the site, a bid needed to be

prepared quickly and the rational decision making process was not properly adhered to in this instance. The directors of M.A. Ryan & Sons describe having had a gut feeling that the project would be a massive commercial success due to the high demand for holiday homes and inflated prices that existed in the town.

4.4.1 Outcome of the development

Spurred on by the success of other projects and having the purchase price available in retained profits, M.A. Ryan & Sons were eager to develop the site in question. Despite the absence of a rational analysis as to the potential profitability of the project, M.A. Ryan & Sons purchased the site for €2.5 million, not subject to the award of planning permission. In January 2008, a planning application for the development of twenty four luxury holiday homes was submitted. The local authority refused the application on the basis of a lack of suitability for the landscape in question. Since the economic downturn in Ireland, demand for holiday homes has been drastically reduced and house prices in the town in question have fallen dramatically. At present, the site remains undeveloped and M.A. Ryan & Sons are concerned that the land may be re-zoned for agricultural purposes. The hurried nature of the project selection process that led to the purchase of this development land serves as an indication that Sadler-Smith & Shafy (2004) may have been correct in their assertion that where decisions need to be reached quickly in the face of poor information or tight deadlines, decision makers must depend on their judgement and intuition. That said, the intuitive decision making that led to the purchase of this site bears traits of the limitations of intuitive decision making as described by Agor (1989), who noted that decision makers can confuse intuition with the hope that what they would like to be true will transpire.

CHAPTER 5 - CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

This research paper set out to establish whether intuitive decision making in project selection is beneficial or not and to investigate whether or not intuitive decision making is preferable to using the rational decision making process. To consider these factors, a case study has been carried out on the decision making techniques within M.A. Ryan & Sons and the extent of intuitive decision making in project selection within the organisation. Following the case study, it remains difficult to state definitively whether or not intuition is beneficial in project selection within the residential property development industry in Ireland, but the evidence would suggest that intuitive decision making and judgement do have a role in selecting successful projects.

The decision by M.A. Ryan & Sons to proceed with the development of five industrial units in Limerick City was selected based purely on rational analysis. Although the company recouped their outlay on the project, the profits generated were not as anticipated and two of the five units constructed remain unsold, over thirteen years since their completion. This would suggest that the literature criticising dependence on rational analysis alone has some basis. Likewise, the evidence ascertained from the purchase of residentially zoned lands in a seaside town in West Clare based purely on intuitive decision making has proven reckless. Despite the slight optimism within M.A. Ryan & Sons that the land may be developed at some point in the future, the site in question is currently used for grazing cattle and could possibly be rezoned for agricultural use by the local authority, which would render the project a complete failure. Comparing the projects (the industrial estate in Limerick City and the purchase of land for residential development in West Clare) would suggest that intuitive decision making is not preferable to rational analysis in project selection. Despite the lack of success experienced in both projects, the project where rational analysis was undertaken yielded a far greater return than the project that relied purely on the judgement and intuition of the decision maker.

The residential development project carried out in County Limerick was selected based on a careful rational analysis of the potential issues and outcomes that

could occur combined with the intuition and judgement of decision makers within M.A. Ryan & Sons. The rational analysis in this instance was inconclusive as to whether or not to proceed and a judgement call was required. This project yielded by far the highest percentage return of the three projects that were examined in this case study. Such definitive results would suggest a robust link to the writings of Isenberg (1989) and Elbanna et al (2013), which advocate the use of both rational analysis and intuition in unison rather than in isolation.

Finding strongly in favour of what is written in relation to the benefits of combining intuition and the rational decision making process could be mistaken for proof that such a combination is optimal for project selection in the Irish residential property industry. This 'proof' however is tempered by the fact that this case is limited in its findings by the narrow range of projects examined. Three projects in isolation are unlikely to be an indicator of the benefits or limitations of rational analysis and intuitive decision making in project selection in the entire residential property development market. Analysing the decision making in one company alone is also insufficient in order to make such claims and it is important that the findings of this paper are not overstated. The rational decision making procedure in M.A. Ryan & Sons may be more or less effective than the processes used by other property development companies and the decision makers in other property development companies could possess better or worse intuition than the decision makers in M.A. Ryan & Sons. Despite these complexities and limitations, it is hoped that this paper could form the basis for future research on the role of judgement and intuition in project selection.

5.2 Implications for M.A. Ryan & Sons

The rational decision making process used by M.A. Ryan & Sons is far from perfect. The process is extremely subjective in that it is reliant on the cognitive ability of the decision makers to generate consequences and assign values to their importance, a weakness which Simon (1997) observed as a trait of all rational decision making processes. Despite this, the rational analysis used by the company in project selection does have similarities to the positive aspects of rational processes as described by Drucker (1967) and Citroen (2011) in that it includes; broadly viewing the alternatives before making decisions, generating a

range of potential consequences that could occur as a result of selecting the project, and designing a system of values that singles out the option to select (or not select) the project as the optimal decision.

The rational analysis used in project selection by M.A. Ryan & Sons is undoubtedly weak by nature, but does have its merits. The results of this study would suggest that M.A. Ryan & Sons should avoid making purely intuitive decisions in project selection whenever possible. If intuition is to be of use in project selection, it should be in conjunction with a thorough rational analysis of the benefits and potentially negative consequences of selecting the project.

5.3 Recommendations for future research

One possible direction for future research in the area of intuitive decision making in project selection could be in developing a framework for project selection decisions that would first incorporate an extensive rational analysis followed by the judgement of the decision maker. Such a framework could generate results that would not only be applicable to the residential property industry in Ireland but could be generalised and applied in other industries. While suggesting such a study may seem reasonable, it must be acknowledged that there are a variety of difficulties associated with research into organisational decision making.

Assessing the effectiveness of any rational decision making procedure used in project selection is difficult. There are a number of variables that can impact upon the success and failure of residential property projects, and the rational analysis used in project selection may or may not have had an impact on the outcome of the project. Generalising the role of intuitive decision making in project selection as part of a framework is also likely to be problematic due to the difficulties associated with assessing the competence of an individual's intuition. Even if such abilities could be measured properly, studying the use of intuition in organisations poses further complications. The willingness of subjects to engage truthfully in a case study examining unsuccessful projects that had been selected based on intuition is doubtful, whereas the authenticity of the claims of other subjects regarding the use of intuition in selecting successful projects should also be questioned.

If these obstacles could be overcome, it is suggested that a wide sample of organisations be included in a study that would examine a large range of projects where intuition was used in project selection. Such a study could possibly provide stronger conclusions regarding the use of rational analysis and intuition in project selection and could be used as the foundations for developing an effective decision making framework.

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