# A MODEL FOR ASSESSING PROCUREMENT IRREGULARITIES IN DECISION MAKING PROCESS AT THE TENDERING STAGE OF CONSTRUCTION PROJECTS

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Specially dedicated to my late mother *Fung Chee Kim* who had devoted her entire life to her children and set a living example of determination and perseverance

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#### **ABSTRACT**

The public procurement in Malaysia has always been regulated by a comprehensive procedure of tender preparation, evaluation and award. Though these measures are meant to insulate unwarranted behaviors or biased decisions of the procurement officers, the public procurement is still plagued with recurring irregularities. Therefore, this study aimed to review and investigate the factors causing irregularities in the current contractor selection and award process. In addition, a conceptual model for improving the procurement decision making process has been developed based on the notion of bounded rationality. In the context of a procurement committee, the individuals were not only influenced by their cognitive limitation, they are also susceptible to irrational group behavior, namely groupthink. The compound of both influences has substantially undermined the deliberation process and hence resulted irregularities in procurement decisions. This research employed quantitative approach and was participated by 289 procurement officers from Malaysian local authorities. Partial Least Square - Structural Equation Modelling (PLS-SEM) statistical analysis technique was employed to test the model. The model confirmed that three antecedents namely accountability, prior knowledge and work experience directly impact the procedural rationality. Whereas, two antecedents namely group insulation and group cohesiveness were directly related to groupthink. Besides, procedural rationality was confirmed to mitigate groupthink effect, whereas groupthink induced defective decision making. In addition, both procedural rationality and defective decision making were found to be associated with procurement decision irregularities. The model was validated for its capability to detect the likelihood of irregularities decisions in the public procurement context.

#### **ABSTRAK**

Perolehan awam di Malaysia sentiasa dikawal oleh tatacara penyediaan, penilaian dan penerimaan tender yang komprehensif. Walaupun langkah-langkah ini bertujuan untuk mencegah tingkah laku yang tidak diingini atau keputusan yang berat sebelah daripada pegawai perolehan, namun perolehan awam masih dibelenggu oleh kes-kes ketaknalaran yang berulang kali. Oleh itu, kajian ini bertujuan untuk menyemak dan menyelidik unsur-unsur yang mengakibatkan ketaknalaran dalam proses pemilihan kontraktor dan penganugerahan kontrak yang sedia ada. Di samping itu, kajian ini telah menwujudkan satu konsep model untuk memperbaiki proses membuat keputusan perolehan berdasarkan tanggapan bounded rationality. Dalam konteks jawatankuasa perolehan pula, individu-individu bukan sahaja dipengaruhi oleh had kognitif, mereka juga terdedah kepada tingkah laku kumpulan yang tidak rasional, iaitu groupthink. Gabungan daripada kedua-dua pengaruh tersebut dengan ketara telah menjejaskan proses pertimbangan dan dengan itu mengakibatkan ketaknalaran dalam keputusan perolehan. Kajian ini menggunakan pendekatan kuantitatif dan disertai oleh 289 pegawai perolehan dari pihak berkuasa tempatan Malaysia. Teknik analisis statistik Partial Least Square - Structural Equation Modelling (PLS-SEM) digunakan untuk menguji model tersebut. Model ini telah mengesahkan bahawa tiga faktor iaitu akauntabiliti, pengetahuan sedia ada, dan pengalaman kerja secara langsung mempengaruhi procedural rationality. Manakala, dua faktor iaitu group insulation dan group cohesiveness secara langsung berkaitan dengan groupthink. Selain itu, procedural rationality disahkan dapat menangani kesan groupthink, yang mana groupthink akan menyebabkan kepincangan dalam proses membuat keputusan. Di samping itu, kedua-dua procedural rationality dan kepincangan dalam membuat keputusan telah didapati berkaitan dengan ketaknalaran dalam keputusan perolehan. Model ini telah disahkan berupaya mengesan kewujudan ketaknalaran keputusan dalam konteks perolehan awam.

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## LIST OF ABBREVIATIONS

CFA – Confirmatory Factor Analysis

EUT – Expected Utility Theory

JKR – Public Works Department

JPA – Public Service Department

MOF – Ministry of Finance

PLS – Smart Partial Least Squares

SEM – Structural Equation Modeling

SPSS – Statistical Package for the Social Sciences

TMT – Top Management Team

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#### **CHAPTER 1**

#### INTRODUCTION

## 1.0 Background

The main objective of Malaysian public procurement is to achieve the best value for money for the works, supplies, and services of government's projects. In particular, the Malaysian procurement regime specifically emphasizes that "the benefits or value from procurement should commensurate with the costs involved and that the best procurement is well and thoroughly evaluated, reasoned and justified...." (Ministry of Finance Malaysia, 2010).

The Auditor General's reports in 2011 – 2015 have highlighted the importance of reducing the occurrence of procurement irregularities in the selection and award of contractors, to ensure best value for money is secured in the government's procurement. The definition of procurement irregularities includes a wrong selection of contractors to carry out the projects and poor decision-making process for the tender award, and that consequently leads to poor procurement outcomes. The Auditor General's reports have mentioned that the procurement officers, i.e. members of the tender evaluation committee and tender award committee have regularly involved in the decision irregularities.

Although the public procurement process is rigorous, taking into account of all possible administrative problems; somehow, defective decisions still occur due to the

human factors such as decision rationality (Holmgren et al., 2011; Kaufmann et al., 2012a) and groupthink (Janis, 2008; Ntayi et al., 2010) (which will be further explained in Chapter 2).

## 1.1 Research problems

The main objective of Malaysian public procurement is to achieve the best value for money for the works, supplies, and services of government's projects. In particular, the Malaysian procurement regime specifically emphasizes that "the benefits or value from procurement should commensurate with the costs involved and that the best procurement is well and thoroughly evaluated, reasoned and justified...." (Ministry of Finance Malaysia, 2010).

To ensure the best value for money is secured in the government's procurement, the Auditor General's reports in 2011 – 2015 have highlighted the importance of reducing the occurrence of procurement irregularities in the selection and award of contractors (National Audit Department of Malaysia, 2013b, 2014n, 2015i, 2016l). The definition of procurement irregularities includes a wrong selection of contractors to carry out the projects and poor decision-making process for the tender award, which consequently leads to poor procurement outcomes.

There are instances that public expenditures have not been regarded as frugal spending, the i.e. poor performance of work contractors and inferior goods from suppliers (Gangopadhyay, 2013), unnecessary over expenses and allocation was not correctly spent (Ahmad Sarji, 1994). Besides, the incidents of non-compliance, wasteful purchasing, work delays, shoddy workmanship in government procurement have been repetitive and commonplace; though it have been highlighted annually by Auditor General (National Audit Department of Malaysia, 2013b, 2014n, 2015i, 2016l).

Among these irregularities, some are fraud cases that have been tried and sentenced in courts. For example, a lecturer from Giat Mara Centre was convicted by the Session Court to 2 years imprisonment and a fine of RM10,000 after he was found guilty of abusing his position as a quotation analysis officer in a selection committee meeting, for the awarding a contract to his wife's company (Azman Bin Awal [Appellant] v. Public Prosecuter, [2011]).

Other than that, these decision irregularities are so obvious that the Public Service Department (JPA) of Malaysia has investigated and taken action on more than 100 cases of non-compliance with financial procedures and procurement regulations (Ministry of Finance Malaysia, 2013).

As such, the Auditor General's reports have mentioned that the procurement officers, i.e. members of the tender evaluation committee and tender award committee have regularly involved in the procurement irregularities (National Audit Department of Malaysia, 2013b, 2014n, 2015i, 2016l).

At first glance, it seems that the existing procurement laws and regulations (Adham and Siwar, 2012; Chew and Xavier, 2012) should have taken into account of all possible administrative problems that would lead to procurement irregularities. The procurement officers would have no problem in adhering to standard procurement procedures and guidelines. They are expected to make the decision rationally and diligently in the best interest of the government.

Nevertheless, these full procurement controls in the form of laws and regulations very often do not meet the expected objectives (Adham and Siwar, 2012). There are still recurring irregularities in public procurement decisions. This has led to the contention that decision errors are common in procurement process (Bendoly et al., 2006); especially when the decisions are made in uncertain environments

(Kaufmann and Carter, 2006; Ogden et al., 2005; Zsidisin, 2003) which has undermined the rationality of decision makers (Kaufmann et al., 2009).

As a result, each year the federal and state governments have wasted billions of ringgit due to over-priced contracts for things ranging from huge water tunnel projects to the outsourcing of information technology services (Wan Abdullah et al., 2012)

As such, these procurement decision irregularities have left the public to be skeptical and frustrated about the rationality of public procurement officers (Buang, 2012; Fernandez and Goh, 2006). These irregularities have also been pointed out by international organizations, and that to a certain extent has affected the creditability of public officers.

The Handbook for Curbing Corruption in Public Procurement published by Transparency International (2006) mentioned that "...there are signs that something is wrong with the processes and procedures in projects that have been undertaken by local authorities, particularly in the area of public procurement. At the very least, the projects and purchases have raised questions as to the wisdom of the decision-makers, if not their integrity".

Though there are diverse factors that may lead to procurement irregularities, findings have shown that weakness in public procurement is largely attributed to the human factors rather than the system itself (Ambe and Badenhorst-Weiss, 2012; Dekel and Schurr, 2014). The personnel is one of the contributing factors that leads to inefficiencies of the procurement system (Hui et al., 2011; Roman, 2015). In particular, human factors such as decision rationality (Holmgren et al., 2011; Kaufmann et al., 2012a) and groupthink influence (Janis, 2008; Ntayi et al., 2010) (which will be further explained in Chapter 2) would likely to trigger decision irregularities.

According to Kaufmann et al. (2012b) and Riedl et al. (2013), human factors that contribute to the irregularities in procurement decisions should be investigated and analyzed, so that the effects caused by each factor can be minimized. In both studies, conceptual models had been used to study the effectiveness of procurement decisions. Besides, many past studies from other disciplines have suggested that conceptual model is appropriate to inform the decision makers on the factors that are likely to affect the rationality of a decision (Luo et al., 2015; Withrow and Bolin, 2005).

# 1.2 Research questions

Studies of public procurement receive growing attention since the beginning of this new millennium (Thai, 2005). Past studies in procurement have been exploring at the macro level of procurement issues, i.e. policy and legislations (Arrowsmith, 2005; Trepte, 2004), private financing (Lawther and Martin, 2005), cross-border trade, competition and prices (Cox and Furlong, 1995, 1997; Nielsen and Hansen, 2001; Madsen, 2002), management, strategic issues of governing (Krüger, 2004) mechanism (Phillips *et al.*, 2007), and efficiency of procurement (McCrudden and Gross, 2006).

Whereas the micro area of previous procurement research includes, i.e. methodology (Jin Lin *et al.*, 2014), tenderers' bidding performance (Ballesteros-Pérez et al., 2014), tenderers behaviors (Ohashi, 2009) long-term supplier relationships (Caldwell et al., 2005), decision making practice (Csaba, 2006) and bids evaluation (Bergman and Lundberg, 2013) and non-compliance (Eyaa and Oluka, 2011; Gelderman et al., 2006; Mwakibinga and Buvik, 2013). Both of these research areas ultimately aim to ensure the best value is secured for government expenditure.

In Malaysia, many public procurement studies involve in the field of government procurement rules (McCrudden and Gross, 2006), E-procurement (Abdullah *et al.*, 2013; Aman and Kasimin, 2011; Kaliannan *et al.*, 2009; Kaliannan *et al.*; Kassim and Hussin, 2013; Khairul Saidah Abas and Alifah Aida Lope Abdul,

2015; Othman *et al.*, 2009; Rahman *et al.*, 2009), public servants' perception on public procurement (Wan Abdullah *et al.*, 2012), level of satisfaction of procurement stakeholders (Jaafar and Radzi, 2013), contractors' perceptions on tender evaluation (Halil, 2007), procurement weaknesses (Othman *et al.*, 2010), transformation in public procurement (Adham and Siwar, 2012), linearization of public procurement (Khin and Ling, 2012), rationale and constraint of public-private partnership approach (Ismail, 2013; Ismail and Azzahra Haris, 2014; Ismail and Haris, 2014). Nevertheless, none of the previous studies have looked into the aspects of human behavior in public procurement decision makers.

There are however, quite a number of behavioural studies in Malaysia which include in the field of investment decision making (Adam and Shauki, 2014; Glanville bin Mohamad and Perry, 2015), household decision making (Abdullah Yusof and Duasa, 2010), financial illiteracy (Loke, 2015), compliance behavior (Saad, 2010; Sapici et al., 2014), cultural and consumer behaviour (Mohamed and Borhan, 2014; Ong et al., 2014; Ooi et al., 2011; Sian et al., 2010; Zendehdel and Paim, 2012), hospitality industry (Rajaratnam et al., 2015), waste management (Begum et al., 2009), medical and health (Chen, 1986; Wong and Sam, 2011); technology adoption (Bt Ramli et al., 2013; Taiwo et al., 2014; Yoon Kin Tong, 2009), entrepreneurship (Jamil et al., 2014) and ethics (Abdullah et al., 2014; Ismail et al., 2015).

As such, empirical studies from behavioral and cognitive perspectives in investigating the irregularities in Malaysian public procurement is non-existent. Majority research, in fact, targets towards the improvement of procurement policy and its systems, without taking into account the behavioral aspects of decision makers who constitute an essential element in the systems. Ironically, human elements largely dictate the outcome of a procurement decision-making process. To date, the behavioral aspects of Malaysian public procurement officers in decision making remains as an unknown area of research.

In order to address the above-mentioned gap, this research explored the following questions:

- 1 How the decision-making process in contractor selection and award is carried out in Malaysian public procurement?
- Why irregularities in procurement outcomes occur and what are the factors contribute to irregularities in public procurement?
- 3 How to reduce irregularities in the decision making of contractor selection and award?

# 1.3 Research objectives

Based on the above research questions, this research aims to accomplish the following objectives:

- To review the current process of contractor selection and award, in particular on what aspects the decision process is beyond the control of procurement system;
- 2. To investigate the variables that contribute to the irregularities decision making in contractor selection and award; and
- 3. To develop a conceptual model for minimizing irregularities in the decision-making process of contractor selection and award.

## 1.4 Significance of the research

Researchers in public procurement very often would formulate prescriptive approach on how the procurement system can be improved. Nevertheless, the

approach shall take into account on the behavioral and cognitive challenges faced by the public officials, whom constantly trying to cope with the procurement requirements placed upon them by the organizations. These challenges seem to outweigh the problems from the routine of procurement activities and having an influence on how the procurement procedure is being administered, and ultimately, the extent of procedural compliance in public procurement.

This research is thus important as it is a pioneer in adopting a behavioral approach to investigate causal factors that influence the decision-making behavior of Malaysian public procurement officers. In particular, this study would serve as an impetus for reforming the current practice of contractor selection and award in order to reduce the incidents of procurement irregularities.

#### 1.5 Definition of terms

Accountability - the implicit and explicit expectation that one may be

called on to justify one's beliefs, feelings, and actions.

Prior knowledge - typically refers to the project familiarity of

procurement officers achieve through the

accumulation of information pertinent to the works of

similar nature.

Work experience - the amount of job-related experience an individual

has accumulated over the course of his career.

Procedural rationality - the extent to which the decision process involves the

collection of information relevant to the decision, and

the reliance on analysis of this information in making

a choice.

Groupthink

a cognitive bias that occurs within a group of people, in which the desire for expeditious conformity in the group would lead to irrational decision-making outcomes.

Group insulation

decision-making environment that prohibits members of the group to solicit expert information and critical assessment for others within the organization.

Group cohesiveness

A property that may be found in an on-going group, playing an influential and positive role that unites members together via bonds of attraction.

Defective decision making

decision making by a group of members who try to minimize conflict and reaching a consensus decision without critically evaluates the alternative viewpoints.

Procurement irregularities

procurement flaws or inefficiency that compromise the principles of value for money.

### 1.6 Structure of the thesis

This thesis is organized into nine chapters, followed by a list of references and appendixes. Each chapter is briefly described as follows:

**Chapter 1 Introduction**: The first Chapter introduces the context of this research encompassing core issues such as the background, research problems, and questions, its objectives and significance thereby presenting an overall idea of this research.

Chapter 2 Decision Making Theories: This chapter reviews types of research approach in decision studies, stages of decision making, cognition, and rationality in decision making, individual and group decision-making behavior. It also provides a review of the past literature on the bounded rationality and bias in decision-making process.

Chapter 3 Procedures and Irregularities in Public Procurement: This chapter reviews the objectives of Malaysian public procurement, the limitation of procedural control in the procurement process due to the inherent irrationality in decision making. Procurement weaknesses are shown, which suggest a conceptual model for procurement irregularities is necessary.

# Chapter 4 Conceptual Model for Assessing Procurement Irregularities:

This chapter reviews in detailed the constructs of procedural rationality, groupthink, defective decision making and procurement irregularities in the context of public procurement. The antecedents of procedural rationality and groupthink are discussed accordingly. Besides, this chapter describes and depicts the development of research model and explains the hypothesized relationships between the variables.

**Chapter 5 Research Methodology**: This chapter starts with a discussion on the research paradigms and the justification for the research approach that has been employed. It then describes the research design, sampling, data collection, sample size, pre-test, questionnaire design, measurement items generation, and social desirability measurement.

**Chapter 6 Data Analysis and Results**: This chapter explains structural equation modeling (SEM-PLS) as the statistical analysis tool for the testing of proposed hypothesis and research model. The results of the data analysis are presented systematically according to Partial Least Square (PLS) analysis procedure.

**Chapter 7 Discussion of Results**: This chapter discusses the empirical findings of the research. The results are dissected and interpreted against its theoretical background as well as research context. The conceptual model is then validated by procurement experts from the public sector.

**Chapter 8 Conclusion**: This chapter summarizes the main findings from this research, discusses the contributions, describes the limitations of the study and offers recommendations for further research.

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