

**FACTORS THAT INFLUENCE THE  
SATISFACTION LEVEL OF E-PROCUREMENT  
USERS: A MODERATING EFFECT OF  
TRANSPARENCY**

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**By**

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## ABSTRAK

Sama ada secara polisi atau praktikal, terdapat peningkatan dalam Jabatan Kerajaan di Malaysia yang mewajibkan penggunaan Teknologi Maklumat (IT) dalam mentadbir dan memberi perkhidmatan kepada orang awam. Kebanyakan Jabatan Kerajaan berkehendakkan perkhidmatan perolehan dan produktiviti yang lebih baik melalui penggunaan teknologi canggih eP. Komuniti penyelidik menyedari bahawa terdapat peningkatan secara besar-besaran ke atas pengguna eP bagi memenuhi keperluan sistem tersebut. Keberkesanan sistem penyampaian awam berhubung perolehan merupakan topik perbincangan yang relevan di kalangan pengguna. Dengan mengambil kira jurang penyelidikan sedia ada, satu kajian telah dilakukan ke atas tahap kepuasan pengguna eP dan ketelusan sebagai kesan '*moderating*' dalam sistem penyampaian awam. Kerajaan Negeri Pulau Pinang telah dipilih sebagai sampel kajian ini. Faktor-faktor yang berhubung-kait di antara ciri-ciri sistem tersebut dan etika manusia dalam menggunakan sistem eP adalah merupakan rangka kerja kajian ini. Oleh itu, kajian ini akan memberi fokus kepada kualiti sistem, kualiti perkhidmatan, kualiti maklumat, kualiti reka bentuk web dan elemen ketelusan sebagai kesan '*moderating*' ke arah tahap kepuasan di kalangan para pengguna. Secara ringkas, penemuan-penemuan kajian ini mendedahkan: (1) faktor-faktor yang mempengaruhi tahap kepuasan pengguna eP dan (2) ketelusan sebagai kesan '*moderating*' sebagai salah satu daripada isu-isu etika dalam urusan seharian. Kedua-dua faktor dan kesan '*moderating*' boleh menjadi relevan atau sebaliknya kepada sistem penyampaian awam, bergantung kepada keputusan kajian. Keputusan kajian akan mencadangkan beberapa ciri tambah nilai yang relevan dengan eP bagi mempertingkatkan sistem penyampaian Kerajaan pada masa hadapan.

## **ABSTRACT**

By policy or practice, the increasing numbers of Government Department in Malaysia are mandating the use of information technology (IT) to administer and deliver service to public. Many Government Departments achieve, or expect to achieve, enhanced procurement service and productivity by using advance technologies in eP. The research community relies increasingly on eP-enabler users that massively registered to equip with the system. The effectiveness of the public delivering service regarding procurement is a relevant topic of discussion among the clients. Taking into consideration the gap in the literature, a study has been carried out on satisfaction level of the eP users and the moderating effect of transparency in the public service delivery. Penang State Government has been chosen as the research sample of this study. The interrelated factors between the system features and the ethic of human being in using the eP system are the framework of this research. Therefore, this research will focus on system quality, service quality, information quality, web design quality and the transparency element as the moderating effect towards satisfaction level among the users. In brief, the findings from this study revealed: (1) the factors that influence the satisfaction level of the eP users; and (2) the moderating effect of transparency as one of the ethical issues in the business of the day. Both the influencing factors and the moderating effect could become significant or other wise to the public delivery system, depending on the results. The results will suggest some developing relevant 'value-added' features of eP to enhance the Government's delivery system in the future.

## CHAPTER 1

### INTRODUCTION

*“The e-Procurement is an obvious testimony to one of the e-Government; successful implementations of ICT to further enhance public service delivery to public and private entities. The e-Procurement application has enabled Government agencies to procure goods and services electronically in an efficient and transparent manner.”*

Dato' Sri Mohd Najib bin Tun Haji Abdul Razak

Deputy Prime Minister of Malaysia

September 14, 2005

#### 1.1 Overview

Electronic procurement (eP) has become one of the most successful of electronic commerce applications in the world. It has been widely adopted by companies seeking better business processes and an improved bottom line. These advantages have not been lost on governments which also engage in extensive buying activities and are major customers for a wide range of goods and services. eP can be a powerful tool in the government activity although this was not acknowledged as a major driver of its development. That is the important benefit of eP to the Government Sector as a whole. eP can reduce transaction costs, lead to a better decisions and get better value in the procurement output. eP also known can assist small businesses through the reduction of red tape and providing access to small businesses to Government electronic market places.

In Malaysia, eP (also known as *e-Perolehan*) was initially implemented at the Federal Government level in year 2000 as one of the projects under the Electronic Government Flagship of Multimedia Super Corridor (MSC). MSC will accelerate Malaysia's entry into the information Age and realize the vision 2020. The MSC brings together, for the first time ever, an integrated environment with all the unique elements and attributes necessary to create the perfect global multimedia climate .The eP system streamlines government activities and improves the quality of service it renders. By subscribing to the eP system, suppliers will be able to participate in the procurement exercise by the government.

eP converts traditional manual procurement processes in the Government machinery to electronic procurement on the Internet. eP is an end-to-end electronic procurement system that enables Government Agencies around the country to procure products and services electronically from both local and international suppliers. It uses Internet technologies to bring Government Agencies in the country and Suppliers around the world together into a virtual trading environment. Its comprehensive and extensive functionality also creates an interactive and secure trading environment. Upon final implementation of the eP system, full services will be available to all four types of procurement that is Central Contract, Direct Purchase, Quotation and Tender (Zaharah, 2007).

At the international level, MSC International Advisory Panel Meetings- MSC IAP has agreed that Asia-Pacific Economic Corporation (APEC) economies will develop a common understanding on government procurement policies and systems, as well as on each APEC economy's government procurement practices, achieve liberalization of government procurement markets throughout the Asia-Pacific region in accordance with the principles and objectives of the Bogor Declaration, contributing in the process to the evolution of work on government procurement in other multilateral fora; increase the use of electronic means to conduct government procurement and in so doing seek to promote the uptake of e-commerce more broadly; and implement and maintain standards consistent with the APEC Leaders' Transparency Standards. (MSC IAP Portal, 2008).

The implementation of the eP system is done in four phases. According to the Treasury's Circular No. 5 /2000, Phase 1 (started in Oct 2000) consists of developing eP system for contract items involving selected Responsibility Centres (*Pusat Tanggungjawab* – PTJ) and registration system for services contractors at the Ministry of Finance (MOF). Phase 2 (2001) is to roll-out the system to one PTJ in selected Federal Agencies and Ministries such as Prime Minister Department, Ministry of Defence and Ministry of Education. On top of that, phase 2 would also develop eP for tender, quotation and direct purchase at the respective PTJ's. Phase 3 (2002) would roll-out all eP functions- from phase 1 and 2- to all PTJ's. Phase 4 (2003) is for the system upgrading subject based on current needs.

'ePerolehan', the official portal for Malaysian Government procurement has listed several advantages of the system to the Government as below :

- (i) Offers an effective and efficient procurement process in line with the country's transformation to the K-Economy. eP is a vehicle for the Government of Malaysia to leapfrog into the new economic concept and promote the widespread adoption of e-commerce in the country.
- (ii) Lower operational cost over time consumption. The Government of Malaysia will be able to reduce administration and operational costs through the usage of eP as business processes are reduced and streamlined to emphasize on the exact transaction activities which is to effectively discharge generic order fulfillment process.
- (iii) Better and up-to-date choice of products and services. A Government purchaser would have immediate access to a wide variety of products and services available to them via eP catalogs database, which will make them a resourceful purchaser.
- (iv) Latest product information and pricing are available on-line. eP will always be up-to-date with the latest information pertaining suppliers' products and services that will help the buyer to make a more accurate procurement decision.
- (v) A more skilled and knowledgeable workforce. Through its usage, eP will indirectly promote a higher rate of IT literate workforce, both in the Government and private sectors.

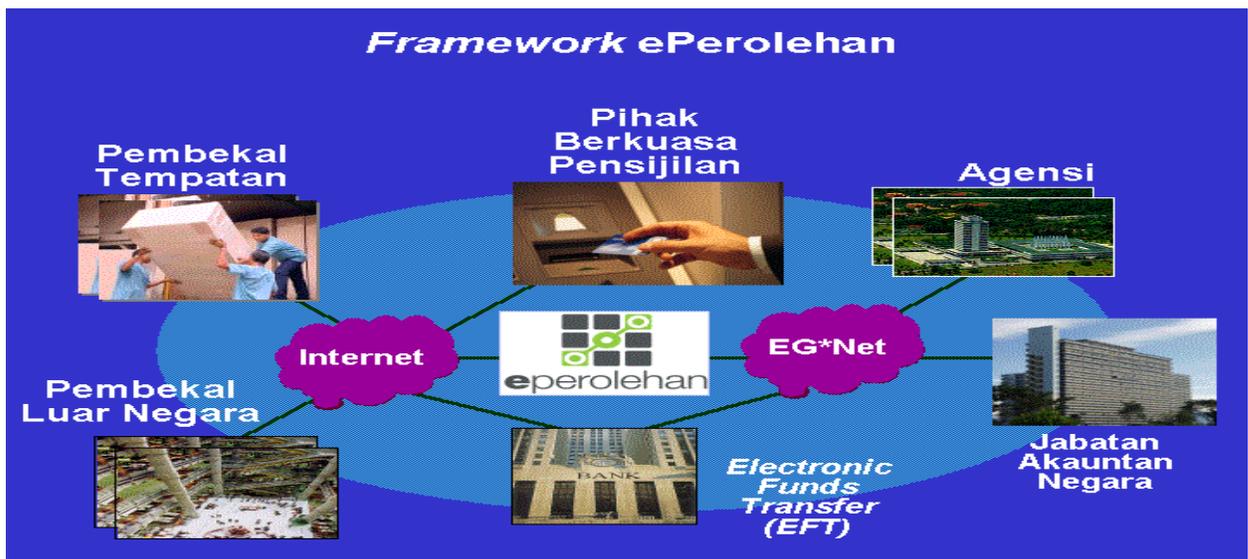
- (vi) Effective management of purchases and payments with the availability of audit trail/records; well kept in the system's database. With eP, the Government purchaser would be able to track or audit previous procurement processes/ transactions.
- (vii) Enhance Government's corporate governance image especially willingness in promoting transparency & correcting financial misjudgment in procurement activities.

On the other hand, the suppliers can enjoy these benefits:

- (i) Suppliers become much more accessible to the Government procurement activities, whenever and wherever he is eP enables the supplier's transition into e-commerce, providing an entry point for e-commerce accessibility & optimising e-commerce capability.
- (ii) Suppliers will be able to rapidly adopt and digest the e-commerce concept in significance with the usage of eP.
- (iii) Cost effective marketing. Advertising of products and services is much cheaper and faster, and yet reaches a broader base of potential buyers.
- (iv) With the Internet platform, suppliers would virtually have a borderless advertising channel at a very low cost.
- (v) Simplified processes and less manual work reduce administrative and operational costs. Through eP, almost all the business operations will be automated, thus not only leading to lower operational costs, but might as well expedite turnaround time for the purchaser.

- (vi) Suppliers would be able to receive payments faster through electronic funds transfer (EFT) payment. Supported by a highly secured network infrastructure, suppliers would be able to receive payments for products and services in a shorter period; which is within 14 days from invoice creation date.
- (vii) Improved business planning and forecasting due to a more efficient and predictable procurement process. Due to the fact that eP automates business processes and improves work efficiency, suppliers would be able to anticipate the procurement outcomes more accurately.
- (viii) Suppliers would get more exposure on any Government's procurement activities which are more transparent & publicly accessible via eP.

Diagram 1: Framework of the Malaysian Government eP.



Source : e-Perolehan Portal (<http://eperolehan.gov.my>)

Diagram 1 summarizes the framework of the eP at the Federal Government's level. The eP framework is the back bone of the all operations and processes of the system in the Government-link Agencies. For the purpose of this research, the main idea of how does eP functioned through the Federal Government's Agencies is very important. The nature of the eP implementation throughout other Agencies and Responsibility Centres (PTJ's), including the Penang State Government are almost the same. Therefore, the procurement activities via the system are technically based on the same framework.

Despite all the advantages to both of the Government Agencies as well as the users, transparency in public service is also proven from the use of eP where procurement activities are carefully monitored and recorded using Public Key Infrastructure (PKI) technology. In example, one of the procurement modules, eBidding that uses the reverse auction bidding concept promotes transparency from the order preparation stage up to the final stage of the order fulfillment in a transparent environment, participated only by qualified suppliers who are registered under the category code for the required tender. This in hand will determine quality in the product or service being received by the Government Agencies.

eP is an existing proof that the Government is endeavoring in improving the public service delivery and a model of transparency and accountability. Whilst the service is upgraded and performance delivered, the people shall benefit lucratively and develop into a more robust nation. The notion of transparency practices in the public delivery service is also captured by the Penang State Government.

## 1.2 Problem Statement

This paper will look at the factors that influence the satisfaction level of the eP users and a moderating effect of transparency. People tend to associate the satisfaction level in using eP with the transparency features of the system. However, there are some subjective issues that remodeling the satisfaction measurement in using the eP. The satisfaction measurements among the eP users are vary to each other. The main factor that caused the differences is the lacking of the proper study of the eP system and the effect to the potential users. Most of the contractors and suppliers are forced to use the eP system, without knowing the significance impact of the system usage to them. For instance, in Penang, there are no academic study that are related to the eP system and the users before the Penang State Government decided to implement the eP system for the State Agencies' procurement jobs.

As the result, the unsatisfactory factors among the eP users', especially the contractors and suppliers are always in debate. The unsatisfactory level among the eP users are very much relevant to be measured. The uniqueness of this study is in the theoretical framework, which suggested transparency should become the moderating effect of the satisfaction level among the eP users, instead of the Independent Variables along with system quality, service quality, information quality and web design quality of the eP system. The main reason in choosing the moderating effect is the importance of the transparency which deals with the ethical practices in using the eP system.

According to Eurochambres Contribution Paper 2004 on Procurement, “*eP provides opportunities for at least two different types of transparency – transactional transparency as well as archival transparency. The first kind of transparency ensures that we can follow and verify all the transactions in the process of procuring. The transactions are verified, recorded and completed over a network that is accessible to the buyer and the seller, and both parties can verify what has taken place. The second kind of transparency is, perhaps the more important. The possibility of returning to old procurement processes and evaluating them is important in order to evaluate the efficiency and potential corruption of the procurement function in both a company and the public sector. By recording all procurement bids, choices and evaluations – and e-procurement make this possible – the procurement process can be independently verified and reviewed by other parties – both public and private – to look for indications that a procurement process that should be a rational, economic decision is not affected by other factors such as bribery*”.

Therefore, in theory, transparency is the concrete basis to become as the moderating factor that enhances people judgments of eP in the service delivery context. The moderating factor could measure the dependent variable of this research, which is the satisfaction level among the eP’s users. The progress of the eP implementation in Penang State Government in promoting transparency public delivery service would become the sampling measure of the eP implementation in the Government sector.

As for the transparency practices in public procurement, Elodie Beth (2007) believes that lack of transparency and accountability recognised as a major threat to integrity in public procurement. Good governance approach should apply elements of good governance – in particular transparency and accountability - in public procurement to prevent corruption, review the whole procurement cycle, from needs assessment to contract management and focus on policy and practice, rather than regulations when possible.

Elements of transparency are one of the main keys for integrity in public procurement include ensuring a sufficient degree of transparency to promote fair and equitable treatment in the whole procurement cycle (e.g. record management, e-procurement); and shedding light on non-competitive procurement to enhance integrity (e.g. specific reporting, rotation, random audits). In order to deliver the transformation in service deliveries, the organization requires members/staff with the required skills and a competent organization and culture (Lili Nurliyana Abdullah, 2008).

### **1.3 Research Objectives**

The main objectives of this research are as follows:

- (i) To study the satisfaction level of the eP users on the system quality, service quality, information quality and web design quality of the eP system; and
- (ii) To look at the transparency effect as the moderating factors that influence the satisfaction level among the eP users.

In order to achieve the research objectives, this paper will answer the following research questions:

- (i) What are the factors that influence the satisfaction level among the eP users?
- (ii) Whether transparency can become a moderating effect of the satisfaction level among the eP users.
- (iii) Whether eP system has provided the sufficient system quality that will integrate to the users' satisfaction.
- (iv) Whether the information quality of eP system gives the valuable information to the users.
- (v) Is the web-design quality ensures the effectiveness of the eP system?

The research findings will be based on the primary sources whose directly involved in eP – the system administrator, Chief Assistant of State Financial Officer (Procurement), the eP-registered contractors and suppliers and a few State Agencies in Penang. The research data will be obtained through questionnaires (Appendix 1). Then, the paper will provide some recommendations as the value-added practices for the eP in the Government context.

## 1.4 Significance of the Study

From a theoretical standpoint, this research has implications for developing relevant ‘value-added’ features of eP to enhance the public delivery system. The research findings should be holistic and not only content on measuring transparency practice in delivery system, but also knowledge on developing positive ethics towards the improvement of eP in the Government context. Besides that, from this research, we will know which factors of the system’s features that acts as the main contributor in measuring the satisfaction level among the eP users. If these factors or features can be enhanced, the implementation of eP should not have any argument at the grass root level. The awareness of the problems behind the system is a common thought among users.

According to Gilbert (2000), *“many companies sign on for eP without anticipating the long road ahead. They dive into projects only to learn that eP applications are limited in the types and scope of purchasing activity they address.”* However, the realistic expectation on the system ability in increasing transparency level in delivery system might lead to the useful conclusion that can react as the problem solver. Although there are findings that already came into recommendations regarding the systems improvement, the continuous recommendations of eP are still relevant in today business. For instance, the research findings conducted by Maniam and Halimah (2008) have given some recommendations on the eP improvement for the Federal Government.

The recommendations focus on the reducing cost, time-efficiency, skill's upgrading, business focus and even Government Policy. However, most of the data collection covered the users at the Federal level – Ministries and Federal PTJ's. Therefore, the interesting aspect of this research is to get the research input from Penang State Government instead of the Federal Government.

### **1.5 Definition of Key Terms**

Definitions of key terms are presented in this section to allow better understanding for the discussion in this study:

**Electronic Funds Transfer** or **EFT** refers to the computer-based systems used to perform financial transactions electronically. One of the EFT features is electronic bill payment which allowing a depositor to send money from his demand account to a creditor or vendor such as a public utility or a department store to be credited against a specific account. The payment is optimally executed electronically in real time, though some financial institutions or payment services will wait until the next business day to send out the payment.

**Electronic Procurement** or **eP** is a system utilizing internet technology to streamline the purchases of goods and products. In the government context, eP streamlines government procurement activities and improves the quality of service it provides. The system converts traditional manual procurement processes in the Government machinery to electronic procurement on the Internet.

**Responsibility Centres** (*Pusat Tanggungjawab – PTJ*) are the Government Department that in charge of the collection, administration or expenditure of the government financial allocation. The definition of PTJ applies to the both of Federal Government and State Government.

**Sustainability in delivery service** is actually reflects to the sustainable procurement which can meet the needs for goods, services and works not on a private cost-benefit analysis, but with a view to maximizing net benefits for the public and the wider community. In doing so, the Government must incorporate extrinsic cost considerations into decisions alongside the conventional procurement criteria of price and quality. These considerations are typically divided thus: environmental, economic and social.

**Transparency in the context of public procurement** is considered one of the most effective deterrents to corruption. It is a precondition for ensuring public officials' accountability. Transparency also implies openness and communication in all the procurement process. Transparency practices in the public procurement process can ensure the Government to provide the 'value for money' services to the public.

**Treasury Circular** is systematically distributed letter of instructions and procedures on routine matters involving financial administration in the Government Agencies. Mostly, treasury circular elaborates the details of Treasury Instruction and other Financial Main Documents according to the latest needs.

## **1.6 Organization of Chapters**

The rest of this study is organized accordingly from Chapter 1 to Chapter 5. Chapter 1 has provided some overviews of the eP, especially the importance and the benefits of the system to the Government as a whole. The evolution of the eP in Malaysia through the MSC initiative also being explained in this chapter, before coming to the problem statement of this study, which are focusing on the influencing factors and the moderating effects among the eP users. In Chapter 2, the previous literature reviews that are related to the procurement in term of theoretical and empirical research are revised. Most of the literatures have been written widely in the public procurement dimensions. Studies that examining on the implementation and breakthrough of eP in Malaysia has been highlighted. Chapter 3 outline the data selection and research methodology of the study. In brief, data selection is based on the four Independent Variables and one moderating factor. The population of the study is the eP-registered contractors and suppliers as well as the Government Agencies in Penang. Chapter 4 tables the results of the data analysis. Finally, Chapter 5 will further discuss the results in Chapter 4 before suggesting some recommendations and conclusion of this research.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Overview**

In this chapter, the previous literatures on the eP have been discussed. There are few studies examining on the implementation and the breakthrough of eP in the Malaysian context. It is worth noting that most studies take the system requirement as the main factor that contribute to the overall perception of eP.

#### **2.2 Theoretical Reviews**

As a start, the theoretical framework relate to the benefits of eP. Introducing eP and automating the procurement process or parts of it has great potential in terms of accountability, transparency and cost savings (Schoenherr and Tummala, 2007). eP is being associated with transformational of typical procurement process that has been used. The eP issues have been discussed in many ways through different dimensions of users – the private or corporate sector, business-related organizations or government sector. The idea of eP arises in a cross-functional activity represented in a variety of journals. However, the important point of the discussion is in emphasizing the impact of information technology and systems on procurement practice and deals with emerging issues in the field. (Schoenherr and Tummala, 2007).

The theoretical of eP is best understood by defining the general concept of the system. According to Schoenherr and Tummala (2007), “*eP is frequently defined as the sourcing of goods or services via electronic means, usually through internet.*” In the simple way of describing eP, the roles of Information Technology (IT) through hardware (computer set) and software (program) in operating the procurement process are easily understood. In its most basic form, eP has been widely described as using electronic tools (the internet, web, e-mail) for business-to-business (B2B) purchase and sale of supplies and services. For that reason, eP is also sometimes referred to other terms, such as *supplier exchange*.

eP systems experienced diffusion in the late 1990’s (Puschmann and Alt, 2005) due to the proliferation and advances of information technology and the internet. The research on 157 procurement-related articles conducted by Schoenherr and Tummala (2007) has encounters that the peak of the procurement articles was reached in 2004 (33 articles) compared to early 1997 until year 2007. Most of the articles have a certain themes or concepts of procurement. According to Schoenherr and Tummala (2007), “*early papers dealt with eP in regard to Electronic Data Interchange (EDI) (Ramaseshan, 1997), the automation of formerly manual to automated processes (Gebauer and Schad, 1999; Putland et al., 1999) and the impact on the business environment (Klein and Teubner, 2000; Orr, 2000; Schmitt and Beerres, 2000). Articles that appeared in 2001 dealt primarily with market transformation issues inherent in the electronic revolution (Barua et al., 2001; Scacchi, 2001; Segev and Gebauer, 2001), advantages of electronic procurement (Olig and Spears, 2001; Oliveira and Amorim,*

2001; Roche, 2001), and recommendations and advice for successful implementation (Attaran, 2001; Rajkumar, 2001).”

The millennium era witnessed the expansion of eP’s adoption. More companies, organizations and enterprises beginning to use eP as the enabler tools in procurement process. As the result, eP models and framework were further developed through experiences and value-added post-mortem. The system was technically improved by modules. According to Schoenherr and Tummala (2007) , “*Articles in the following year dealt with more specific aspects of EP, such as electronic reverse auctions (Carter et al., 2004; Emiliani, 2004; Millet et al., 2004; Teich et al., 2004), marketplaces (Eng, 2004; Le et al., 2004; White and Daniel, 2004; Zabel et al., 2004) and other systems (Cheung et al., 2004; Kauffman and Mohtadi, 2004; Kim and Shunk, 2004; Panayiotou et al., 2004; Zabel et al., 2004).*”

There are also researchers that study the link between eP and supply chain management. As the field developed further, more complex and specific topics were explored. As the result, online auctions were further investigated in year 2006 by Jin and Wu. Additional manuscripts published in 2006 dealt with various aspects related to suppliers, such as the relationship to suppliers and supplier integration. (Schoenherr and Tummala, 2007). Although there were many researches in eP, there are still various interesting aspects that can be look into. There are also researches conducted on eP in the Government. One of them studied on the advantages of eP in improving Government delivery service conducted by Darryl Coulthard and Tanya Castleman (2001).

The bottom line of the private sectors has not been lost on governments which also engage in extensive buying activities and are major customers for a wide range of goods and services. eP can be a powerful tool in the government activity although this was not acknowledged as a major driver of its development. That is the important benefit of eP to the Government Sector as a whole. eP can reduce transaction costs, lead to a better decisions and get better value in the procurement output. eP also known can assist small businesses through the reduction of red tape and providing access to small businesses to Government electronic market places. According to Coulthard and Castleman (2001), there are three common aims of government initiatives in implementing eP:

*“Increased efficiency in Government business. In this respect, governments can be seen simply as large businesses with a large volume of transactions and e-procurement is a way of streamlining existing business processes. In the United States it was reported that e-procurement reduced the cost of transactions from US\$120 to around \$20 and reduced delay from around 40 days to less than 5 days (Church, 1998). The Australian Government estimates that the ratio of processing costs for cheque versus electronic payments ranges between 10:1 and 5:1 (DCITA, 2000; 8). Reductions of transaction costs can either mean the reallocation of resources to other Government programs or through a reduction of Government budgets, smaller business. “*

*“Government as eCommerce initiator. The adoption of e-procurement has also been viewed as a way that Government can lead by example. As a major purchaser, a Government can encourage the adoption of eCommerce with its suppliers. The implications for some SMEs may be negative, but in principle eprocurement has been associated with greater access to tendering opportunities with governments through the development of electronic markets. The trade-off is between greater responsiveness and streamlined processes and a greater openness to a wide range of potential tenderers. This aim goes beyond mere efficiency, however, and is linked with broader agendas to encourage businesses to adopt eCommerce (e.g., NSW, 1998).”*

*“Modernisation of public service. The third identified goal of e-procurement is to assist in the re-engineering of Government business itself. Not only can existing transaction costs be reduced and streamlined but strategic purchasing across government agencies can be better organised, the purchasing power of the Government can be better co-ordinated and purchasing patterns better monitored and more accountable (Avery, 2000). The greater emphasis on efficiency in purchasing and resource management may increase overall management emphasis on efficient program inputs and measurable outcomes across other programs. This will modernise the administration of Government.”*

The implementation task in most of the government in the world will involve encouraging agencies to participate in eP, coping with the lack of clear strategic directions and managing the pressure to adapt the eP system towards a centralist model. However, the milestones charted by government agencies demonstrated that ICT proponents realized that efficient and effective service delivery is more than merely implementing technology. Overhauling technology is just but one step towards improving service delivery (Karen, 2008).

The theoretical framework relates to the study of transparency perception on the delivery service. There are a few models often used to describe the relationships of the transparency and service delivery tools in the Government Sector. Most of the work in this area have used and quote the Information System (IS) and Information Technology (IT) adoption in the context of private businesses or known as e-Commerce or e-Business in order to better understand especially the sub factors influencing the adoption of e-Government and e-Procurement in the public sector settings (Maniam, Halimah, 2008).

Some of the models related to this context include Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Technology-Organization Environment (TOE). Table 2.1 describes the main constructs of these Theories based on the Models of Technology Acceptance.

Table 2.1

*Models of Technology Acceptance*

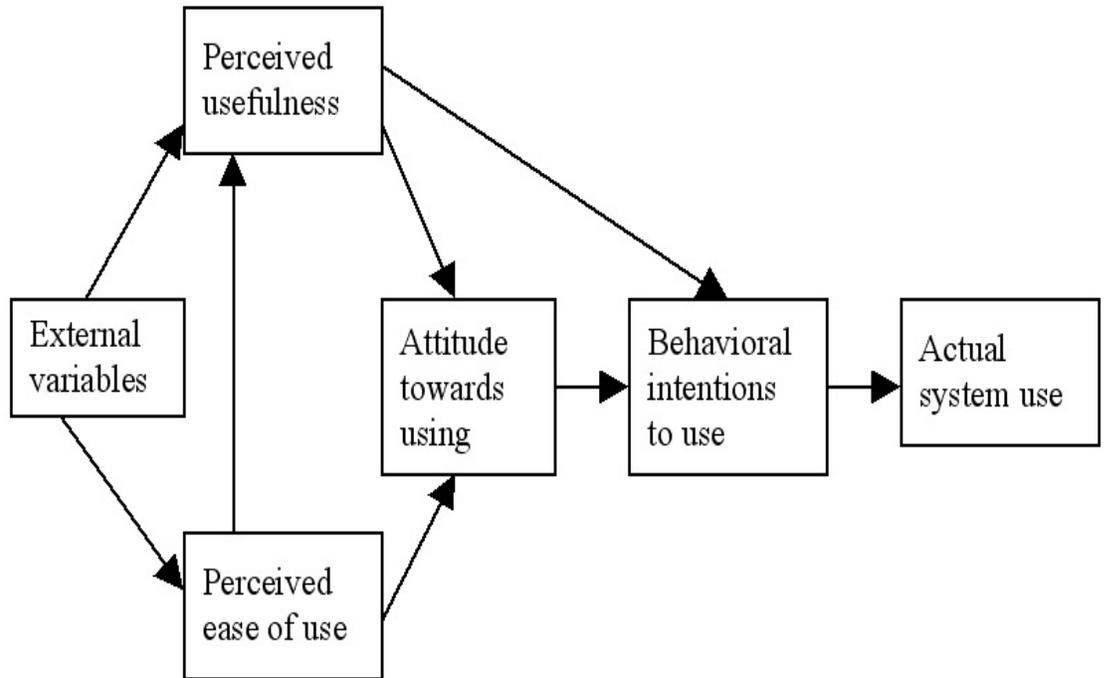
<b>Model</b>	<b>Main Constructs</b>
Technology Acceptance Model (TAM).	Perceived usefulness (the extent to which a technological innovation is expected to improve the potential adopter's performance) and perceived ease of use (the degree to which the potential adopter expects a technological innovation to be free of effort in use) as critical antecedents to an individual's technology adoption process.
Theory of Reasoned Action (TRA).	Attitude toward a behavior is determined by beliefs about the consequences of the behavior and the affective evaluation of those consequences.
Theory of Planned Behavior (TPB).	Perceived behavioral control is determined by the availability of skills, resources and opportunities as well as the perceived importance of those skills, resources and opportunities to achieve outcomes.
Technology-Organization Environment (TOE).	Three aspects were identified as factors influencing the – adoption Environment (TOE), [18] and implementation of technological innovations by organizations: technological context, organizational context and environmental context.

Among the theories, Technology Acceptance Model (TAM) with regard to the selected variables of the Information System (IS) Success Model will be used as the key

references in determine the research hypotheses. The TAM is being introduced by Davis (1989) is an adaptation of the Theory of Reasoned Action (TRA) specifically tailored for modelling user acceptance of IS. TAM was developed to explain and predict computer usage behavior. According to Maniam and Halimah (2008), although several theoretical models have been proposed to describe the phenomenon of IT acceptance, TAM is increasingly recognized as a robust yet parsimonious conceptualization. Maniam and Halimah (2008) also highlighted that *“the goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis et al.. 1989; p 985).”*

It states that beliefs influence attitudes; which lead to intentions and to behaviors. TAM proposes two specific belief constructs, that is, perceived usefulness (the extent to which a technological innovation is expected to improve the potential adopter’s performance) and perceived ease of use (the degree to which the potential adopter expects a technological innovation to be free of effort in use) as critical antecedents to an individual’s technology adoption process. Both perceived usefulness and perceived ease of use are specific perceptions and are anchored to specific beliefs users hold about the system. In sum, it was found that TAM could successfully predict IS acceptance behavior under different technologies and different situations.

Diagram 2: Technology Acceptance Model



### 2.3 Empirical Reviews

The advent of technology as inputs in the realization of organizational productivity enhancement has prompted researchers to study the determinants that make certain the successful acceptance of new technologies especially information technology among users. Many studies have looked into framing variables from the existing established theories of technology user acceptance but fall short in integrating variables derived from literatures such as the marketing, trust and web-design. The empirical study that examined the determinants of user acceptance of eP in various Government Department in Malaysia conducted by Raduan, Naresh and Wemyss (2009) is the key reference in designing the research methodology.