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## IT Adoption by Internal Auditors in Malaysian Public Sector: A Preliminary Finding

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### Abstract

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Information Technology (IT) offers various advantages in many fields including in the public sectors. However, its usages vary not only among the government sectors but also among departments of the same organisation. With the remarkable growth of IT in public sectors specifically to support the National IT and transformation agenda, this paper aims to provide a better understanding of IT adoption within the internal audit department in the public sector. This study focused on the factors that influence IT adoption among internal auditors. An online and mail survey has been conducted to gather perception from 98 respondents. Factor analysis was conducted to generate the validated components that influence IT adoption. Findings show that there are eight factors that might influence IT adoption by internal auditors in Malaysian public sectors. Future research should also be done in the private sector to enhance the richness about the knowledge of IT adoption among auditors in Malaysia.

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**Keywords:** IT adoption; IT adoption model; CAATs; internal auditors; public sector; government.

### 1. Introduction

Today, the government has successfully implemented various electronic applications in delivering services to the public in Malaysia. For example, at the federal level, they are utilising Government Financial and Management Accounting System (GFMAS) whereas at the state administration, they are utilising the Financial Statement System for the State Government (SPEKS) in preparing the financial report (The Auditor General of Malaysia, 2012). The implementation of these electronic applications demonstrated that most of the accounting and financial records in government departments have now been computerised. Since most of the information that required in auditing has been prepared electronically, the concentration of auditing work also needs to be changed using a suitable

computerised application.

Previous researchers have studied several factors that influence the IT usage in audit work. For instance, Ahmi & Kent (2013), Debreceeny et al. (2005) and Wehner & Jessup (2005) emphasis on generalised audit software (GAS) while Rosli et al. (2012), Janvrin et al. (2009a), Janvrin et al. (2009b) and Mahzan & Lymer (2008) examine on Computer Assisted Auditing Tools and Techniques (CAATTs). Most of the above studies were focus on the either internal auditors or external auditors or covering both internal auditors and external auditors in private sector. There are very limited studies that focus in auditors in public sector. From the above mentioned studies, all of them were centred on the IT adopters while only Ahmi & Kent (2013) concentrated on both IT adopters and non-IT adopters. Thus, this paper seeks to identify the factors that influence IT adoption among internal auditors in the public sector setting.

The paper has been structured according to the following sections: Section 2 presents the background of the study which includes prior research on IT implementation by internal auditors and the underpinning theories used in IT adoption studies. Section 3 covers the methodology of the study while Section 4 tables the demographic results and the preliminary findings. The last section concludes the paper and presents the limitation of the study as well as the recommendations for future research.

## **2. Background**

### *2.1. IT implementation*

Auditors may conduct multiple audit works professionally and in a cost-effective manner with the use of IT. Government are endowing enormous sums of expenditure on IT as it would provide benefits to their functions and activities. In making decisions, majority of the users depend on IT without precisely understand how the processors operate. With regard to reducing the whole risks related to the computers usage, auditors need to obtain further actions to ensure that decision makers are provided with useful and reliable data. Among the techniques that can be implemented is by using the appropriate IT tools. The introduction of CAATTs in the past period is to assist auditors to find for instance several anomalies in the financial statement. CAATTs, according to Braun & Davis (2003), are any usage of IT as a tool in supporting the audit works. Auditors may perform various audit works which are associated to IT with the use of CAATTs.

There are a few researches to understand the IT adoption, particularly in CAATTs have been done. A study by Ahmi & Kent (2013) discovered two sets of factors that may enhance the possibility that auditors will adopt and not to adopt GAS. Among the factors are client, job relevance, auditing, cost and resources, technological and IT availability, personal experience, personal knowledge and support from management.

Janvrin et al. (2009a) examined the degree of using computer-related audit procedures and whether the use of computer-related audit procedures are influenced by control risk assessment and audit firm size. Another study by Janvrin et al. (2009b) discovered that performance expectancy and organizational and technical infrastructure support affects the possibility that auditors might employ CAATTs. They also recommend that to enhance the use of CAATTs, the audit firm may need to

establish training courses and improve their computer support to boost the degree of ease related to using CAATTs among auditors.

Using the Unified Theory of Acceptance and Use of Technology (UTAUT), Mahzan & Lymer (2008) investigated the CAATTs adoption among internal auditors in the UK. They recommended a model of successful CAATTs' adoption, encompassed of four elements including the factors that influence motivation, best practices of implementation, criteria for measuring performance and challenges that can become barriers to successful implementation. They observed that UK internal auditors were extensively used GAS and the factors influencing the GAS usage involve the capability of training employees on the GAS usage, compatibility of the software within the department and the ability of software to encounter data manipulation requirements.

Based on the above discussion, the research question develops for this paper is: What are the factors that influence the adoption of IT by internal auditors in Malaysian public sector?

## *2.2 Underpinning theories*

The technology-organization-environment (TOE) framework is one of the theories that has been widely used in studying about IT adoption. According to Srivastava & Teo (2007), the TOE framework is a useful framework for understanding the adoption and performance of technological innovations. This study explored and mapped the TOE framework in examining the IT usage by internal auditors in public sector. The TOE framework was proposed by Tornatzky & Fleischer (1990) which identifies factors that influence the practice by which organization adopts and implements a technological innovation. According to David et al. (2010), technological factors describe both the internal and external technologies that related to the organisation, organisational factors denote to the existing resources in the organisation and environmental factors describe the features related to the industry within their business environment (David et al., 2010).

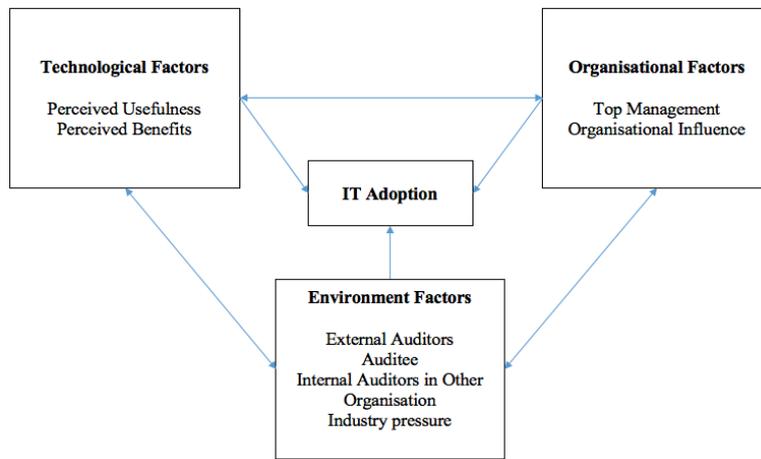
Previous researches that embedding TOE framework especially in the government sector are very limited. Following are among the related studies that has been conducted using TOE in government sector. Pudjianto et al. (2011) found that ICT infrastructure, top management support, regulatory environment, ICT expertise, and competitive environment are the factors that explained an e-government integration in Indonesia. Troshani et al. (2011) studied the adoption of Human Resources Information Systems (HRIS) in the public sector using TOE framework. For the technology context, they used better integration, accessibility, operational efficiency, adoption costs and inherent HRIS complexity to test on HRIS adoption. For organisational context, factors that they identified to influence HRIS adoption are management commitment and human capability while for environmental context, factors that have a significant impact on HRIS adoption success are regulatory compliance and successful adoption stories.

## **3. Research Method**

### *3.1. IT adoption framework*

Based on the literature that has been discussed in the previous section, the TOE framework as

shown in Figure 1 has been used as a leading model for this study. A number of items have been identified to facilitate with the current practice of the internal auditors in public sectors and their working environment based on the outcomes from the interview as well as the output from the pilot study.



**Fig. 1.** IT Adoption Framework

### 3.2. Respondents

An online and mail survey has been conducted to gather the data for this research. The total of 266 questionnaires were distributed to government organisation that have internal audit unit (IAU) by invitation through email for auditors who had publicly available email addresses and was sent through normal mail with return envelope for the others. After 100 days, 98 questionnaires were filled completely which represent a 36.84 percent response rate.

## 4. Results

### 4.1. Demographic results

Table 1 shows the profile of the respondents where the number of respondents is equal between genders. Most of the respondents are categories between 35-44 years old which represent 38 percent of the total respondents. Thirty percent of the respondents are between 25-34 years old and 20 percent are between 45-54 years old. Eleven of the respondents are 55 years old and above and only one respondent indicates that he/she is between 18-24 years old. Most of the respondents are the head of IAU which represent 68 percent of the total respondents. The respondents were asked about the number of years they have been in their current position. Most of them (60 percent) have indicated that there are less than 5 years and 27 percent of the respondents are between 6-10 years in their current position.

When asked about their audit experience, 33 percent of respondents had less than six years of experience in auditing, 27 percent of them have between 6-10 years, and 18 percent have between 11-15 years in the field. The respondents were also asked about their experience in computerised auditing. Almost 40 percent of them had no experience at all, 38 percent of the respondents had experience less than 5 years in computerized auditing. Of all of the response received, 60 percent of them stated that

they had adequate IT skills while 25 percent of them had good IT skills.

**Table 1.** Respondent's profiles

Category		Frequency	%
Gender	Male	48	48.98
	Female	50	51.02
Age	18-24 years	1	1.02
	25-34 years	29	29.59
	35-44 years	37	37.76
	45-54 years	20	20.41
	55 years and above	11	11.22
Position	Head of IAU	67	68.37
	Deputy Head of IAU	1	1.02
	Auditor	17	17.35
	Assistant Auditor	4	4.08
	Audit Assistant	4	4.08
	Others	5	5.10
Years in current position	Less than 5 years	59	60.20
	6-10 years	26	26.53
	11-15 years	6	6.12
	16-20 years	3	3.06
	21 years and above	4	4.08
Experience in auditing	Less than 5 years	32	32.65
	6-10 years	26	26.53
	11-15 years	18	18.37
	16-20 years	11	11.22
	21 years and above	11	11.22
Experience in computerised auditing	No experience	38	38.78
	Less than 5 years	37	37.76
	6-10 years	9	9.18
	11-15 years	10	10.20
	16-20 years	1	1.02
	21 years and above	3	3.06
IT Skills	Very good	3	3.06
	Good	24	24.49
	Adequate	59	60.20
	Basic	10	10.20
	Very basic	2	2.04

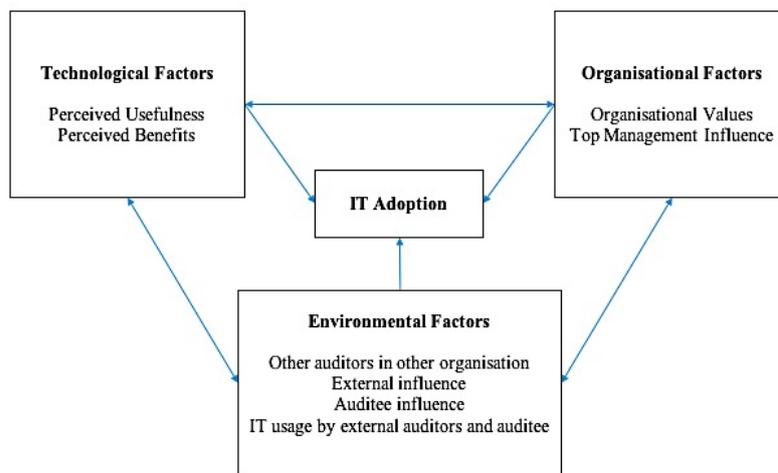
#### 4.2. Factors that influence the use of IT

Respondents were asked about the factors that influence in the resolution to engage IT in auditing. The result of Cronbach's alpha demonstrates an alpha of 0.953. The result for the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity (BTOS) are shown in Table 2 which indicated that the data set satisfied the assumptions for factorability.

**Table 2.** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.816
Bartlett's Test of Sphericity	Approx. Chi-Square	3081.701
	df	465
	Sig.	.000

Meanwhile, a factor analysis was conducted to develop constructs that will help analyse the questionnaire responses. The analysis was done using principal component analysis and rotated using variance maximizing method with Kaiser Normalization. Eight components were generated after factor analysis has been conducted and all of the items had factor loading of more than 0.50. Figure 2 below shows the preliminary model on IT adoption by internal auditors in Malaysian public sector.



**Fig. 2.** IT Adoption Model by Internal Auditors in Malaysian Public Sector

Based on the above model, there are two variables under technological factors namely perceived usefulness and perceives benefits that influences IT adoption by internal auditors. Under organizational factors, organizational value and top management influence are the variables that tend to be the factors that influence the IT adoption. While under environmental factors, other auditors in other organization, external influence such as NAD and internal audit professional body, auditee and IT usage by organization’s external auditors and auditee are among the factors that affected the decision to adopt IT.

**5. Conclusion**

This study establishes that there are eight factors that might influence IT adoption by internal auditors in Malaysian public sectors. This paper proposed a preliminary set of factors that will be relevant to the internal auditors.

The results of this study may be useful for private sectors although the focus of it is public sector and it can be useful for other countries as well although it has been conducted in Malaysia. The practitioners, especially the accountants and the auditors out there also might benefit with the

knowledge that has been represented in this study. The software vendors probably can have the opportunity to offer the technologies that can be adopted by the auditors. The professional bodies will be informed about suitable professional development and training needed related to IT in auditing. The knowledge about the usage of the frameworks, methodologies, analysis techniques that have been applied as well as the findings may be useful for the researchers.

This paper may give more impact if the extended analysis such as multiple regression and structural equation modelling are conducted. By expanding this research into private sectors also will probably enhance the richness about the knowledge of IT adoption among auditors in Malaysia.

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