

## A Review and Evolution of Digital Audit on Auditor Performance

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### Abstract

**Purpose:** The study aims to understand the role of the external auditor in the adoption of digital audit in Malaysia.

**Design/Methodology/Approach:** A literature review was conducted to provide comprehensive knowledge to determine the factors impacting the effectiveness of digital audit. The Technology to Performance Chain (TPC) model outlines how technical developments affect individual performance levels in the implementation of digital audit. Adopting technological tools for digital audit could enhance the efficiency and effectiveness of an auditor's job performance in auditing.

**Findings:** A conceptual framework comprising factors impacting the adoption of digital audit effectiveness in Malaysia was proposed based on previous studies and the transition from manual to automated audit tasks in digital audit.

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**Practical Implications:** Regulators need to provide a detailed framework for auditors on the importance of adopting digital audit during audit tasks. Secondly, the regulators need to emphasise the requirement of audit standards to achieve the objectives. Finally, the lack of empirical research on the role and effectiveness of digital audit highlights the need to develop an appropriate methodology to enhance the adoption of digital audit.

**Originality/Value:** The regulators ensure compliance with audit standards on the adoption of digital audit to enhance auditors' performance. The issues that require further investigation were identified to determine the factors that affect digital audit practices. The study also examined the elements influencing the effectiveness of digital audit presented in one framework.

**Keywords:** Auditor, digital audit, technology performance chain model, audit tasks.

## Introduction

Auditors are among the most recognised professions due to their expertise and natural tendency to report illegal information objectively. Auditors hold a great responsibility towards the users of financial reporting due to their demand for audit and other assurance services. Given the high level of concern about financial reporting among users, auditors' duties have expanded to include reporting on the efficacy of internal control and operation over organisational financial statements (Kassem, 2018; Tuan Mansor et al., 2020). Today, the integration of information technology (IT) with the accounting and audit system affects organisational processes and internal control. Digital audit expansion enables audit practices to shift from a traditional to a sophisticated audit approach, which is essential for external auditors to appreciate the way future audit contributions affect the auditor performance (Byrnes et al., 2018; Ferri et al., 2020).

Digital audit systems require the largest degree of human intervention as they serve exogenous data and critical analysis that increase the value of auditor performance and lower audit risk (Brown et al., 2007; Halbouni et al., 2016). Digital audit is a tool that requires auditor skills, expertise, experience, and knowledge of computing technology to form audit opinions (Ahmi & Kent, 2013; Pathak et al., 2010). Thus, the automation and acquiescence of audit procedures in digital audit correspond to the auditor's task in furthering the audit objective, which involves the estimate and required auditor professional verifications and scepticism to prevent fraud (Chan & Vasarhelyi, 2011; Ravisankar et al., 2011). The adoption of digital audit is influenced by the auditor's performance expectations and support from organisations and technical infrastructures (Tarek et al., 2017).

Audit firms adoption of digital audit has expanded exponentially in recent years. Under the Statement of Auditing Standards (SASs) No. 316.52, the auditor should employ computer-aided auditing techniques to acquire more comprehensive evidence of data included in important accounts or electronic transaction files. The dependability and quality of data output in auditing provided by computer-based information systems have become increasingly vital to the profession (AICPA, 2006). The audit information must possess the following characteristics: timeliness, relevancy, trustworthiness, free of omissions, and free of fraud (Lamboglia et al., 2020). Digital audit improves the quality of audit evidence supplied to auditors by expanding the scope of transactions tested, delivering the evidence on time, analysing complicated audit processes, or incorporating artificial intelligence into logical and organised auditing procedures (Thottoli & K.V, 2020).

The study is divided into five sections and structured as follows. The emergence of digital audit is discussed followed by the roles and competencies of external auditors in a digital audit environment. A discussion is provided on the adoption of digital audit, transformation of digital audit tasks and the digital audit input, process, and output. The subsequent section discusses the implementation of the TPC model to explain how technological advance influences external auditor performance in conducting their audit assessment process. A conceptual framework is presented on the factors impacting the adoption of digital audit followed by the conclusion.

## **Literature Review**

### *Auditor Profession Competency in a Digital Audit Environment*

A strong connection with one's profession can be characterised as a strong dedication to one's career (Nesje, 2016). Lee et al. (2000) emphasised the significance of research on the role and influence of professional commitment where one's career is a significant part of their life. Additionally, their level of professional commitment produces crucial implications for them and the organisation. Hence, studies involving accountants have been conducted. Hall et al. (2005) mentioned that accountants with a strong commitment to their profession tend to possess a strong moral need to engage in behaviours that benefit the profession, such as reporting others' questionable activities. Kaplan and Whitecotton (2001) also discovered a positive relationship between accountants' professional dedication and their propensity to report wrongdoing. Observably, accountants who are more committed to their profession are more inclined to come forward and report wrongdoing to authorities.

Tuan Mansor et al. (2020) stated that auditors' willingness to act ethically is highly influenced by their professional dedication. The SASs was released by the Auditing Standards Board (ASB), which is the senior technical body of the American Institute of Certified Public Accountants (AICPA) responsible for issuing pronouncements on auditing-related subjects. The ASB has been responsible for the creation and dissemination of auditing standards and procedures since its inception in October 1978, which must be followed by all AICPA

members in their professional activities. The ASB believes that auditors should assess data-processing techniques employed by their clients, (which may include using computers) in the same way while simultaneously considering other major variables that may affect the audit. The use of the current digital audit technology may impact the nature, timing, and scope of audit procedures. Hence, the auditor should consider these implications throughout the audit (AICPA, 2015).

### *Auditor's Knowledge and Skills in Digital Audit*

Individual competency is a person's set of competencies that describe a person's properties or characteristics, including knowledge, skills, talents, and attitudes (Plant et al., 2017). Knowledge generally refers to the theoretical understanding of a subject or what an individual learns through education or work experience. Plant et al. (2017) and Seol et al. (2017) suggested that auditors can improve their knowledge through professional certifications and continuing professional development, which is an indicator of an auditor's competence. Meanwhile, skills are the proficiency developed or derived through experience that accumulates over time (Nehme et al., 2019; Reheul et al., 2017). Skills are an expert's specific or technical knowledge of a particular task (Steyn, 2020). Skills distinguish individuals from others as it indicates that they can perform a task with better results, which can be developed over time and mainly acquired on the job.

Auditors should be able to follow the paths of the audited organisations with full awareness of auditing processes and procedures. Hence, auditors must continually develop and upgrade their audit knowledge (Palmer et al., 2004a). The Common Body of Knowledge in Auditing (CBOK) (2015) mentioned the various aspects of auditors' skill sets and knowledge, including analytical and statistics, reporting, understanding complex information system, and the use of IT. Pathak et al. (2010) demonstrated a paradigm shift in the last few decades where the complexity of business transactions and major advances in IT have provided auditors with opportunities and challenges. Moreover, further research could facilitate the examination of factors impacting auditors' performance concerning their skills and knowledge development. Vasarhelyi et al. (2012) suggested that auditors should gain general insights (control and audit methodology) and specific technical knowledge (tools for data analytics, software expertise, workflow, and paper instruments) to improve their performance.

### *Auditor's Technology Competency in Digital Audit*

Prior literature proposed several competencies as performance predictors. For instance, technology or computer competency is one of the key influencing competencies that can impact auditors' performance. Ammenwerth et al. (2006) defined computer literacy as a belief in an individual's competence to successfully complete an informational task based on the general concept of autonomous performance. From an auditing perspective, technology competency is an assumption that auditors can use computers or computational software to perform tasks.

The CBOK (2015) requires auditors' technical skills, such as the usage of computational software to evaluate and contribute to performance enhancement. Wu et al. (2017) examined auditors' competencies and their effect on audit performance. The use of IT is undeniably crucial, specifically in a more complex environment given that computers and networks provide most of the information needed for decision-making (Bradford et al., 2020). Auditors use computer-assisted audit techniques (CAATs) as part of the procedures to process data of audit significance, such as fraud detection software, network security testing, and databases of audit history (Ghani et al., 2017; Mahzan & Lymer, 2014).

#### *Audit Standards Related to Digital Audit*

The adoption of advanced digital audit technology aims to achieve the general audit objectives of accuracy, completeness, ownership, valuation, reliability, classification, and disclosure of the data produced by audit software. These objectives will assist the auditor in discovering and detecting any misstatement or fraud in the financial statement (Ahmi & Kent, 2013; Debreceeny et al., 2005). The SAS No. 3 mentions the effects of IT on the auditor's opinion and evaluation of internal control, which guides the auditor to conduct audit assessment in IT environments during their audit assessment (AICPA, 2006). The rule primarily concerns specific control issues arising when a major portion of a client's financial data is processed through an IT system. Under SAS No. 3, IT controls are divided into two categories: general and application controls, both of which should be evaluated by the auditor. The SAS No. 3 is concerned with the special control characteristics in instances when a large number of financial records in an entity are managed by computers.

The SAS No. 48 mentions the effects of computer processing on the examination of financial statements. The ASB suggested that auditors should consider the approaches of data processing using audit technology, which could affect the audit assessment and audit work performance (AICPA, 2006). The SAS No. 48 "The Effects of Computer Processing on the Examination of Financial Statements" supersedes SAS No. 3 "The Effects of Computer Processing on the Examination of Financial Statements," was effective to be used for financial statements beginning after the 31st of August 1984 and repealed on the same date. The following were also amended to provide additional guidance for audits of financial statements performed in IT environments: SAS No. 22 on "Planning and supervision" (AICPA, 1978a), SAS No. 23 on "Analytical review procedures" (AICPA, 1978b), SAS No. 1, Section 320 on "The auditor's study and evaluation of internal control" (AICPA, 1973), and SAS No. 31 on "Evidential matter" (AICPA, 1980).

The SAS No. 94 describes "The Impact of Information Technology on the Auditor's Consideration of Internal Control in a Financial Statement Audit". Meanwhile, SAS No. 94 provided guidelines for auditors on the impact of IT on internal control and the auditors' understanding of internal control and evaluation of control risk.

## **The Adoption of Digital Audit**

### *Job Relevance Factor*

The current challenges for auditors include providing audit judgement through the use of audit technologies with a real-time auditing approach (Byrnes et al., 2018). Digital audit use by corporations has increased considerably in recent years. These properties of the audit information must be delivered on time, relevant, reliable, free of omissions, and free of fraud (Chan & Vasarhelyi, 2011). Digital audit could improve the quality of audit evidence supplied to auditors by expanding the scope of transactions tested, delivering the evidence on time, analysing complicated audit processes, or incorporating artificial intelligence into logical and organised auditing procedures (Brown et al., 2007; Byrnes et al., 2018).

Today, up-to-date, accurate, and trustworthy financial information is required for business decisions concerning strategic planning and forecasting, capital gain, decision-making, and providing information to external users (Chan & Vasarhelyi, 2011). Digital audit could also benefit the audit profession by improving the understanding of audit procedures and enhancing knowledge and the transferability of expertise (Omoteso, 2012). Consequently, understanding the nature of audit processes and tasks in the audit technology environment is critical before implementing these aspects. The adoption of digital audit could facilitate auditors in avoiding fraud and error in auditing and transaction by ensuring the accuracy of financial records and the dependability of the systems that store and transport the records and transactions (Bradford et al., 2020).

This auditing technique could increase fraud detection effectiveness and the likelihood of identifying substantial errors in financial statements. All transactions are analysed in real time using audit technologies to improve the efficiency of current organisational operations (Flowerday et al., 2006). During a digital audit, the external auditor examines the business transaction and relies on IT to record and process the transaction to issue a better audit opinion. Hence, digital audit is an acknowledged tool for auditors in completing audit processes, which provides improved assurance to consumers of financial reporting and increased efficacy of auditor work performance.

### *Audit Profession Factor*

The SAS No. 316.52 states that computer-aided auditing techniques should be used to obtain more comprehensive evidence of data included in critical accounts or electronic transaction files. The dependability and quality of data output supplied by computer-based information systems have become more essential in the auditing profession (AICPA, 2006). The three SASs that directly connect to an IT audit are SAS No. 3 (The effects of IT on the auditor's study and evaluation of internal control), SAS No. 48 (The effect of computer processing on the examination of financial statement), and SAS No. 94 (The effect of IT on the auditor's consideration of internal control in a financial statement audit).

Individuals with a strong connection to their profession reflect a strong dedication to their career (Ahmad & Taylor, 2009). Lee and Chui (2019) highlighted that studies on the role and influence of professional commitment are essential where one's career is a vital part of their life and their level of professional commitment creates significant implications for them and the organisation. Meanwhile, external auditors with high career professionalism would believe that work is a necessary part of their lives and thus be willing to strive to achieve their career goals. Palmer et al. (2004) outlined that accountants with a strong commitment to their profession tend to possess a strong moral need to engage in behaviours that benefit the profession, such as reporting others' questionable activities. Tuan Mansor et al. (2021) revealed that auditors' willingness to act ethically is highly influenced by their professional dedication.

### *Technology Factor*

Corporations will not succeed as long-term organisations without their technology matching the organisational structure (Raudeliuniene et al., 2020). Technologies in auditing firms include knowledge and technical skills and abilities. Technology is also a dependent element that refers to "hard" information technology-related features incorporated by organisations (Bradford et al., 2020; Ghani et al., 2017). The use of information technology benefits the implementation and maintenance of business processes that are in charge of data collection, processing, and storage. The correctness of the transaction process increases the reliance on IT in many organisations (Dagilienė & Kloviene, 2019). Moreover, IT can save a lot of cost and reduce human error, thus allowing companies to improve operational efficiency.

The IT plays a crucial role in the audit process, specifically in controlling the organisational environment. The IT has evolved into a tool for simplifying complex activities. Checklists, flow charts, statistical analysis, audit programmes, and expert systems are examples of how IT is used in the auditing field (Omoteso, 2012). Auditors use investigative techniques, such as fraud detection software (data mining) to identify when a crime has been committed (Bradford et al., 2020; Halbouni et al., 2016). Razi and Madani (2013) suggested that IT can be used to aid audit procedures in investigating fraud cases. The utilisation of digital audits can increase auditors' service quality and transparency. According to Widuri et al. (2016), efficient IT occurs when users are able to make use of the available resources in the organisation. The findings revealed that electronic systems impact the effectiveness of auditing work.

## **Transformation of Audit Tasks in Digital Audit**

### *Audit Assessment in Digital Audit*

Digital audit is used in completing audit tasks to assist and support auditors in preparing audit reports (Byrnes et al., 2018; Janvrin et al., 2008). Introducing digital audit could aid auditors in

avoiding auditing and transaction errors by certifying the accuracy of financial records and the reliability of the systems, which store and transport them. Digital auditing can improve audit assessment and material errors in financial reporting. All transactions are analysed using real-time digital audit to extend their current effectiveness (Flowerday et al., 2006). Adopting this technology can reduce labour intensiveness in audit tasks and increase production efficiency (Chan & Vasarhelyi, 2011; Manson et al., 2010). Therefore, external auditors should understand the audit assessment and techniques in a digital environment to perform audit tasks. Table 1.1 presents the transition from traditional to digital audit.

**Table 1.1: The Transition from Traditional to Digital Audit**

	<b>Traditional Audit</b>	<b>vs</b>	<b>Digital Audit</b>
1. Frequency:	• Periodic		• Continuous or more frequent
2. Approach:	• Reactive		• Proactive
3. Procedures:	• Manual		• Automated
4. Work and role of auditors:	<ul style="list-style-type: none"> <li>• The bulk of work performed is centred around labour and time-intensive audit procedures.</li> <li>• Independent roles of the internal and external auditor.</li> </ul>		<ul style="list-style-type: none"> <li>• The bulk of the work performed is centred around handling exceptions and audit procedures requiring human judgement.</li> <li>• The auditor role becomes certified of the continuous auditing system.</li> </ul>
5. Nature, timing, and extent:	<ul style="list-style-type: none"> <li>• Testing consists of analytical review procedures and substantive details testing (nature).</li> <li>• Control testing and details testing occur independently (timing).</li> <li>• Sampling in testing (extent).</li> </ul>		<ul style="list-style-type: none"> <li>• Testing consists of continuous controls monitoring and continuous data assurance (nature).</li> <li>• Control monitoring and detailed testing occur simultaneously (timing).</li> <li>• The whole population is considered in testing (extent).</li> </ul>
6. Testing:	• Humans perform the testing.		• Data modelling and data analytics are used for monitoring and testing.
7. Reporting:	• Periodic		• Continuous or more frequent

Source: Chan and Vasarhelyi (2011)

Auditors' improvement in performing audit tasks increases, which involves audit applications, productivity audit approach, and audit working paper review since the application of digital audit (Janvrin et al., 2009; Veerankutty et al., 2018). The auditors use the computerised audit system, which assists in automated audit processes, ease in implementing audit framework, focuses on areas of serious threat, decreases audit period, decreases resources, and provides greater assurance in the effective internal controls (Chaveerug, 2010). Hence, the application of digital audit could reduce the time in completing computational and audit tasks for the auditor and organise the audit decision process, hence increasing the audit

performance quality (Chan & Vasarhelyi, 2011; Dai & Vasarhelyi, 2016; Manson et al., 2010). Therefore, implementing digital audit in the auditors' daily audit routine enhances audit opinions and enables better performance.

Due to technological advancements, large firms have introduced the use of digital audit to assist the audit assessment processes as part of integrated audit automation systems (Byrnes et al., 2018; Omoteso, 2012). The auditor review has relied on a combination of audit assessments based on relevant, reliable, complete, and undoubted audit evidence from information collected in the systems (H. J. Kim et al., 2016). Digital audit systems necessitate the most human intervention by presenting exogenous data and critical analysis, increasing the value of auditor performance and lowering audit risk (Brown et al., 2007). In order to provide audit opinions, digital auditing requires auditor skills, expertise, experience, and knowledge of computing technology (Pathak et al., 2010). As a result, audit procedure automation and acquiescence focus on the auditor's task of advancing the audit objective, which includes the estimate and required audit professional verifications and scepticism to avoid fraud (Chan & Vasarhelyi, 2011; Ravisankar et al., 2011).

#### *Audit Procedures in Digital Audit*

The mandatory requirements of International Accounting Standards include mandatory disclosures, which ensure the trustworthiness of financial statements and improve their usefulness to investors. Therefore, an auditor must audit and confirm that financial statements comply with the mandatory disclosure requirements. For example, ISA 540 requires the auditor to determine whether disclosures concerning fair values made by businesses align with their financial reporting system and to report the findings accordingly. The ISA 700 aims to prescribe the content and format of an audit report and alert the auditor to the expected audit process, which involves performing procedures to obtain audit evidence on the amounts and disclosures in financial statements based on the standards (International Standards on Auditing, 2012).

Tuan Mansor et al. (2021) mentioned that partners of the Big 4 audit firms tend to demand correction of amount misstatements on the face of the financial statements than those disclosed in the notes of the financial statements (Tuan Mansor et al., 2021). Kaawaase et al. (2016) stated that the inability to notice and disclose a violation of obligatory accounting rules, such as disclosures indicates degraded audit quality. The degree of clarity and precision with which mandatory information is revealed reflects the degree of rigour of an audit procedure conducted by the auditor, which is crucial for producing a high-quality report (Kaawaase et al., 2016; Mostafa Mohamed & Hussien Habib, 2013).

#### *Information Search in Digital Audit*

According to Thottoli and K.V (2020), the information search process involves someone searching for data or knowledge of an issue, situation, or artefact. Mascha and Miller (2010)

added that knowledge searching is a necessary aspect of the cognitive process. Moreover, information search refers to the process of seeking information from sources that are not stored in the mind, such as the annual report of a corporation (Mascha & Miller, 2010). Previously, Kim et al. (2016) highlighted that auditors could obtain two types of information, namely internal and external information depending on the situation. Internal information refers to knowledge stored in the mind, while external information denotes information obtained through client consultations. For instance, working papers, databases, and industry statistics are external information sources. The primary goal of digital audit is information gathering that enables auditors to obtain an informed view, which is used as the basis for decision-making (Kim et al., 2016).

Extensive investigations have been conducted on the information search process in digital audit, specifically in the context of established businesses (Simon et al., 2015). Mascha and Miller (2010) suggested information searching as one of the most integral parts of cognitive processing, specifically in digital auditing performance circumstances. Similarly, Searcy et al. (2003) proposed that information search in digital audit is an essential stage in seeking answers to difficulties in a wide range of decision-making domains. Researchers must fully comprehend how people conduct data searches, select relevant items, and later use these items to construct judgments to succeed in adopting digital audit (Janvrin et al., 2008).

## **Input, Process, and Output of Digital Audit**

### *Digital Audit Input*

Technologies are defined as the procedures businesses utilise to transform inputs into outputs (Dagilienė & Klovienė, 2019). Auditors' job performance and opinions are similar to other business processes, which involve three crucial process aspects: the input, the procedure, and the outcome. In the IT literature, input refers to the characteristics of individual or external auditors as well as technological characteristics related to the use of digital audit in the audit assessment process (Kim et al., 2016). Professional auditors must use their digital audit knowledge and expertise, along with the support of audit firms, to improve the quality, efficiency, and effectiveness of their audit services (Ghani et al., 2017; Thottoli & K.V, 2020). Digital audit is an IT tool that can directly impact the audit process by influencing the audit phase and engagement. Big Data Analytics (BDA) may indirectly impact the audit planning phase considering that audit strategy and plans are formed in response to the data and information gathered during the client's environment study (Tarek et al., 2017). As an IT instrument, BDA may directly impact compliance, substantive testing, evaluations, and reports. Summarily, the need to use BDA may depend on the requirements of auditing regulatory bodies and business clients and internal technological capabilities, IT-related managerial activities, such as internal investments in hardware and software, and the use of external consultants and other resources (Tarek et al., 2017).

### *Digital Audit Process*

The present auditing standards are designed to be implemented to facilitate the audit assessment and external auditor process. Nonetheless, the guidance is used case-by-case in audit assessment procedures and information searches. This guideline also depends significantly on the auditor's competence and professional scepticism which eventually influence the audit report quality (Alleyne & Howard, 2005; Tang & Karim, 2018). Normally, human performance will be affected by the task sequence of actions, the interaction between the task, the task performer, and the environmental characteristics (Liu & Li, 2012).

The term "process" refers to the variables that serve as a link between the input and output. Audit assessment is a process that results in the output of the effectiveness and efficiency of audit job performance. Audit firms and professional auditors experience a complex and challenging audit assessment as a process to mandate information systems implemented by firms, which reflects a major departure from the auditors and affects the audit job performance (Thottoli & K.V, 2020; Widuri et al., 2016). The audit assessment serves as a link or process between the input (individual characteristic and digital audit) and the output, which is referred to as audit job performance. The audit assessment is an intermediate considered as a part of the process.

Due to technological advancements and as part of integrated audit automation systems, large firms have introduced the use of digital audit to assist the audit assessment processes (Byrnes et al., 2018; Omoteso, 2012). The auditor review has relied on a combination of audit assessments based on relevant, reliable, complete, and clear audit evidence from information collected in the systems (Kim et al., 2009; Omoteso et al., 2008).

### *Digital Audit Output*

Output refers to the outcome and consequence of previous elements regarding the auditor's job performance (Kim et al., 2016). In the current study, "output" describes what happens as a result of the audit assessment and how it translates into audit job performance by the auditors. According to Omoteso (2012), IT improves audit function efficacy and efficiency. The combination of one or more experts and software systems forms a better judgement on how to manage the difficulties. The expert's judgement is copied by the systems, which improves communication between the system and the user. Additionally, a well-designed expert system enhances the overall quality, knowledge, and task process of the operations. Widuri et al. (2016) stated that inadequate equipment could impair the auditor's competence in certain circumstances.

The auditor's improvement in performing audit tasks increases, which involves the audit applications, productivity audit approach, and audit working paper review during the application of digital audit (Janvrin et al., 2008; Veerankutty et al., 2018). Auditors use the computerised audit system, which assists in automated audit processes, eases the

implementation of audit framework, concentrates on areas of serious threat, decreases audit period and resources, and increases assurance in the effective internal controls (Chaveerug, 2010). Hence, the application of digital audit could reduce the time in completing computational and audit tasks for the auditor and organise the audit decision process, thus increasing the audit performance quality (Chan & Vasarhelyi, 2011; Dai & Vasarhelyi, 2016; Manson et al., 2010). Consequently, implementing digital audit could generate better audit opinions and enhance auditors' performance in their daily audit routine.

### **Technology to Performance Chain Model of External Auditor**

The TPC model is used in digital audit to comprehend the external auditor's performance in an audit assessment. Digital audit uses the TPC model to provide new insights into the link between working conditions and auditors' performance. This section reviews relevant literature on the TPC model of external auditors.

#### *The Performance of the External Auditor*

The TPC model developed by Goodhue and Thompson (1995) explains that IT beneficially influences individual performance, which can be used when the IT capabilities fit the user's tasks. The model indicates that performance effect is achieved by deploying technology suited to activities that support users. Thus, this model is appropriate for evaluating the acceptability and performance consequences of using external auditors in audit firms. According to Abdillah and Saepullah (2018), the TPC model assesses the performance consequences of individual-level information technology utilisation. Technology should be utilised first and tailored to the tasks supported by its technology to produce the greatest performance impact. Hence, this model offers a more precise representation of the relationship between technology and user tasks in order to achieve performance impact.

In Oliveira et al. (2014), TPC measures how well technology aids people in accomplishing their obligations or activities at work. Furthermore, the model is developed in response to changes in the demand for jobs and personal talents and technical capabilities. The relationship between a task, a technology, and a human is referred to as the priority TPC model. A diverse range of tasks requires the use of a diverse range of specific technical features (Oliveira et al., 2014). The model suggests that performance will improve when technology delivers the appropriate features and support for the job at hand.

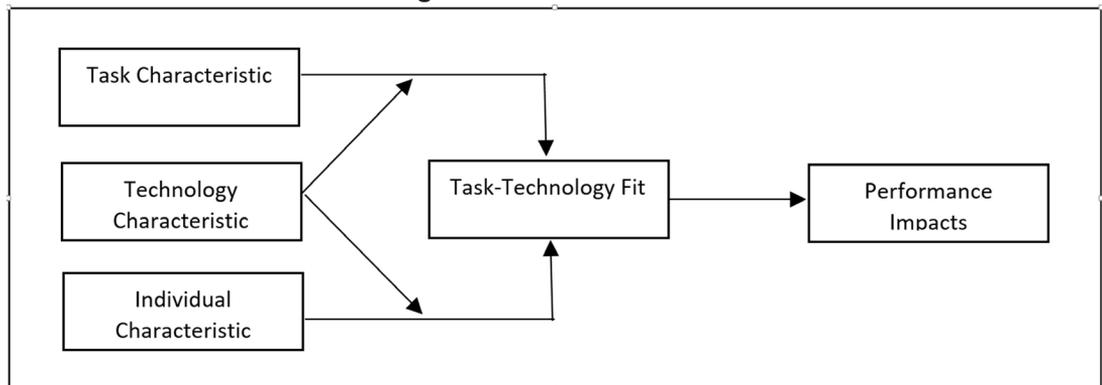
Goodhue and Thompson (1995) stated that IT is more likely to beneficially impact individual's performance when technological capabilities complement the tasks that the user is expected to do. This model is based on user attitudes and beliefs, which can be used to anticipate the use of information systems. Conclusively, improved utilisation of digital audit will result in favourable performance benefits, which illustrates how technology affects performance in the utilisation focus research stream (Goodhue & Thompson, 1995).

### *Components of Technology to Performance Chain Model*

Goodhue and Thompson (1995) developed a model to characterise the components of technology which comprised five basic components: 1) functions: the parts of a system that can be employed to execute the activities that the user is required to perform; 2) tasks: the tasks that the user need or desires to be performed with the assistance of a system or service; 3) matching: how well the functions assist the user in performing the tasks that are required by the task and how the functions operate and how the specific requirements seem; 4) user performance: how the matching affects the user's ability to accomplish certain tasks; 5) usage impact: how the matching would affect the utilisation of the system if another system or tool is utilised as a complement or replacement (if the user needs to use a tool, such as a smartphone as a complement to fully complete the task).

Figure 1.1 illustrates the TPC model by Goodhue and Thompson (1995). A key component of this model is how technology impacts human performance at various levels within an organisation. Individuals will use or embrace technology when the task and the technology being used are complementary or compatible with one another, thus improving individual performance (Goodhue & Thompson, 1995).

**Figure 1.1 The TPC Model**



### *Past Studies of Technology to Performance Chain Model*

Lending and Staub (1997) employed the TPC model in a qualitative study to better understand the impacts of a new information system on end-user work behaviours. Interviews were employed. The data collected was used with a previously conducted quantitative study. The results demonstrated strong support for the TPC model with the fit construct being the most critical element in explaining early use across technologies.

Huang, Chuang and Liu (2016) examined how the task technology-fit affects the performance of Taiwanese job search websites based on the TPC model. A user

experience survey was distributed to 1,282 job searchers regarding how well the job search websites met the needs of the respondents' job-seeking duties. The findings revealed strong evidence of task-technology fit importance in e-recruiting, which has an immediate impact on performance.

Aljukhadar, Senecal and Nantel (2014) investigated the impact of task technology-fit on task completion success in online contexts. The information used in the analysis was based on two large-scale investigations conducted in partnership with a Canadian market research business with an online panel of 350,000 people. The total number of responses in English was 7,253 and 5,882 in French. Two large-scale studies discovered that website qualities and user characteristics impact the effective completion of informational tasks. Nonetheless, the significance of website characteristics was significantly stronger.

## **Conceptual Framework on Factors that Impact the Adoption of Digital Audit**

### *Audit Profession factor*

The current study proposed that auditors' performance in audit firms can be enhanced through their personal and professional skills and by adopting audit technology support by the management with a clear audit assessment process based on audit standards. An auditor who is an AICPA member must conform to the ASB standards under the AICPA code of professional conduct. In order to identify the SASs that apply to their audit, the auditor should possess appropriate knowledge of digital audit in performing their audit tasks. They should also be prepared to justify deviations from the SASs.

### *Management Support factor*

Various factors in the adoption of digital audit include the degree to which the organisational infrastructure and facilities and the external environment could impact the motivation (Venkatesh & Brown, 2013). Facilitating conditions that might influence the motivation of external auditors who employ the CAATs framework include the availability of sufficient information on what computer-assisted accounting techniques (CAATs) can do, assistance from vendors or software providers, and support from senior management in their business (Braun & Davis, 2003; Mahzan & Lymer, 2014). Adequate training is a critical component of any audit automation programme to maximise the possibility that auditing personnel will take full advantage of the benefits that automated tools can provide (Halbouni et al., 2016; Kim et al., 2016; Widuri et al., 2016).

Resistance difficulties, cost-benefit considerations, project scope, and training should be considered carefully in the formulation and implementation of a strategy for a digital audit environment. The benefits of automation are significant when implemented and used in the manner intended. Consequently, enterprises will be more willing to entertain the idea of expanding their operations into the automation field (Byrnes et al., 2018). Comprehending

how much the infrastructure provided by an organisation and the external environment influence a person's motivation to adopt a new behaviour is crucial (Veerankutty et al., 2018; Venkatesh & Brown, 2013).

#### *Information and Communication Technology Support factor*

The implementation of audit technology by auditors is influenced by the information and communication technology (ICT) support that exists in the digital audit environment. The auditor's employment of digital audit is influenced by the auditor's expectations for performance and organisational and technical infrastructure support from the ICT centre in their audit firms (Ahmi, 2016; Thottoli & K.V, 2020). Five factors influence how an auditor utilises the digital audit, namely the client's needs, ICT support audit personnel's needs, ICT support audit organisational needs, the target processor system needs, and the auditor's process or methodology (Merhout & Havelka, 2008). Therefore, the ICT support factors of adopting digital audit critically influence the auditor's job performance in examining audit assessment and information search.

#### *Team Support factor*

According to Lin et al. (2010), information sharing and a cooperative attitude affect the employees' ability to perform their jobs effectively. When working in a group, knowledge about the task must be shared with the other group members. Members can share information, thoughts, and experiences with one another, which improves the overall efficacy of the task performed by the team. Tavoletti et al. (2019) mentioned that teams could promote cooperative conduct among employees by encouraging them to work together. For example, employees who are content with their workplace tend to be fully devoted to their jobs, which increases job effectiveness and productivity.

Common goals are unattainable if a lack of trust exists among the group participants. Team members who trust one another possess a healthy working relationship (Brunetto et al., 2013; Lin et al., 2010). Thus, the flow of information, support, and resources within the team and organisation will improve (Brunetto et al., 2013). The primary goal of auditing is to identify and expose the possibility of financial crime within an organisation. Auditors who want to succeed must be able to function as a team to achieve a goal (DiGabriele, 2008). Krstic's findings in 2009 revealed that forensic accountants should collaborate with internal auditors in situations where fraud is detected but they are unable to address the issue. The internal auditor is familiar with the ongoing transactions and information systems in the organisation, which is the most effective collaborator in this situation and contributes to the overall efficiency of the investigation.

## Conclusions

To date, Malaysia remains in the early phases of developing digital audit for use. Consequently, the current study provided a better understanding of the adoption of digital audit decisions in the country and the identification of essential factors impacting the usage of digital audit in preparing the audit report for users' decision-making purposes. Audit reports are critical for delivering transparent auditor services and programmes in an impartial and unbiased light and ensuring that the audit report is used transparently. Therefore, competent auditors play a significant role in strengthening public trust and user confidence by ensuring financial statement transparency (Tuan Mansor et al., 2020). Auditors should perform well only if they possess core competencies. A competent auditor plays a critical role in the aspects of the audit firm that are critical for endorsing the fairness and credibility of audit reports while minimising the risk of public corruption when digital audit is implemented with support on the usage to perform their work (Thottoli & K.V, 2020). The TPC model was employed to better understand the adoption of digital audit in the performance external auditing (Goodhue & Thompson, 1995). In adopting audit innovation, external auditors generally rely on the encouragement and full collaboration of organisations, specifically in developing countries, such as Malaysia (Ahmi & Kent, 2013; Lamboglia et al., 2020; Widuri et al., 2016). The TPC framework explains that the influence of technical qualities, task characteristics, and individual attributes compatible with the technology task on individual competencies is relatively equal across all three dimensions.

The findings pave the way for more future research. Researchers should concentrate on commercially available digital audit and demonstrate the direct relationship between the use of digital audit and specific types of audits. The effectiveness of future audit work can be improved by examining how digital audit usage has developed over time and comparing it with other countries and IT environments. In order to increase fraud risk audit judgement and combat fraud risk, studies should examine recent digital audit usage and compare it to other countries and IT environments for future research and development. Investigating these aspects is crucial for the auditor in generating a high-quality audit report for users' decision-making needs.

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