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Performance expectancy of generalised audit software: a developing country perspective

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Abstract: This study investigates the perceived benefits to Indonesian audit firms using generalised audit software (GAS). This study's results are based on semi-structured in-depth interviews with external auditors from firms of all sizes. The finding of this research shows that the GAS utilisation affects the competitiveness, improves efficiency, increases audit quality, productivity, and uniformity as the performance of GAS usage shown from several interviewed participants involved in this study. This study contributes to providing insights into GAS usage's perceived benefits in the external audit setting in firms of all sizes in a developing economy context.

Keywords: audit software; generalised audit software; GAS; use; audit quality; Indonesia; computer-assisted audit techniques; CAATs; audit technology; external auditor.

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1 Introduction

Generalised audit software (GAS) is a widely used form of computer-assisted audit techniques (CAATs) (Braun and Davis, 2003; Kim et al., 2009). Other than that, Boritz (2002), Debreceny et al. (2005), Ahmi and Kent (2013), and Widuri et al. (2016) define that GAS is an audit software to perform tasks such as data extraction, manipulation, data summary, and data analysis. In previous studies, GAS has been represented by commercially available software, audit command language (ACL) and interactive data

extraction and analysis (IDEA). However, larger audit firms have developed their applications internally (Bierstaker et al., 2001). Information technology (IT) based auditing – specifically GAS – is regarded as the best practice in audits in developed economies (Kinney, 1986). For example, Winograd et al. (2000) described the use of this technology as being a critical component to the delivery of client services.

In these rapid changes of technology during 4.0 industry revolution, every country needs to utilise technology created to ease every aspect of human life, one of which is Indonesia. As one of countries a rapidly developing economy and capital market, the process of audit should be fast and efficient to fast the development and movement of it. Moreover, Indonesian Audit Standards (SPAP) recommends the use of audit software in the conduct of audits (Audit Standard Statements No. 59). However, the mandate has not been carried out in Indonesia.

It indicates that many Indonesian auditors do not design proper audit plans to address identified risks. This report also documented that some auditors do not have effective audit documentation procedures or a clear understanding of which documents should be kept securely. Assuming that these observations by the World Bank (2011) are correct, it is clear that high-quality audits in Indonesia may be lacking. These audit quality issues are of even more concern when most audits, including those of listed companies, are conducted by small and medium-size auditors in Indonesia. As reported by the Finance Professions Supervisory Centre (PPPK) in November 2017, there were a total of 419 audit firms in Indonesia, showing the fragmented nature of this industry.

From several studies conducted, most of it focuses on GAS usage and factors that lead to GAS adoption (Ahmi and Kent, 2013; Widuri et al., 2016). Other studies argue that CAATs improve auditors' decision-making process and efficiency in conducting both controls and substantive audit tests (Banker et al., 2002; Bedard et al., 2003). However, those arguments are not empirically tested.

Therefore, this study aims to investigate the performance expectancy of GAS usage as perceived by Indonesian external auditors. To the researchers' best knowledge, the discussion about any audit tools' performance expectancy is lacking. Given the situation above, the researchers are keen to explore if the Indonesian external auditors perceive the similar performance expectancy as described by the previous studies. To achieve the research objectives, the research question addressed by this paper is 'how is the performance expectancy of GAS utilisation seen from the firms that have been implemented GAS?' The focus of this study is to explore the perceived benefits of GAS usage in Indonesia. GAS is a class of CAATs enabling the auditor to extract data, query, manipulate, summarise and analyse tasks (Boritz, 2002; Debreceny et al., 2005; Ahmi and Kent, 2013).

The contributions of this study are twofold. Firstly, it provides insights into GAS usage's perceived benefits in the external audit setting in firms of all sizes in a developing economy context. Then, comprehensive research about this issue has been lacking. Therefore, this research contributes to and increases our understanding of this area. Most studies into audit technology or audit software have focused on the largest firms in developed economies (Bedard et al., 2003, 2006; Curtis and Payne, 2008; Vendirzyk and Bagranoff, 2003).

2 Literature review

2.1 *Previous studies about CAATs or GAS use*

Previous studies indicate that most external auditor's use of GAS is minimal and limited to a basic level. Such as extract data, identify irregular transactions, verify the completeness and accuracy of the data, data sorting, filtering, and set criteria to display detailed data (Janvrin et al., 2008; Ahmi and Kent, 2013; Debreceeny et al., 2005; Manson et al., 1998). However, there are examples of advanced usages, such as identifying business risk or fraud (O'Donnell and Schultz, 2003) and digital analysis applications using Benford's Law (Cleary and Thibodeau, 2005; Nigrini and Miller, 2009). The limitations of these studies are that most of the studies do not discuss the participants' opinion regarding the improved performance expected from GAS usage, except in Manson et al. (1998). Manson et al. (1998) compared audit automation between external auditors from the big six and mid-tier firms in the UK and the USA. Their results found that IT use in the USA was more advanced than in the UK. Automation depended on general-purpose packages such as spreadsheets and word processing programs for planning, controlling, and recording functions. The findings showed that audit automation provides benefits to audit firms, the greatest of which is improved audit quality. Their study documented the connection between the use of audit automation and the audit process. However, it was unclear about the type of audit automation used by the respondents. The results measured the use of audit automation based on personal computers in the respondents' firms.

2.2 *The impact of GAS usage on an audit firm's competitive advantage*

Some studies related to auditing have recorded the benefits of IT adoption for audit firms. However, the discussion has mainly focused on IT implementation in general rather than GAS. For example, Omoteso et al. (2010) found that IT's performance in audit firms creates a leaner organisation structure because its use reduces administrative or junior audit staff. Studies in auditing describe efficiency, accuracy, and increased productivity as benefits gained from the use of IT (see for example, Banker et al., 2002; Braun and Davis, 2003; Dowling and Leech, 2007; Hsihui et al., 2011). However, most of these studies have only discussed IT use in general or particular audit technology. Few studies have empirically examined the competitive advantage of the use of GAS. This situation is surprising given that potential benefits will enable them to achieve their competitive advantage.

Despite the benefits of IT implementation in audit practice, it is anticipated that not all audit firms are willing to invest in the infrastructure due to a lack of financial resources. Extensive studies have been conducted into the adoption of technology by more prominent firms (see Banker et al., 2002; Bierstaker et al., 2001; Dowling and Leech, 2007; Curtis and Payne, 2008) and prove that larger firms are leaders in audit technology adoption. Janvrin et al. (2008) reported IT in Big Four firms is extensive due to their resources that enable them to purchase and implement IT and hire appropriate staff and concluded that the Big Four firms provide higher quality audits resulting from the IT adoption. This conclusion supported Dowling and Leech's (2007) study that interviewed partners from Big Four and one large mid-tier firm. Their study found that

audit support systems increase audit quality through compliance with auditing standards and methodology. However, empirical research claims larger firms provide a higher quality audit due to unrelated IT use reasons.

In several studies, audit quality has been measured by metrics such as the calculation of discretionary accruals or the issuance of going concern reports by firms (see for example, Behn et al., 2008; Davidson and Neu, 1993; Francis and Yu, 2009; Lawrence et al., 2011). Limited literature is available that discusses audit quality due to IT adoption and exceptions, such as Janvrin et al. (2008) and Dowling and Leech (2007) as cited above. Manson et al. (1998) stated that audit quality improvement outweighed other benefits such as cost reduction through automation. However, they argued that this is relative to the size of audit firms. For example, medium-sized firms in the UK reported that audit cost reductions significantly benefited audit automation.

Moreover, Sirois and Simunic (2010) developed a model of audit quality production that assumes that audit quality results from technology investment rather than audit effort. In other words, auditors' effort in seeking to provide high-quality audits was not sufficient in itself to guarantee a high-quality audit. This effort needs to be supported by investment in technology. They also claimed that the size of investment in audit technology was a significant predictor of audit quality and fees.

Although Sirois and Simunic's (2010) model has not been extensively tested, their assumption regarding the connection between audit fees and audit technology investment is essential to consider, especially once audit firms implement a particular audit technology. The contention that larger audit firms provide higher quality audits and therefore charge higher fees has been extensively researched (see for example, De Angelo, 1981; Choi et al., 2008, 2010). They asserted that larger firms tend not to compromise the quality of an audit to avoid reputation loss in the case of failure. However, there is an exception with Arthur Andersen and their perceived lack of independence. To prevent failure audit, larger firms maximise their investment in IT infrastructure, auditor training, facilitating knowledge sharing between auditor and implementing sophisticated techniques including computerised processes (Choi et al., 2010; Sirois et al., 2012; Vera-Muñoz et al., 2006). Choi et al. (2008) predicted smaller firms would increase their audit fees once a shift in the regulatory regime from a weak to a strong position. They sampled weak legal governments such as India, Pakistan, South Africa; and solid legal authorities such as Australia, Hong Kong, New Zealand, UK, and the US. The increase in audit fees is to compensate for the rise of effort necessary to avoid failure and legal liability.

In summary, many studies have discussed the benefits of IT implementation in companies even though research is scarce in the auditing arena. These studies concurred that the use of audit technology, in general, contributes to the increase of audit quality. Given these studies did not specify the type of audit technology used. They were conducted in a developed economy setting, and it is unclear whether the use of GAS provides similar benefits for developing economies, specifically for Indonesian audit firms.

2.3 Performance expectancy

Performance expectancy is one of the unified theory of acceptance and use of technology (UTAUT) determinants. The UTAUT was introduced by Venkatesh et al. (2003) and had four core determinants of intention and use: performance expectancy, effort expectancy,

social influence, and facilitating conditions. Moreover, UTAUT includes up to four moderators of key relationships, i.e., gender, age, voluntary use, and experience. UTAUT posits that these four determinants play an essential role in user acceptance and usage behaviour.

Performance expectancy is ‘the degree to which an individual believes that using the system will help him or her to attain gains in job performance’ (Venkatesh et al., 2003). Performance expectancy is the most vital determinant in predicting an individual’s intention to use new technology, and it is consistent in a voluntary or mandatory setting. In the context of auditing, it is found that performance expectancy could increase the likelihood of technology use and is rated higher by auditors from larger firms than those from smaller firms (Janvrin et al., 2008). Recent evidence indicates that performance expectancy drives external auditors to adopt CAATs (Mansour, 2016). Mansour (2016) defines the performance expectancy as benefits perceived by the external auditors in GAS usage. Previous studies describe the performance expectancy as expected by the auditors are enhancing audit productivity and the quality of audit (Jakšić, 2009; Saygili, 2010). Other studies argue that CAATs improve the auditor’s decision-making process and efficiency in conducting both controls and substantive audit tests (Banker et al., 2002; Bedard et al., 2003). Given the benefits above, the researchers are keen to explore if the Indonesian external auditors perceive similar performance expectancy as described in the previous studies.

3 Research method

3.1 Sample selection and study period

This study uses the interview method to gather in-depth information from participants. The interview participants were selected from a range of audit firms of all sizes. This study selected 27 external auditors from eighteen audit firms of all sizes that have implemented GAS for an audit. The interviewees were selected using the snowball method. Noy (2008) recommends this method because the researcher can access ‘informants through the contact information that other informants provide’. Table 1 describes the distribution of participants.

Table 1 Distribution of participants

	<i>Category</i>	<i>Number of participants</i>
External auditors	The Big Four	9
	Mid-tier	10
	Small-sized	8
<i>Total participants</i>		27

Table 1 shows there were 27 participants in this study. Nine participants are from the Big Four size firm, ten is from mid-tier size firm, and eight participants are from small-sized firm. The researchers requested external auditors to identify their size of firms due to this information is not available publicly. Table 2 summarises the characteristics of firm size as specified by external auditors.

Table 2 Characteristics of audit firm size

<i>Size</i>	<i>Number of</i>		<i>International affiliation</i>
	<i>Partner</i>	<i>Auditor</i>	
Small	Less than five partners	10–20 auditors	No
Mid	Less than 21 partners	10 –50 auditors	Yes
Big Four	Over 20 partners	Over 50 auditors	Yes

The external auditors were from 18 audit firms consisting of the Big Four firms, seven mid-, and seven small-sized firms. Table 3 describes the profile of audit firms participating in this study. Table 3 lists 18 audit firms that participated in this study. Of the participating firms, 61% of firms (11 firms) had less than five partners, 50% (nine firms) had 10–20 auditors, and 61% (11 firms) were internationally affiliated.

Table 3 Profile of audit firms

<i>Number of partners</i>	<i>Big Four</i>	<i>Mid-tier</i>	<i>Small firm</i>	<i>Total</i>
Less than five partners	0	4	7	11
5–9 partners	0	2	0	2
10–20 partners	0	1	0	1
Over 20 partners	4	0	0	4
<i>Total</i>	4	7	7	18
<i>Number of auditors</i>	<i>Big Four</i>	<i>Mid-tier</i>	<i>Small firm</i>	<i>Total</i>
10–20 auditors	0	3	6	9
21–50 auditors	0	0	1	1
Over 50 auditors	4	4	0	8
<i>Total</i>	4	7	7	18
<i>International affiliation</i>	<i>Big Four</i>	<i>Mid-tier</i>	<i>Small firm</i>	<i>Total</i>
Yes	4	7	0	11
No	0	0	7	7
<i>Total</i>	4	7	7	18

Table 4 Profile of external auditors

<i>Profile</i>	<i>Total</i>
Years of experience	3–5 years
	6–10 years
	11–20 years
	> 20 years
	27
Level of position	Partner
	Manager
	Senior auditor
	27

There were 27 external auditors across audit firms' size, and Table 4 describes their profile in terms of the number of external auditors.

The use of GAS is relatively new to audit practices in Indonesia, and the researchers believe its use is a sensitive topic for most, especially for middle and small-sized firms. It is a sensitive subject in IT capital budget allocation, GAS usage in audit firms, and auditors' IT skills level. The researchers predicted that many audit firms would be reluctant to participate in this study or that they would not give accurate responses if the trust had not been established beforehand. The snowballing approach helped the researchers gain the trust of possible participants referred in advance by high-profile practitioners in the Indonesian auditing profession. For example, the researcher was introduced to potential participants by a well-known and respected contact.

3.2 Research instrument

Thus study reviews previous literature and relevant report to ensure a reliable and valid research instrument. The interview guide was developed in English and translated into Bahasa Indonesia (Indonesia's national language). After the translation, the interview guide was pilot-tested with a small number of external auditors and academics before the interview. The researchers conducted interviews in Bahasa Indonesia and translated the interview transcripts from Bahasa Indonesia to English.

The interview guide was translated from English to Bahasa Indonesia by one of the researchers and pilot-tested before the interview to ensure its accuracy and applicability (Prieto, 1992). The researcher was considered qualified to translate the interview guide. This study uses the translation technique by combining pre-testing and translation from source (English) to the target language (Bahasa Indonesia) without reverse translation. Maneesriwongul and Dixon (2004) defined this reverse translation technique as forwarding translation with testing. They assert that forward translation can be done with only one bilingual translator. The current researchers used the above technique due to limited resources (time, cost, and staff).

3.3 Data analysis

Before data collection, the researchers first developed a list of potential codes derived from the literature. The list of codes was designed to assist in the content analysis of the interview data. However, the researchers also anticipated that additional codes would emerge during the analysis and that some of the potential codes may not be relevant to the Indonesian context. The researcher transcribed the interview data into English, coded, and analysed for recurring themes using NVivo. This study follows Saldaña's (2013) methods of coding and analysing the interview data described as first and second cycle methods.

4 Findings and discussion

4.1 Perceived benefits to GAS use

Previous studies claim the use of audit technology provides benefits, such as increasing the accuracy, effectiveness, and efficiency of audit processes (Janvrin et al., 2008),

enhancing the quality of audit procedures (Manson et al., 1998), and increasing audit quality (Dowling, 2009). It is proven by the statement stated by an external auditors from a mid-tier firm:

“The [audit] tools are helpful in terms of their efficiency, accuracy, and added value, and increase in quality. We are now using a risk-based approach and want to adopt ISA.”

It can be concluded that GAS provides benefits, such as enabling audit firms to compete with firms of the same size, improving efficiency, improving audit quality, increasing productivity, and ensuring uniformity of audit work. However, since the size of audit firms are vary, the interviews provide difference performance of GAS they utilise.

4.2 Increased audit productivity

The literature shows there is limited support for productivity gains through IT implementation in an audit setting. However, Banker et al. (2002) and Hsihui et al. (2011) found that IT implementation increases audit firms' productivity. They measured a wide range of IT, including computer hardware and software. This study provides specific evidence that increased productivity resulted from the adoption and use of GAS. Janvrin et al. (2008) stated that knowledge sharing between auditors could achieve audit productivity, and previous research supports this belief. Other than that, Vera-Muñoz et al. (2006) said that IT implementation could enhance information and knowledge-sharing capabilities. Indications from this current study are that GAS enables knowledge-sharing capabilities. It can be proven by the interview data that shows participants stating that improved audit productivity is also part of the performance of GAS.

“Our system provides an ‘information button’, which tells us that an auditor should act according to the standards/procedures explained in ISA. The ‘knowledge button’ gives examples of actions that need to be taken, and our system is integrated with headquarters, which provides templates according to the client’s industry. Auditors can use and customize the template according to the client’s needs.”

4.3 Efficiency

Some research conducted has found that GAS performance brings the efficiency of auditors. For example, Dowling and Leech (2007) found that computerised audit support systems improve efficiency in decreasing audit time. In addition, Braun and Davis (2003) found GAS users stated that the audit software provided accuracy and efficiency. In terms of cost saving, GAS performance is considered as efficient. It is proven by the statement of a senior auditor from a small audit firm, which is:

“Another benefit of audit software is decreasing document storage cost (hardcopy) because we can store it electronically.”

A partner from a Big Four firm reaffirmed the previous statement. Cost-saving can be achieved by reducing audit team members; as stated by a partner from a small-sized firm.

“It [GAS] minimizes personnel that is employed (a fewer member of an audit team).”

Other than that, previous studies indicate IT investment in companies reduces production costs. For example, Banker et al. (1990) found that cash register and order coordination technology deployment in restaurants provided cost efficiency compared to those that did not use technology. Lucas et al. (1996), in their case study on the implementation of financial imaging systems in Merrill Lynch, found that cost reduction resulted from new systems. Lee and Menon (2000) found higher hospital investment in IT reduced operational costs. There is limited research in this area in the auditing context, and contrasting findings were found by Banker et al. (2010). They found client's IT complexity influenced the effort made by public accounting firms. It means the increase in IT effort contributes to the increase in audit costs.

However, the present study found that GAS's use decreases audit cost, as indicated by an audit manager from a small-sized firm who said:

"The use of audit software can reduce fees; thus it would be more competitive from the perspective of price."

In addition, a Big-Four firm partner said:

"Without the tools, everything will be more expensive."

Efficiency is achieved in the form of time-saving. Most participants agreed that GAS enabled the audit process to be faster, with less time spent on clerical work and more on data analysis or other strategic tasks, such as business risk assessment. Efficiency was also described in terms of audit process effectiveness. An example is when a partner from a mid-tier said:

"The audit process includes a lot of judgment, and audit software can help review these quickly, whereas the manual process cannot control the process."

A partner of a Big-Four firm said:

"If we audit a large volume of data, we only make the script and the logic [computer coding program] to be executable and the result is quick. It can save an hour."

A partner from mid-tier said:

"The software can do the series of tests faster."

Another partner from a small-sized firm also provided a detailed explanation regarding the time spent between the manual audit and GAS usage:

"The manual [audit] took longer and resulted in many documents that stood a massive chance of getting lost. Meanwhile, the one that used audit software had faster processes and fewer documents, and only the original or permanent files are stored in the computer and backed up regularly."

From the statements of interviewees from all size firms, it can be concluded that GAS performance can be efficient in terms of cost-saving.

4.4 Competitiveness

IT literature documents IT use's impact on companies' competitiveness (Peña-Vinces et al., 2012; Eraqi, 2006; Powell and Dent-Micallef, 1997); furthermore, the IT literature delivers mixed results regarding the issue of competitive pressure. It is because the characteristics of IT adoption varied. For example, Ming-Ju and Woan-Yuh (2008) found

that competitive pressure was not a significant driver to enterprise resource planning (ERP) adoption. However, studies in different IT adoption settings, such as e-business, e-customer relationship management (e-CRM), and e-government, found it was important (Lin and Lin, 2008; Pudjianto and Hangjung, 2009; Te-Ming et al., 2005; Zhu et al., 2003a, 2003b; Zhu and Kraemer, 2005). In auditing literature, empirical research (such as Dowling, 2009; Janvrin et al., 2008; Manson et al., 1998) has not found that GAS usage contributes to its competitiveness.

The result of this study found mixed results regarding GAS usage concerning audit firms' competitiveness. It is proven by the statements of participants that the adoption and use of GAS competitiveness they feel when implementing GAS. 60% of participants from small firms consider the adoption and use of GAS has nothing to do with competitiveness. Participants argued that clients did not expect firms to use GAS. For example, a partner from a small-sized firm said:

"Using audit software does not correlate with competitiveness. Clients do not compel us to use audit software. What matters to the client is the auditor's opinion."

In addition, a senior auditor from a Big Four firm supported this statement by saying:

"Competitions are not considered for using GAS, and clients do not consider if firms use audit software. What matters the most to the client is the audit results."

However, some external auditors stated that the usage of GAS influence their competitiveness. It is proven by the statement of a partner from a mid-tier firm that said the adoption and use of GAS influences the firm's competitiveness.

"In our firm, audit software is compulsory because it is essential to compete, especially when auditing the State-Owned Enterprise (SOE). We have to bid to obtain the audit assignment, and higher scores will be given for audit firms that include IT in the delivery of an audit."

In addition, a partner raised the need for a firm to update its technological capability to remain competitive due to IT implementation in a client's company from a mid-tier firm, who said:

"Because it [GAS use] is compulsory, we will be left behind competitively if we do not use it. Hence, we need to adapt to the change in the environment."

Other than that, a partner from a mid-tier firm also said:

"By using audit software, we feel superior when we negotiate prices. We mention we have invested in audit software, and that justifies a price increase. A partner from another mid-tier firm confirmed this statement, 'technology use enables us to keep clients, and it also increases the prestige of the firm.'"

From the statements of the external auditors from all size firms, it can be concluded that competitiveness aspect of GAS utilising varied across the size of the audit firms. Several small audit firms stated that competitiveness is stimulated by various factors and not the only GAS outcome. In addition, they said GAS use does not contribute to competitiveness because their client's relatively uncomplicated financial transactions and IT platforms do not warrant it. However, mid-tier firms stated that increased competitiveness is resulted from using GAS. Mid-tier firms indicate they need to improve their technological capability to compete with larger firms such as the Big Four to secure

a major client. They believed improved technological capability could be used to negotiate the audit fee and increase confidence at the same time. Similarly, Big Four firms were more optimistic about GAS offering a competitive advantage.

4.5 Ensuring audit quality

Francis (2011) said improved audit quality begins at the input level where evidence is acquired, and reliable testing procedures can be applied efficiently and objectively. Audit quality can also be established at the audit process level when the auditor can make informed decisions about the type of tests and procedures that need to be implemented. In terms of the audit quality, the GAS adoption and use ensure audit quality by increasing accuracy and completeness. It is proven by the statement of all participants from the Big Four, which is:

“From the perspective of accuracy, audit software enables us to identify risk aspects at the beginning of the audit process to do audit testing according to its risk.”

In addition, a manager from a mid-tier firm also said:

“The work will be more accurate, and reducing the possibility of unexecuted audit procedures.”

Furthermore, a quality audit can be defined by the extent “the auditor complies with auditing standards and issues the correct opinion regarding the client’s financial statements at an appropriate level of audit risk” (Francis, 2011). Dowling and Leech (2007) interviewed partners and found that audit support systems increase audit quality through compliance with auditing standards and methodology. It is proven by the statement of an audit manager from a Big Four firm, which is:

“Audit software contributes to audit quality because its emphasis is on compliance with SPAP (Indonesian Auditing Standards) and ISA (International Standards on Auditing). If we comply with the software, most likely, we have audited according to SPAP and ISA.”

However, there is mixed evidence regarding this finding. A partner from a small audit firm said:

“Audit software is just a tool. I do not think that by using the software, we can increase quality. Audit quality means the extent to which we can achieve audit standards. Therefore, if the standard audit requirements are met, the audit has beneficial qualities, and it does not matter which software is being used.”

In addition, a partner from a Big Four firm stated:

“Using audit software, we have to follow the pre-determined procedural flow; therefore, we can ensure staff has completed the process correctly. The software cannot archive the data if there are steps left undone. Also, if there are errors, there will be warnings provided by the system.”

Other than that, a partner from a mid-tier firm also stated:

“The monitoring process will be more straightforward because the supervisor can see an unexecuted procedure directly. It would not be possible to miss any procedure during the audit stages.”

A partner from a small-sized firm said:

“As for the result [of audit quality], as long as the performed procedure is complete, there would not be any difference [between manual audit and GAS].”

As discussed previously, it can be concluded that GAS usage ensures audit quality. Other than that, the increased quality audit can potentially be produced.

4.6 Uniformity of audit work

This study confirms that GAS’s use ensures uniformity of audit work and can be described as audit processes and quality. In terms of the uniformity of the audit process, a manager from a mid-tier firm said:

“Internationally standardized audit tools are rigid and detailed such as the use of pre-determined templates or checklists.”

This statement is confirmed by a senior auditor from a Big Four firm who stated:

“A standardized audit process ensures professional standards are present in audit work; hence, the audit quality between auditor A and B is the same, which creates the need for audit software in a big firm.”

In terms of the uniformity of audit quality, a partner from a Big Four firm said:

“From the perspective of client consistency, we standardize our approach. Our audit software has the same standards as the firm’s headquarters and branches all over the world. Therefore, we deliver standardized audit quality to our clients.”

From the data collected, it can be concluded that the standardised audit process ensures professional standards are present in audit work which lead to GAS’s use ensuring uniformity of audit work.

5 Conclusions

The GAS utilisation affects the competitiveness, improves efficiency, increases audit quality, productivity, and uniformity as the performance of GAS usage shown from several interviewed participants involved in this study. There are several limitations to this study and opportunities for future research. Firstly, this study’s findings are based on a limited number of participants from one country, and it could reduce its more comprehensive application. Secondly, this study seeks information about auditors’ perceptions and experiences of GAS usage. As the study is based on auditors’ and other key stakeholders’ perceptions about GAS, future research could seek to examine a direct relationship, if any, about GAS usage and factors such as audit quality. Another aspect needing further research is whether audit firms’ improved audit capabilities flow from international affiliation. Given the findings of this study, this perceived benefit from international affiliation may not occur in practice.

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