Does Audit Software Adoption Matter? Evidence from Local CPA Firms in Indonesia

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Abstract

The integration of technology in the audit practice is widely used nowadays. IT-based audits are applied since most of the accounting transactions are done computerized. This paper aims to assess the adoption of audit software by local CPA Firms in Jakarta and Medan, Indonesia. This research used the descriptive method with the quantitative approach. The research was conducted at five local CPA firms in Jakarta and Medan, with a research sample of 63 auditors. Data collections were done through questionnaires. Descriptive statistics, correlation, and regression were used to analyze data. The results of this study showed that perceived benefit and company readiness have positive and significant effects on the adoption of audit software. Adoption risk has a negative and significant effect on the adoption of audit software, and external pressure has no significant effect on the adoption of audit software. This research provides added value to all local CPA firms and makes audits more efficient and effective. It encourages all local firms to conduct the audit in a more advanced method through the use of audit software. This research corroborates the previous research in a different context (types of business and place). It focused more on a partnership type of business.

Keywords— IT-based audit, audit software, Jakarta, partnership

1. INTRODUCTION

Most of the businesses nowadays are embracing the trending digitalization. Information technologies (IT) are becoming more prominent all over the world. Local CPA firms are considered as part of small-medium enterprises (SMEs). CPA firm services are essentially needed by all types of organizations or companies. The essence of CPA work lies in auditing financial statements and audit reporting. Auditing is very much relevant in proving the reliability and credibility of financial reporting. "Auditing is the accumulation and evaluation of evidence about information to determine and report on the degree of correspondence between the information and established criteria" [1]. Apart from that, auditors must be timely in reporting to avoid delays. To avoid delays, there is a need to adopt digitalization for the efficiency and effectiveness of the audit process. Dependable and efficient software enhances client satisfaction.

Software processes must be flexible, technically advanced, and produce timely results to meet the demands of clients and company needs. Any software company's capacity to foresee and execute procedures connected to the goods it can create is critical to its success [2]. The world of accounting, including auditing, has been impacted by changes and innovations in digitization. Auditors collect, study, and assess evidence connected to information to determine and report on the level of conformance between the information and predefined standards, this is known as auditing. In this circumstance, it is necessary to implement audit and IT tools to simplify and accelerate the auditing process.

New digital technologies can be used by audit firms to automate data processing and reduce the need for human intervention [3]. The use of technology in auditing can help improve the quality of audits. As a result, auditors must implement audit technologies and adopt audit

software; software that is both dependable and effective improves client satisfaction. In support of this, to acquire more detailed evidence about data contained in large accounts or electronic transaction files, auditors must use computer-assisted audit techniques. Professional accountants today employ a variety of computer applications to carry out their daily operations [4][5].

Software processes must be adjustable, technologically advanced, and well-timed to fulfill the demands of clients and company needs [2]. Audit firms are now mushrooming and every firm has to adopt audit software to facilitate audit processes. There is a need for auditors to employ audit software to maintain consistency and high-quality audits. Audit software enhances the practicability of small and medium audit firms [6]. Audit software was being utilized mostly by Western auditors because these countries have all the means to avail it. Local audit firms in Indonesia are considering the adoption of audit software to improve audit efficiency. Nevertheless, adopting audit software is not that simple, complexities and challenges are to be considered [7]. Some challenges in adopting auditing software have impacted significantly the audit firms' efficiency and effectiveness of audit practices [6]. The Indonesian Audit Standard recommends the use of General Audit Software (GAS) in auditing but it is not mandated. Since it is not regulated, CPA firms have no obligation to strictly use it or not. GAS is used by the Big Four public accounting firms for practical considerations [8] [9].

The size of the public accounting firm might indicate how far the firm has progressed in its use of technology in Indonesia. Medium-sized auditing firms are considering the implementation of customized auditing software to improve professional auditing procedures and compete with larger auditing firms. [6]. Several public accounting firms still do their audit reports manually. Acquiring audit software is expensive, so small and medium-sized CPA firms choose to conduct audits using the manual technique. The adoption of audit software is affected by perceived benefits (perceived usefulness and perceived ease of use). The English language has something to do with ease of use. This is a serious problem for auditors who have difficulty understanding the language. This is one of the hindrances in adopting audit software. CPA firms must be ready in terms of financial resources and technological resources. In addition, auditors are required to use technology that is compatible with their clients for accuracy and to ensure the integrity of the internal control system. It needs a huge amount to adopt audit software. Small and medium-sized audit firms rely on software that is commercially available and less expensive. IT skills of the auditors are much needed. Also, external pressure such as pressure from the regulatory to use the required software, and lastly, adoption of audit software is also affected by risks, such as the acceptance of the employees with the changes. The auditor and audit processes cannot be separated from audit software.

The auditor should be familiar enough with these systems to be able to organize, direct, monitor, and evaluate the job done [10]. Public accounting firms use system information technology in their job as well. The goal of implementing these information technology solutions is to increase efficiency and effectiveness. Public accounting requires auditors and personnel to master information technology and audit software. In this study, the intention to adopt audit software is used since most of the public accounting firms do not yet have the program. Public accounting firms tend to use the traditional way of audit which is very inefficient. Although the traditional way is widely used, it is time for public accountants to explore innovative ways of doing financial statement audits. The intention to adopt will also occur if the auditor has good software abilities, the software has been approved by all parties, and the software is suitable and properly applied in the audit process. Implementation is utilized when the software is already installed in the company.

This study assesses the intention to adopt audit software by local CPA firms. This study would be useful in identifying the challenges faced by small and medium CPA firms. The originality of this study lies in the year and the subject. This study was conducted in 2020, when there was a limited condition due to the pandemic and the subjects were the local CPA firms in Jakarta and Medan.

Certified Public Accountants (CPAs) or the so-called external auditors play a vital role in providing quality audits. A certified public accountant is a person who is a CPA board

examination passer.; a CPA may have as his or her primary responsibility the performance of the audit function on historical financial statements of commercial and noncommercial financial entities [1]. CPA Firms are formed by several CPAs to render services whose license to operate is authorized by the Ministry of Finance. As of April 25, 2022, there are 473 CPA Firms in Indonesia to perform assurance and non-assurance services. One of the assurance services being rendered is the audit of financial statements. CPAs are responsible for performing external audits efficiently and effectively. The use of audit software fastens the audit process and other audit activities. It is expected that auditors have IT competencies [11] to satisfy stakeholder's expectations. Being an independent party to evaluate the company's financial statements, the adoption of audit software is very much needed to support the auditor's professionalism in meeting deadlines and other financial reporting processes.

1.1 Audit Software

Computer-assisted audit techniques (CAATs) refer to audit software [7] often referred to as Generalized Audit Software (GAS), which uses auditor-provided specifications to produce a program to perform the audit function, thereby automating or simplifying the audit process.

Auditors utilize generalized audit software (GAS) as a tool to automate different audit duties. The auditing of accounting data is anticipated to be computerized, just as the majority of accounting activities are currently computerized [12]. Two of the most popular software are Audit Control Language (ACL) and Interactives Data Extraction and Analysis (IDEA). CAATs are well suited for examining large data files in identifying records that require further audit oversight. Auditors are expected by CPA firms to analyze data using spreadsheets and audit software [1].

Audit software enhances the efficiency of auditors in doing audits [2]. Most audit software is marketed internationally and is costly. There are several types of audit software that an auditor should use in the audit of financial statements, see Table 1 below [13]:

Table 1. Names of audit software

Audit Software	Description
ACL	www.acl.com ACL provides data analytics services. Its integrated platform standardizes and simplifies core activities, resulting in up to a 50 percent increase in production and efficiency.
ActiveData for Excel	www.informationactive.com ActiveData for Excel is a computer-aided audit tool (CAAT) that works inside Microsoft Excel
IDEA	www.audimation.com IDEA was created to assist accounting and financial professionals in expanding their auditing and analytical capabilities, detecting fraud, and meeting documentation requirements.
TopCAATs	www.topcaats.com CAAT software is used by auditors and accountants to assist them in performing financial data testing. The main advantages of utilizing CAAT software are that it can considerably enhance efficiency (typically saving many hours per week), minimize risk, and improve audit quality.
Enablon IA	http://enablon.com/products/risk-management/internal-audit.aspx Enablon IA provides auditing services that include definition, scheduling, preparation, execution, documentation, and action tracking.
Approvawcorporation	www.approva.net Continuous controls monitoring software from a leading vendor. Allows business, financial, IT, and audit professionals to detect, manage, and prevent business exceptions, reducing compliance risk, increasing operational efficiency, and avoiding incorrect payments.
AlinegRC	www.alinergrc.com Information analytics are used in governance, risk, and compliance software to give corporate leaders better knowledge and confidence in their strategy and risk management.
AutoAuditw	www.paisley.thomsonreuters.com AutoAudit eliminates paperwork. It's a completely integrated audit automation system that lets audit departments finish their job in one database.
BWise gRC	www.bwise.com With a strong background in business process management, BWise is the global leader in governance, risk, and compliance (GRC) management software. Sarbanes-Oxley, Solvency II, MAR, IFRS, UCF, MiFID, PCI, GLBA, and other rules and regulations are made easier to measure and manage with BWise.
gRC on demand	www.paisley.thomsonreuters.com

	Risk assessment, planning, scheduling, documentation, preparation, review, reporting, issue tracking, and administration are all part of a comprehensive internal audit solution that has been proven to improve audit efficiency.
ideA – data analysis software	www.caseware-idea.com IDEAe, the main data analysis program used by accountants, auditors, and systems and financial professionals around the world, is developed and distributed by CaseWare IDEA Inc. You can read, display, analyze, manipulate, sample, or extract data files from nearly any source using IDEA.
Methodware eRA	www.methodware.com Methodware is a global leader in risk, compliance, audit, and investigations software. ERA, a proven GRC system, can integrate your risk assessments, internal audits, compliance initiatives, and corporate governance. With ERA, you can switch to a risk-based auditing methodology.
MKinsighte	www.mkinsight.com It is the new industry standard software for audit management.
Protiviti's governance Portal	www.protivity.com The Governance Portal for Internal Audit is a Protiviti GRC platform module that provides a complete audit management system, including scoping, scheduling, electronic workpapers, issue tracking, and reporting.
RSA Archer egRC Suite	www.archer.com With the RSA Archer eGRC Suite, you can manage the entire audit lifecycle. Paper-based documentation is transformed into a dynamic audit program that encompasses planning, scheduling, risk-based prioritizing, staffing, project execution, and remediation.

Source: [13]

Auditors often use audit software such as ACL or IDEA to determine whether fraud may exist. Auditors categorize transactions or account balances into subcategories for further audit testing using audit software, which includes basic spreadsheet tools like Excel [1]. The audit software mentioned above is quite expensive which makes local audit firms prefer to use the simple audit software ATLAS, which is downloadable and free. ATLAS is helpful in some ways just like the above-mentioned software. ATLAS was designed for educational purposes and served as an introduction to get to know about audit software.

***1.2** Adoption of Audit Software*

There are four elements to consider in adopting audit software. These are perceived benefit (PB), company readiness (CR), external pressure (EP), and adoption risk (AR). This section will explain the important parts of each of the fundamental factors of adopting audit software. The perception of the favorable results of a specific action is referred to as perceived benefit or it is claiming that consumers get a favorable result [14]. Perceived benefits are beliefs about the positive outcomes associated with a behavior in response to a real or perceived threat [15]. Perceived benefit, according to [16], is the degree to which people believe that by utilizing a product given, they would experience the benefits acquired from using the product. This is connected to audit software adoption, where users (CPA firms) that purchase, use, or adopt a product, such as audit software, will gain benefits. Audit processes are improved by technology-based audit, which allows auditors to be more flexible in terms of time and place while also lowering the overall audit cost. Enterprise audit mode development is accelerated by software development for information accounting audit jobs [17].

CPAs, being a well-educated group, are more likely to appreciate the benefits of using technology for audit purposes [18]. Perceived usefulness and perceived ease of use are the two main ingredients of perceived benefit ([19]. The total Acceptance Model (TAM) has now been determined to be effective in offering a thorough and prudent explanation of IT adoption behavior by several authors according to [13]. Few auditors are still stuck in using the traditional way of auditing because they have not been trained during college to adopt technology. This requires a deliberate effort to accept and prepare for the challenges that the digital and technological revolution will present [20]. The behavioral intention will be higher to adopt and use the technology if auditors are more satisfied with CAATs [7]. Despite the aforementioned efforts to adopt technology, still, perceived benefits of adopting audit software are effectiveness and efficiency. Thus, the first hypothesis is as follows:

H_1: PB positively influences audit software adoption.

Company readiness is another factor in adopting audit software. Adoption may involve the integration of resources and the reengineering of business processes [21]. Local CPA firms must have to accept the changes. Readiness for change is inevitably compromising. Management has to be committed to supporting the adoption. Not only management but also the organization's readiness [21]. Financial and technological resources must be sufficient. And lastly, users' positive attitudes towards new technology must be adequately ready for changes. CR determines if a company has sufficient financial resources, technical expertise, and management commitment to implement a new technology as excerpted by [13] from different studies. Many organizations put off adopting innovation until they have the necessary resources.

A favorable attitude toward technology is also a sign of CR. Negative attitudes breed resistance, and a lack of management commitment breeds resource cuts. Certain individuals resist changes, such as manually-driven public accountants, or accountants that are not technology-driven. Depending on how a corporation has adopted technology, the auditing methodology may change. The majority of small audit businesses do audits manually [10]. The study made by it showed that readiness does have a significant influence on technology adoption [22]. The reason for not having influence is because auditors were not taught about the technology during their college thus making them not ready. The degree of preparedness for using technology, whereas discomfort and insecurity are viewed as barriers that can impede the readiness of others to use technology [23]. It takes time for a CPA business to transition from a traditional practice to a digital. Thus, the second hypothesis is as follows:

H_2: CR positively influences audit software adoption.

Risk is a result of the volume or scope of goals that a person seeks to achieve, as well as the severity of the compensation that must be endured if they are not achieved. Risks can often be understood through probability [13]. The adoption of audit software is less secure and too immature, however, they do expect it to be more secure in the future as the service models become more mature and. [24]. For these technological businesses with application risks, deciding whether or not to use a technology becomes a hurdle. Risks will force decision-makers to confront the uncertainties that will accompany the implementation of new technology [14]. One multifaceted, domain-specific aspect that significantly affects users' adoption is perceived risk, especially when it comes to their propensity to learn new information [25].

Possible hazards in auditing software, according to [13], include challenges in implementation and training, a lack of knowledge, and an inability to satisfy effective and corporate objectives. In addition, there are several risks to adopt, such as the confidentiality, integrity, and availability of an organization's data being threatened and improper or malicious actions by staff or other users may result in data loss and leakage [24]. It has been determined that risk is a serious barrier to the use of digital financial services [14], which includes audit software. Risks can be mitigated by providing backup and failover systems that will dramatically lower the likelihood of a complete data loss, but the implementation and maintenance expenses will increase significantly [24]. Thus, the third hypothesis is as follows:

H_3: Adoption risk negatively influences audit software adoption.

Pressure from competitors, partners, government regulators, and other industry stakeholders is expected to affect audit software adoption.[13].

The cost-benefit analysis of technology, company size, readiness, and competitive pressure all influence the adoption of CAAT [26]. Technology advancements in computer software development have eased the pressure of accounting audit jobs [17]. External pressure to embrace IT comes from competitors, trading partners, consultants, and other external stakeholders. Coercive, normative, and mimetic pressures are the three types of pressure. Customers exerted coercive pressure, normative pressures are general business environment

pressures that are often indirectly mediated through staff, and mimetic pressures are imposed by competitors [27]. Pressure from competitors, partners, government regulators, and other industry stakeholders is expected to affect audit software adoption. Thus, the fourth hypothesis is as follows:

H_4: External pressure positively influences audit software adoption.

2. RESEARCH METHODS

The research was conducted in 2020 (during the COVID 19). The respondents were the auditors working in local CPA Firms. The researchers an exploratory method along with a quantitative approach. It is a case study at CPA Firms Karianton Tampubolon (Jakarta), CPA Firms Warnoyo and Mennix (Jakarta), CPA Firms Drs. Katio and Partners (Medan), CPA Firms Darwin S. Meliala (Medan), and CPA Firms Drs. S. Sinuraya and Partners (Medan). Due to the pandemic, 63 auditors returned the Google form. The 63 respondents were considered as the samples. The analytical methods used in processing statistical data analysis are the coefficient of correlation, linear regression analysis, and the significance test. Questionnaires were distributed through Google form with a Likert scale of 1-5; 5- strongly agree; 4-agree; 3-undecided; 2-disagree; 1-strongly disagree (PB, CR, EP, IAAS); 5-very likely; 4-likely; 3-undecided; 2-not likely; 1- not likely at all (AR). Questionnaires were adopted from the previous research which the author considered valid and reliable [13]. From the previous studies, the research model is being developed. The research model is as follows:

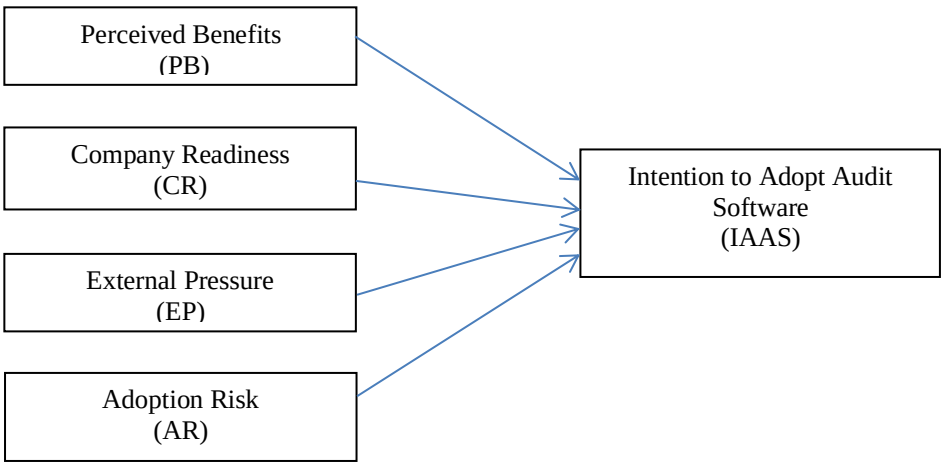

Figure 1. Research Model: Adoption of Audit Software

Figure 1 above depicts the research model in which each factor affects the intention to adopt audit software by local CPA firms. Previous studies have proven the relationship of the factors on audit software adoption.

3. RESULT AND DISCUSSION

The following Table 2 is the result of mean values for each variable. There result for IAAS is 4.06 is an indication that auditors have the willingness to adopt software to learn more about the software. The mean value for PB and CR is 4.43 and 4.34 respectively, this shows that auditors can perceive the benefits of adopting audit software, and its efficiency and effectiveness in the audit process, while it also indicates that the company is ready to adopt the audit software. EP mean value is 3.99, which is an indication an external pressure enables the adoption of audit software, lastly, the mean value of AR is 2.77 which means that risk may happen but it is moderate.

Table 2. Descriptive Statistics

Variable	Indicator	Mean	Std. Deviation	Interpretation
Perceived Benefit (PB)	Effectiveness	4,4603	0,53356	Very Effective
	Efficiency	4,4127	0,63842	Very Efficient
	Total Average	**4,4365**	**0,58599**	**Very Beneficial**
Company Readiness (CR)	Financial Resources	4,4286	0,5879	Very Adequate
	Technological Resources	4,3492	0,48055	Very Adequate
	Attitude	4,3810	0,48952	Very Adequate
	Top Management Commitment	4,2063	0,54355	Very Adequate
	Total Average	**4,34128**	**0,52538**	**Very Ready**
External Pressure (EP)	Government Regulation	4,0476	0,63318	Pressured Moderately
	Consulting Firms	3,9365	0,69266	Pressured Moderately
	Total Average	**3,99205**	**0,66292**	**Moderately Pressured**
Adoption Risk (AR)	Properly work	3,0317	0,99949	Moderate Risk
	Approve the technology	2,6667	0,82305	Moderate Risk
	Training	2,6349	0,92111	Moderate Risk
	Total Average	**2,77776667**	**0,91455**	**Moderate Risk**
Intention to Adopt Audit Software (IAAS)	Intend to adopt	4,0952	0,75593	Good Intention
	Intend to learn more	4,0952	0,87463	Good Intention
	Intend to consider	4	0,76208	Good Intention
	Total Average	**4,06346667**	**0,797546667**	**Good Intention**

As shown in Table 2, using audit software enhances the effectiveness and efficiency of the audit process. It also shows that CPA firms are ready to adopt since it has enough financial and technological resources. Its readiness is supported by the auditor's very positive attitude toward new technology and top management's commitment to use the software. To some extent, CPAs are moderately pressured by government regulations and consulting firms. For the risks faced by the auditors, the software may not work well, employees may not approve or accept the new technology and training may be difficult to arrange. Lastly, the intention to adopt, learn more and consider its adoption shows a good intention. Most of the external auditors understood the PB benefits of adopting audit software, auditors are ready (CR) to use the technology-based audit. Likewise, though no EP from regulators, auditors should adopt it because it is necessary for quality audits. AR is moderate and the adoption may face a lot of challenges or risks that are not controllable.

Table 3. Correlation

	PB	CR	EP	AR	IAAS
PB	1	.266*	.235	-.408**	.591**
CR	.266*	1	.430**	-.042	.347**
EP	.235	.430**	1	-.035	.245
AR	-.408**	-.042	-.035	1	-.498**
IAAS	.591**	.347**	.245	-.498**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 presents the correlation of each variable to IAAS. The relationship of PB and CR to ADPS is positive and significant at $\alpha = 0.01$ level, signifying that there is a direct relationship between PB and CR to the adoption of audit software. The higher the PB and CR, The higher the willingness to adopt the audit software. AR has a negative and significant at $\alpha = 0.01$ level, signifying that risk has a negative impact in deciding to adopt audit software. Furthermore, EP

has no significant relationship with IAAS. Therefore, the motivation for Indonesian audit firms to increase their use of this technology is not regulation-driven.[28].

Risk might be interpreted in terms of money, performance, physical attributes, time, social characteristics, or psychological components, also include perceived risk in their discussion of "network externalities," noting that the adoption of high-tech products frequently requires interactions with others [25].

3.1 Regression Analysis

Table 4. Regression Analysis

	B	SE
(Constant)	1.591	3.146
PB	.738	.207
CR	.333	.173
EP	.111	.221
AR	-.308	.098

A multiple regression was used to predict IAAS and it resulted in the following equation:

$$IAAS = 1.591 + .738PB + .333CR + .111EP - .308AR + e \quad (1)$$

This regression is derived from the coefficients presented in Table IV. As shown in Table 4, the significance value of PB and CR on IAAS is 0.001 and 0.059 respectively, which means PB and CR have a positive and significant influence on IAAS at the significance level of 0.05. In addition, AR significance resulted in 0.003 which means that AR has a negative and significant influence on IAAS; while EP has no significant effect on IAAS. PB, CR, & AR are good predictors of IAAS.

3.2. F Test

As shown in Table 5, simultaneously, the F-test resulted in 0.000 at a significance level of 0.005. This is an indication that although EP is not a good predictor of IAAS, still, the result is still significant when PB, CR, EP, and AR are combined in the intention to adopt audit software.

Table 5. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	150.864	4	37.716	13.270	.000[b]
	Residual	164.850	58	2.842		
	Total	315.714	62			

a. Dependent Variable: IAAS

b. Predictors: (Constant), PB, CR, EP, AR

4. CONCLUSION

Using GAS for auditing small clients is limited, even though some users were aware of the benefits of GAS, they were turned off by what they saw as the system's high implementation costs, difficult adoption and learning curve, and lack of usability; as a result, they preferred to use manual auditing techniques that have been around for a while ([12]. However, there are several advantages if audit software is being adopted by each local CPA firm. The intention to adopt audit software by local firms is indeed necessary as most of the respondents (auditors) agreed to it. Audit software adoption has a major impact on audit companies, implying that there is a positive and significant association between audit software adoption and audit firm software usage. Furthermore, this study provides empirical proof of audit software's influence on audit

businesses and professional auditors' procedures [6]. There are so many benefits that can be gained, such as it helps auditors to be efficient since it lessens the time to audit. It is effective as it supports the audit process. It can also be said that the greater the perceived benefits, the greater the intention to adopt the software audit because it is positively related. When it comes to company readiness, local CPA firms must have to be ready to accept this change, although it needs financial and technological resources. The more the company is ready the more the intention to adopt. Adoption risk significantly affects the intention to adopt audit software with a negative relation. If a high risk exists in adopting audit software it will have an impact on weakening the intention to adopt it. This study is in line with the result of research by [13]. External pressure does not predict the adoption only if there are pressures from the government or regulatory board that external pressure will force the companies (CPA firms) to adopt audit software. For its overall advantage, there is a need to adopt audit software for better reporting that satisfies both clients and CPA firms.

This study implies that the adoption of audit software will be of advantage to all CPA firms' partners and managers because the audit process will be more efficient and effective. The adoption improves the quality of audit, thus, CPAs and clients will be more confident about the integrity of the financial information being reported.

The study was conducted in just 5 local CPA firms and samples are very limited to a few numbers of auditors; due to the pandemic. For further research, it needs to add more samples not only from Jakarta and Medan but from other cities. Explore more on other variables that could affect the adoption of audit software.

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