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Examining Factors Influencing Adoption of Metaverse Technology in Audit Processes: Evidence from Public Accounting Firms in Indonesia

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Abstract. Digital innovations have emerged as a result of rapid technological developments, which is metaverse that combines physical and virtual world. Everyone interacts with each other and some companies start to apply virtual work environments. This makes auditors have to develop their ability when conducting audits. The study was conducted to determine factors influencing auditor's intention to adopt metaverse technology. This study analyzed factors influencing adoption of metaverse technology in audit processes among 100 auditors from public accounting firms in Indonesia using questionnaire data. Quantitative causal methods and PLS-SEM analysis were applied. The results showed perceived usefulness and perceived ease of use positively affected auditors' intention to adopt metaverse technology. However, attitude toward using metaverse technology had no significant impact on adoption intention. The findings provide important insights on drivers of metaverse adoption in audit processes useful for practitioners and standard setters.

Keywords: pls-sem, auditor'**s** adoption, metaverse, audit, technology acceptance model

1. Introduction

1.1. Research Background

The Industrial Revolution 4.0 is a change in the manufacturing sector that is evolving from old technology to new technology through a digitalization process that involves systems to make production and data analysis processes faster. The industrial revolution around the world is growing, especially in Indonesia. The development of the Industrial Revolution 4.0 has not only had an impact on technology but also on the product-to-service orientation found in traditional industries (Lasi et al, 2014). This is characterized by the emergence of a new virtual world that is interconnected, namely the Metaverse consisting of Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) to offer immersive technology experiences to various users. The Metaverse environment is an embodiment of the combination of digital life with physical reality (Mystakidis, 2022). The Metaverse is changing the way people move and interact because it involves people and digital objects. Moreover, the COVID-19 situation has also affected people's lifestyles, work culture, and sped up the rise of e-commerce. People are becoming more dependent on the internet causing the demand for virtual reality has continued to increase and industry spawned by the Metaverse continues to grow.

There are risks that arise by using metaverse technology in the audit process. For example, many companies want to invest in digital assets in the Metaverse world by carrying out virtual business transactions, such as opening branch offices, virtual shops, opening outlets and building other virtual facilities in the Metaverse world (Ng et al., 2022). The company uses currency in the form of crypto whose value often increases and also decreases drastically when compared to other local currencies (Fuller & Markelevich, 2020). Therefore, the Company must report the digital assets that the Company owns in the metaverse in the financial reports and this creates risks, namely the risk of over-representing digital assets in the metaverse world which will affect the total value of the company's assets in the financial statements or balance sheet (Smaili & de Rancourt- Raymond, 2022). In addition, there is also a risk that the Company will recognize profits from the difference in the increase in cryptocurrency exchange rates compared to local currency which will impact the overstatement of digital assets and unrealized profits on the company income statement which is included in the category of fraudulent financial reporting. There are also cyber security risks to the security of assets in the metaverse against the threat of cyber attacks. Therefore, audits must also be carried out virtually in the metaverse world, auditors must enter the metaverse world and carry out audit procedures, such as observing the company's digital assets in the metaverse world to ensure that statements from management, such as: the existence of these digital assets really exists. This situation requires the auditor to has expertise in metaverse technology to conduct audits in the metaverse world. There are several Public Accounting Firms that have started to step into the world of the metaverse and open virtual offices in the metaverse, such as PriceWaterhouseCoopers (PwC) and Pragers Metis. This can also improve the brand image and they are ready to audit companies that own digital assets virtually in the metaverse world.

In Indonesia itself, the metaverse has begun to develop, which can be seen in the Telkom Company (TLKM), which is one of the telecommunications companies building the Indonesian Metaverse, namely Metanesia. From this statement, auditors in Indonesia must be prepared to face changes in the world of technology, especially the use of metaverse in conducting audits.

Trend of Metaverse began when Facebook founder Mark Zuckerberg changed the name to Meta. Many companies contribute to the development of Metaverse by using IoT to cloud technologies. In Metaverse itself, there is a digital asset that is popular among investors, namely virtual land and usually there are transactions happened with virtual land plots using cryptocurrency. This digital real estate can be categorized as part of the NFT (Non-Fungible Token) which is in the form of a programmed space that becomes a place for people to interact and carry out various virtual activities. Since the internet was invented, the metaverse is defined as the greatest opportunity for modern business. This situation has given a large number of virtual lands that also further increase the metaverse potential of the types and methods of property ownership (Belk et al, 2022). Through the Metaverse, users can take advantage of

virtual property or trade their NFTs for profit without having to sacrifice a lot of effort. The popularity of Metaverse has also resulted in the majority of companies investing in digital assets.

The same treatment applies to digital assets such as property and transactions that are adjusted to the principles of taxation. Therefore, the ownership of digital assets by companies in the Metaverse needs to be measured in accounting and reported in financial statements. Online attacks in the form of phishing attacks to digital financial data piracy have been rife in the NFTs Market. The NFTs (Non-Fungible Tokens) market is a market that trades types of digital assets that have their own value and rights (Al-Gnbri, 2022). The inflating of digital assets can be one of the risks of material misstatement and fraud of financial statements. A business can commit falsehoods by strategically exploiting certain consequences (Golf-Papez et al, 2022). In fact, marketers can exaggerate their offerings from actual reality. The exploitation of cyber assets is so frequent that fraud prevention is required by establishing connections to virtual assets with limited speculative space (Katterbauer & Cleenewerck, 2022). In addition, fraud is based on the fact that Metaverse assets are classified as intangible assets where asset misappropriation can easily occur.

The presentation of accurate financial statements needs assistance from an auditor. Various financial institutions including The Big 4 have entered the Metaverse world to expand their connection and collaborate with employees and clients. One example is Ernst & Young, which conducts virtual world testing with avatars to improve auditors' expertise (Buckless et all, 2014). Generally, auditors conduct audits using Virtual Reality (VR) technology through an avatar that becomes a physical representation of a person in the Metaverse. Virtual Reality is a technology with data visualization methods that can improve user understanding of features in the Metaverse world which means it is also possible for accounting information to be more easily understood (Al-Gnbri, 2022). In addition to helping improve auditors ' skills in analytical thinking and being professional, VR technology has also been shown to improve financial reporting through better communication of information and financial data (Imene & Imhanzenobe, 2020). This is to prevent fraud because auditors also play an important role in assessing the company's financial statements in the metaverse world.

In the implementation of Metaverse technology, especially in conducting audits, there are risks and problems that can occur, for example, there are some auditors who are accustomed to using technology and there are some who are not proficient in applying technology. For young auditors who are used to operating technology, it is certainly not an issue. However, this is a challenge for senior auditors who do not understand technology, making it more difficult to conduct technology-based audits. Senior auditors are difficult in implementing technological guidance regarding material misstatements in financial statements and unable in identifying business risks (Diaz & Wolfe, 2007). Companies always continue to expect auditors to be able to update technology capabilities so that it will add value to their organization, in particular the head or senior of audit will definitely always be involved in following the updates of their audit skills. Therefore, this research entitled "Factors Influencing Auditors' Adoption of Metaverse Technology in Audit Process".

Technology adoption among auditors has been widely discussed by researchers. Siew et al. (2020) conducted a study in particular which environmental factors including pressure from other audit firms in adopting the CAATT, complex client environments, and the extent to which professional accounting bodies support CAATT adoption and organizational factors such as firm size, top management commitment and employee competency in IT affect CAATTs adoption in developing countries. While, availability of auditors who are capable of using technology, clients size and their needs were to be found as environmental factors driving auditor's adoption of generalized audit software (GAS) (Widuri et al., 2016). Krieger et al. (2021) found that the technological capabilities of audit firms play an important role in the adoption of advanced data analytics (ADA), namely supporting case ideas and solutions by audit teams. The high awareness of the importance in using technology by auditors and based on prior researches who have addressed factors related to the adoption of CAATT, GAS and ADA, hence this topic related to the factors of auditor adoption of metaverse is the renewal of our

research. In addition, at present, few researchers have explored the audit technologies from the perspective of the metaverse. We hope this paper provides useful insights into the future adoption of new auditing technologies in the metaverse.

Our research uses a sample of auditors who work in Public Accounting Firms in Indonesia because Indonesia is one of the developing countries where metaverse technology is also developing. In Indonesia, Indonesia has developed metaverse technology called metanesia. Metanesia was developed by one of the digital telecommunications companies in Indonesia, namely PT Telkom Indonesia.

MetaNesia is a virtual interaction platform as a new media experience where users can interact, collaborate and be creative with a digital environment that supports it like the real world. MetaNesia has a variety of environments that can develop according to user needs. For example, Metanesia can be used in the business sector, such as collaborating together in the virtual world with the metaverse ecosystem (Virtual Office), watching various interesting entertainment options live in the virtual world (Virtual Stage), and taking part in training and learning new things in a different style. different (Virtual Class). Meanwhile, in the field of Virtual Reality (VR), Metanesia can be used as a virtual tour to go to various aid destination locations with a 360° camera (virtual tour), for immersive virtual training that remains interactive at a lower cost (VR Training), as an object creation and digital animation that can appear in the real world through everyday devices (VR Interactive). Apart from that, in the Blockchain field, Metanesia innovates to create the best Blockchain, such as certification to validate the authenticity of certificates quickly and safely.

2. Literature Review

2.1. Technology Acceptance Model

Technology Acceptance Model (TAM) is considered by various researchers to be the most influential general concept in describing individual acceptance of Information Systems (Lee et al, 2003). The Technology Acceptance Model (TAM) states that users apply technology defined by two user-view processes. First, Perceived Usefulness (PU) assumes how much the use of technology can improve the performance of users so that it becomes even better. Secondly, the Perceived Ease of Use (PEOU) assumes the absence of effort or the slightest attempt to use technology (Davis, 1989). These two variables in TAM become the basic assumption to determine the user's acceptance of technological science based on empirical and observational evidence (Chan, 1996). Other modifications related to the TAM model are also carried out on the basis of integration between trust and risk related to the explanation of consumer interest in transactions through the B2C e-commerce system, where there is an influence on the dimensions of perceived uncertainty and risk but there is also their trust which plays a major role in determining decisions to conduct online transactions (Lui & Jamieson, 2003). Kim et al. (2009) conducted study of TAM about technology acceptance by internal auditors and found that when basic features, including ratio analysis and audit sampling were used, perceived usefulness have significant influence on the feature acceptance. While, advanced features usage, such as digital analysis and classification cause perceived ease of use had more impact on feature acceptance. Perception of external controls and performance expectancy have a positive effect on auditor’s intention to adopt blockchain technology and auditors are more likely change their work culture as long as they get support from their company and they expect to have development of work performance by adopting blockchain audit practices (Ferri et al., 2021).

2.2. Metaverse World

Metaverse can be defined as being a universe without involving the physical world generated from computerized systems (Dionisio & Gilbert, 2013). The Metaverse phenomenon has developed since the decline in the frequency of meetings between people due to the Covid-19 pandemic situation, the Metaverse world describes a real-world view of the future shown by the high percentage of Metaverse platforms used by students in schools (Lee, 2021). The Metaverse is based on digital aspects that allow

interaction between people and objects and the Metaverse world tends to be compatible with the entertainment world such as online video games and open digital environments (Mystakidis, 2022). However, the Metaverse world is not only limited to these aspects but there are other activities such as economic and educational activities. The Metaverse world shows the existence of a dimensional digital space that provides an interactive experience for users and they have the ability to make adjustments to their respective avatars in carrying out various social activities (Dionisio & Gilbert, 2013). The Metaverse world allows each user to identify a person's behavior, for example, in the application of virtual space by university lecturers to assess student behavior, this is an indicator in assessing the character of the student without involving the physical world (Duan et al, 2021).

2.3. Metaverse Audit

Metaverse audit is the development of technology in digital form used by auditors to conduct audits, such as examining physical evidence or supporting evidence as needed. Perhaps the question will arise related to "Why is an audit needed in the Metaverse?". To answer this question, auditing is needed because of the role of accounting that arises as a result of economic transactions and exchanges, while the buying and selling process also occurs in the Metaverse world (Al-Gnbri, 2022). Another example is to audit the location of companies that tend to be remote, thus making it easier for auditors to be able to perform physical checks virtually in the Metaverse which can save time, effort, and accommodation costs. The audit process can also run smoothly and reduce economic costs. Auditors conduct audits through the Metaverse because the information available is complete and more detailed than the information in the real world because usually, companies will integrate data into the company through the system. Apart from the role of auditing in the Metaverse, there is also a threat from the advancement of technology, which is the exploitation of virtual worlds. Security risks in the digital world are certainly increasing considering that crimes will be easily carried out only with the system if strict protection is not carried out. Therefore, the Metaverse world also requires the role of auditors to solve financial and fraud issues (Spano et al, 2022).

2.4. Effect of Perceived Usefulness to Attitude Toward Using Metaverse Audit

The level of confidence in the system that a person has will increase if the system can provide benefits in the form of improved performance at work. Perceived usefulness is a user's perception of the outcome of the experience in using something. This is in line with the role of the Metaverse which provides faster and easier accommodation in carrying out various activities (Davis & Warshaw, 1992). Perceived Usefulness through the use of technology can shape the attitude of its users, and these attitudes affect the behavior and interests of users (Abd Majid & Mohd Shamsudin, 2019). The key finding of the research conducted by Widuri et al. (2016) is that factors such as compatibility with the client's existing IT platform, task suitability, auditor's attitude towards GAS, and the needs of the client affect the adoption of GAS. Accountants and auditors certainly expect that there is room for them to carry out an audit process that is in line with technological advances and digitization (Davis, 1989). In addition, it is the responsibility of the auditor to ensure the accuracy of the financial statements and ensure that the company's assets and property are reported in accordance with applicable principles. It can be concluded that perceived usefulness has an impact on the auditor's attitude in auditing in the Metaverse because there is auditor's intention and belief that the use of the metaverse will provide benefits, such as making it easier and improving auditor performance. Therefore, the hypothesis in this study are as follows.

H1: Perceived Usefulness has a positive significant effect on Attitude Toward Using Metaverse Audit

2.5. Effect of Perceived Ease of Use to Perceived Usefulness

Users will usually use technology or not use technology based on their views whether using the technology will help them do their job better or not. Users believe that high levels of Perceived Ease of Use have a positive relationship with Perceived Usefulness (Davis, 1989). This is because the ease of a

person in using something will cause a sense and belief that it is useful. Krieger et al. (2021) discovered that the ease of use of technology or technological capabilities of audit firms play an important role in the adoption of advanced data analytics (ADA). In addition, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are considered as important components in determining the use of Information Systems is accepted or not (Keil et al, 1995). These two factors are usually used as variables in assessing other variables. Implementation is indicated by a significant relationship between the two factors with user behavior towards the use of technology (Keni, 2020). Based on this understanding, we formulate the following hypothesis:

H2: Perceived Ease of Use has significant positive effect on Perceived Usefulness

2.6. Effect of Perceived Ease of Use to Attitude Toward Using Metaverse Audit

Users feel that the use of technology can provide benefits but the use of the technology system is difficult and less balanced with the effort to use the technology. The consumer is usually influenced by the principle of ease of Use. The ease felt by users in using technology can be interpreted as a measure by which one believes that computers can be easily understood and used (Davis, 1989). Users believe that the ease of use of technology by using a particular system will be able to improve the performance of their work (Alshurafat, 2022). Users will tend to use technologies that provide efficiency and effectiveness. This aligns with the auditor's behavior in conducting the Metaverse audit process because auditors tend to conduct audit processes that are supported by digital systems because auditors consider that computerized systems will make it easier for them.

H3: Perceived Ease of Use has a significant positive effect on Attitude Toward Using Metaverse Audit

2.7. Effect of Attitude Toward Using to Intention to Use Metaverse Audit

Attitude towards the use of technology can affect the behavior and intention to use Metaverse audit technology. Attitudes in the use of technology have concepts, such as acceptance or rejection as a result of the user using technology to complete his work. Attitudes agreeing or disagreeing with the use of technology can be used as a reference to determine the behavior of a person's intention to use or not use the technology. Attitude toward the use of technology can also be interpreted as an evaluation of the user about his interest in using technology. Intention reflected in user behavior in using technology is the tendency of behavior to keep using technology. According to Arief Hermawan and Suseno explained that the intention of behavior using technology can affect a person's desire to perform certain behaviors (Alshurafat et al, 2022). The existence of confidence from users of Metaverse Audit technology in using technology can determine attitudes that lead to the use of the system which will further determine the intentions and behavior on the use of technology systems in real (Lee et al, 2003). New technology will have a positive influence on the intentions and behavior of users to use the new technology. Siew et al. (2020) found that environmental factors including pressure from other audit firms, complex client environments, and the extent to which professional accounting bodies support CAATT adoption and organizational factors such as firm size, top management commitment and employee competency in IT can affect the intention to adopt CAATTs in developing countries. Therefore, we hypothesize:

H4: Attitude Toward Using of Technology has significant positive effect on Intention to Use Metaverse Audit

H5: Perceived Usefulness has significant effect on Intention to Use Metaverse Audit

H6: Perceived Ease of Use has significant effect on Intention to Use Metaverse Audit

3. Research Methodology

This research uses a quantitative research method. Quantitative research is research that aims to collect, process, and interpret statistical data used to analyze data based on certain variables. We take the study

with quantitative methods because the results of the measurements resulting from these quantitative methods are more accurate than qualitative methods because they use statistical analysis measurements (Goertzen, 2017). We will use primary data and secondary data. Primary Data is the original data taken from questionnaires or interviews with the parties involved for research purposes. While the secondary data is data taken from the original data from previous studies (Hox & Hennie, 2005). For the study population, we chose a population whose number is not known with certainty, it is because the number of auditors working in public accounting firms is always changing. Therefore, the approach to determining the number of samples we use is the approach according to Roscoe where the number of samples for the population is ambiguous, which is between 30-500 samples (Roscoe, 1975). The sampling technique we use is non-probability sampling, namely convenience sampling which means that samples can be taken from the population and the sample is part of the population members who meet certain criteria, such as ease of access, availability at a certain time, and are willing at any time to be able to participate in research sampling (Etikan et al, 2016).

For the primary data that we use in our research is to distribute questionnaires to auditors who currently work in public accounting firm in Indonesia. The questionnaire uses closed answers that are limited to a Likert scale consisting of 5 answer choices, namely strongly agree (SA), Agree (A), neutral (N), disagree (D), and strongly disagree (SD) to avoid irrelevant answers and facilitate data processing (Nemoto & Beglar, 2014). There are 2 common methods of distributing questionnaires, which are self-administered and interviewer-administered questionnaires (Kazi & Khalid, 2012). The method we used was self-administered questionnaire distribution, where the questionnaire was distributed electronically, such as through audit partners, junior and senior auditor contacts and social media. In other words, the questionnaire would be handed and completed by respondents and then submitted to the researcher. Therefore, data resulted from the questionnaire using Google Forms would be analyzed using Smart PLS 4.

The total sample size in this study was 107 respondents with the demographic profile of most respondents are male aged between 20 - 30 years who have positions as junior auditors who work in Public Accounting Firms or companies and have work experience between 1 - 5 years or equivalent to 85%. Meanwhile, the other 15% were female respondents aged between 31 years and 50 years and above with positions as senior auditors, supervisors/managers, and partners with work experience as auditors of more than 6 years to 15 years and above.

When we decided to sample research with human subjects, we had considered the ethical principles of research involving human subjects, such as the principles of respect, generosity, and fairness towards respondents. In the context of our research involving human subjects, respect is given to respondents who are able to fill out questionnaires that are given voluntarily and provide sufficient information according to the opinions of those respondents for the purposes of the research. For the principle of generosity, we treat our respondents ethically, not only by respecting their decision to be able to help in filling out the questionnaires that we distribute, we also keep information related to respondents confidential for research purposes only and we also hope that respondents will be able to feel the benefits of our research. For the principle of fairness, we treat our respondents fairly and provide equal opportunities, regardless of gender, age, position or audit experience.

Meanwhile, for secondary data, we collected data from literature reviews from Journal Citations and other related articles. Our research uses the Structural Equation Method (SEM) based on Covariance with Partial Least Square (PLS). For our research, the sample contains 100 respondents, so it is more suitable to use the Partial Least Square (SEM) method. The Structural Equation Method (SEM) is the development of an analysis system that can ensure the existence of a relationship between exogenous and endogenous variables. Meanwhile, Partial Least Square (PLS) is a structured model that connects one latent variable with other latent variables, the relationship between the latent variable and its indicators and the relationship between the quality and value of the latent variable. Latent variables can be exogenous or endogenous variables (Handoko & Marcell, 2022).

Operationalization of variables is the process of converting an abstract concept or theoretical variable into an operational or empirical variable or in real form (Wacker, 1998). Operationalization variables used in our study are Perceived Usefulness, Perceived Ease of Use, and Attitude toward Using as endogenous variables, exogenous variables are Intention to Use Metaverse Audit. Indicators are used to measure both variables indirectly. Variable operationalization is presented in Table 1 below:

Table 1. Operation of Variables

Operation of Variables		
Variable	**Main Indicator**	**Data Source**
Perceived Usefulness (PU)	1. *Able to improve quality of work* 2. *Enhance audit performance and productivity* 3. *Increase effectiveness of audit* 4. *The use of metaverse technology facilitates work of audits* 5. *Enhance reliability of decision making*	(Saputro & Manalu, 2019) (Morris & Dillon, 1997) (Meitasari & Manurung, 2023)
Perceived Ease of Use (PEOU)	1. *Easy to operate* 2. *Perception of external controls* 3. *Able to meet auditee's expectations* 4. *Obtain more precise results with less effort* 5. *Provide real time assessment* 6. *Flexible and can achieve audit result easily*	(Morris & Dillon, 1997) (Saraswati & Aruan, 2021)
Attitude toward Using Metaverse Audit (ATU)	1. *Enjoy interacting with fellow avatars* 2. *Quick function* 3. *Not satisfied because they believed they can get same evidence with traditional method* 4. *Finding it difficult to use metaverse audit tools* 5. *Vulnerable and less secure*	(Vasarhelyi & Romero, 2014) (Karabivik & Aggarwal, 2014) (Upadhyay et al, 2022)
Intention to Use Metaverse Audit (IU)	1. *Social influence* 2. *Provide auxiliary tools* 3. *Gives accurate disclosure methods* 4. *More interactive environment* 5. *Training function*	(Keil et al, 1995) (Saraswati & Aruan, 2021)

4. Data Analysis and Research Result

4.1. Demographic Profile

The number of respondents in this study is 100 respondents. The demographic profile showed that most of the respondents are male aged between 20 - 30 years who have positions as junior auditors who work in Public Accounting Firms or companies and have work experience between 1 - 5 years, equivalent to 85%. Details of demographic data are presented in the following table.

Table 2. Demographics of respondents

Demographics Variables	Category	Frequency	Percentage (%)
Gender	Male	54	54
	Female	46	46
Age	20-30 years	89	89
	31-40 years	5	5

	41-50 years	3	3
	> 50 years	3	3
Position	Junior Auditor	72	72
	Senior Auditor	16	16
	Supervisor/Manager	7	7
	Partner	5	5
Audit Experience	1-5 years	85	85
	6-10 years	6	6
	11-15 years	4	4
	>15 years	5	5

The percentage of senior auditor which is 16% indicates that currently most senior auditors are not familiar with the metaverse and metaverse audits have not been fully implemented by companies, as can be seen from the percentage of supervisor/manager is only 7%, followed by partner at 5%.

4.2. Validity Test using Outer Loading

In using PLS-SEM analysis, the analysis section consists of 2 models, one of which is the outer model or outer measurement. The use of the outer model is to obtain values in analyzing the validity of reliability and identify the relationship between latent variables with indicators. The outer loadings indicator is acceptable if it has a value greater than 0.7 and can be classified as valid and can be used as a research result if the outer loadings value is greater than 0.5 (Sang et al, 2010). In addition, according to (Ghozali, 2011), the value of outer loadings above 0.5 - 0.6 is still acceptable because it shows that the relationship between the indicator dependent variable with each independent variable is good and can represent each indicator.

Table 3. Outer Loading Value

Indicators	Outer Loadings	Indicators	Outer Loadings
ATU1	0.691	PEOU2	0.824
ATU2	0.850	PEOU3	0.816
ATU3	0.832	PEOU4	0.874
ATU5	0.833	PEOU5	0.842
IU1	0.709	PEOU6	0.828
IU2	0.877	PU1	0.840
IU3	0.806	PU2	0.840
IU4	0.867	PU3	0.883
IU5	0.685	PU4	0.826
PEOU1	0.753	PU5	0.834

Based on Table 3, it can be seen that the value of outer loading based on if the above data has a value greater than 0.6 which means that the value of outer loadings is still acceptable as a result of research and each variable can already represent the indicator.

4.3. Convergent Validity Test using AVE

Assessment of convergent validity that measures the degree of correlation of several indicators of the same construct can be assessed using the Average Variance Extracted (AVE) with a value higher than 0.5 (Hair et al, 2011). Convergent validity assessment also checks whether the independent variables

can effectively reflect the appropriate factors and whether the independent variables in each construct are high enough or not (Hair et al, 2019).

Table 4. Average Variance Extracted

Variable	Average Variance Extracted (AVE)
Perceived Usefulness	0.647
Perceived Ease of Use	0.629
Attitude toward Using Metaverse Audit	0.678
Intention to Use Metaverse Audit	0.714

Based on the measurement in Table 4, all indicators have satisfactory convergent validity which means the latent construct contributes more than 50% of the variance. In other words, the convergent validity of this research has met the requirements. The model accounts for 64.7% of the variance in Perceived Usefulness (PU), 62.9% of the variance in Perceived Ease of Use (PEOU), 67.8% of the variance in Attitude toward Using Metaverse Audit (ATU), and 71.4% of the variance in Intention to Use Metaverse Audit (IU).

4.4. Fornell-Larcker Criterion

Discriminant validity aims to ensure that every concept of each latent construct is distinct from the other latent constructs. Our research used discriminant validity test method based on Fornell Larcker Criterion. The measurement process using the Fornell-Larcker Criterion method is conducted by comparing the AVE roots of each construct to the correlation between another construct in the research hypothesis and can be seen from the value of outer loadings and AVE roots of the construct (Ghozali, 2008). If value of the root for each construct AVE greater than the value of the correlation between one construct with another construct, then the validity of the discriminant is good.

Table 5. Fornell-Larcker Criterion Test

	ATU	IU	PEOU	PU
ATU	**0.804**			
IU	-0.172	**0.793**		
PEOU	-0.352	0.729	**0.824**	
PU	-0.294	0.686	0.835	**0.845**

Based on Table 4, it can be concluded that the correlation value of the associative construct is higher than the other constructs. For instance, the square roots of AVE for ATU construct is 0.804. Therefore, the model has a good discriminant validity and acceptable for this measurement model.

4.5. Cronbach's Alpha and Composite Reliability

Reliability Test in PLS can be done by 2 methods, which are Cronbach's Alpha and Composite Reliability. If the items are correlated to each other, the value of alpha is increased. Cronbach's Alpha model assesses the reliability of the lower bound of a construct and measures internal consistency while composite reliability measures the actual or empirical value of the reliability of a construct (Peterson & Kim, 2013). The acceptable value for Reliability and Cronbach's Alpha is greater than 0.7 (Agriyanto et al, 2016).

Table 6. Cronbach's Alpha and Composite Reliability

	Cronbach's Alpha	Composite reliability (rho_a)	Composite reliability (rho_c)

ATU	0.817	0.831	0.879
IU	0.850	0.866	0.893
PEOU	0.905	0.909	0.927
PU	0.899	0.900	0.926

Based on table 6, it can be concluded that the composite reliability in this research ranged from 0.83 to 0.92 which indicates satisfactory reliability. As for Cronbach's Alpha, it has a value of >0.7, which means the all items have relatively high internal consistency. Higher levels of reliability can be derived from their high values. For example, 0.6 to 0.7 reliability values can be considered as acceptable (Shrestha, 2021). Generally, composite reliability produces higher values than Cronbach's Alpha.

4.6. Coefficient of Determination Analysis

This research carried out a coefficient of determination analysis which aims to measure the proportion of variation in the dependent variable affected by the independent variable. The independent variable is able to provide all the information needed to predict the dependent variable if the value of coefficient of determination is close to 1 (Aras et al., 2023). In other words, the prediction model will have better results if the R-square value is also high, which can be categorized as acceptable if the value range is from 0.55 to 0.98 (Doll et al, 1994).

Based on the R-square analysis of Intention to Use Metaverse Audit (IU), the results show that 55.9% influences auditors to use metaverse technology in carrying out the audit process and the remaining 44.1% is influenced by other variables not discussed in this research and is closely related to other technologies, such as the use of technological literacy, computer skills, understanding of the Internet of Things (IoT).

The use of digital literacy has the ability to find, access, organize, combine, communicate, evaluate and create secure information through digital technology and internet devices to participate in economic and social life. Graduates or scholars must be able to complement their technical skills with non-technical skills to be to get a professional accounting job or career, and one of these non-technical skills is literacy skills (Bowles, M., et.al., 2020). Based on theory and findings from previous research results, there is a significant positive influence of digital literacy accounting skills on the work readiness of prospective accountants in the era of digital technology disruption.

Meanwhile, computer skills can make it easier for auditors to carry out the audit process. Auditors are unable to examine every transaction in detail so they must rely on internal systems and controls and ensure that they are working effectively and that there are no significant gaps. (Lintje, 2012).Some of the factors that affect auditor performance come from within themselves, which they are required to undergo professional training in order to be able and master computer-based systems so that their duties can be carried out properly. The duties further encourage auditors to increasingly utilize all available electronic technology information system tools, both in communication and decision making between audit teams, carrying out analytical procedures and other audit procedures that require software solutions. The existence of technological developments today means that information technology will continue to develop, which then influences every stage of the audit process. Auditors who use information technology in their jobs will get more benefits in audit efficiency and effectiveness (Fefri, 2007). Compatibility of work with technology has an impact on improving auditor performance as seen from the ability to obtain better information for decision making and time efficiency in completing work (Mueller and Aderson, 2002).

The Internet of Things (IoT) is a giant network of connected devices that allows many parties to communicate. This term describes a technology that can create, store, change and communicate information. The use of IoT is an important element in companies to support the effectiveness of audit process. The application of this technology must of course be accompanied by appropriate and relevant management so as to minimize risks that may arise in the audit process.

The use of the IoT system in the audit process starts from the stage of collecting evidence, document review, physical field inspections, interviews and meetings, all conducted online. The use of the IoT system in the audit process can also create new risks in the organization due to use of new methods. Therefore, auditors should use special software designed for the audit process. They must learn skills in computerized work processes involving three areas, including understanding computer concepts and system design, the ability to identify new or additional risks and knowing whether the controls implemented are effective in reducing risks.

Apart from that, there is Blockchain Technology which is an incorruptible digital economic transaction that can be programmed to record financial transactions (Tapscott, 2016). Blockchain is a technology that has been on the rise in recent years. Blockchain technology creates a new 'backbone' for the internet. Audit firms are also aware of this change. Blockchain can radically change the working methods of audit firms and the way they design and develop their businesses. (Liu et al., 2019). Moreover, not all audit firms can implement Blockchain Technology due to cost efficiency as the maintenance cost to use Blockchain Technology is quite high leading to the inability to use it.

Table 7. Coefficient of Determination Analysis

	R-square	R-square adjusted
ATU	0.124	0.106
IU	0.559	0.545
PU	0.697	0.694

Based on table 6, the R-square adjusted value on ATU, which is an exogenous variable, is 0.106, which means that the independent variable has an influence of 10.6% on the dependent variable. Meanwhile, 89.4% is explained by other variables. In addition, R-square adjusted value for IU is 54.5% and PU is 69.4%.

4.7. Path Coefficient Analysis

The results of this study show the direct effect of the independent variable on the dependent variable is shown in Figure 1, the path coefficient analysis method which is the stage of examining the structural model to test the proposed hypothesis, such as seeing how the influence of exogenous variables on endogenous variables to determine whether the direction of the hypothesis is positive or negative (Friedlob and Schleifer, 1999). If the value obtained is in the range 0 to 1 then it can be declared positive, while the value is declared negative if it is in the range -1 to 0.

Table 8. Path Coefficient Analysis

Path	Original Sample	Standard deviation	T statistic	P-values	Result
ATU -> IU	0.097	0.087	1,109	0.267	Rejected
PEOU -> ATU	-0.351	0.203	1,725	0.085	Rejected
PEOU -> IU	0.550	0.103	5,319	0.000	Accepted
PEOU -> PU	0.835	0.028	29,397	0.000	Accepted
PU -> ATU	-0.001	0.205	0.006	0.995	Rejected
PU -> IU	0.255	0.103	2,474	0.013	Accepted

Based on the test results in table 8, value obtained for ATU to IU (0.097), PEOU to IU (0.550), PEOU to PU (0.835), and PU to IU (0.255) indicates that the relationship between the above coefficients has a positive correlation. Meanwhile, the values of PEOU to ATU (-0.351) and PU to ATU (-0.001)

have a negative relationship.

The independent variable has a significant effect on the dependent variable when the p-value is below the significance value of 5% or 0.05 and above the t-statistical value of 1.98. If the p-value <0.05, then H0 is rejected, which means that the independent variable has a significant effect on the dependent variable. The hypotheses results found as follows.

Table 8 also shows results that the Attitude Toward Using (ATU) to Intention to Use (IU), Perceived Ease of Use (PEOU) to Attitude Toward Using (ATU), and Perceived Usefulness (PU) to Attitude Toward Using (ATU) does not have a significant effect which means that H1, H2, and H5 rejected because the p-value of the three coefficients have a value of more than 0.05 and less than 1.98. While, for Perceived Ease of Use (PEOU) to Intention to Use (IU), Perceived Ease of Use (PEOU) to Perceived Usefulness (PU), and Perceived Usefulness (PU) to Intention to Use (IU) have a significant effect which means that H3, H4, and H6 are accepted.

Figure 1 presented the path coefficient and coefficient determination.

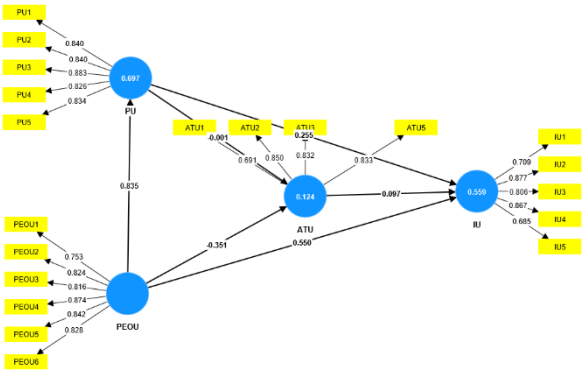

Fig.1: Research Path Coefficient

4.8. Implication of the Study

Based on previous research related to the application of the Technology Acceptance Model (TAM), the increasing size of business and complexity faced by auditors with the presence of more data of various types causes auditors to become less responsible for being involved in a larger number of transactions. Researchers also note the challenges posed by the changes which have highlighted the need for improvements in computer-based techniques to assist auditors and in internal decision making. Therefore, it becomes necessary to improve auditors' skills in handling and auditing data from new geographically dispersed repositories (Sidek et al., 1996). By applying big data analysis in accounting and auditing, improved expertise can be achieved. When auditors become skilled in using analytics, auditor performance will become more reliable, accurate, and audit quality results will be better overall (Earley, 2015).

The Technology Acceptance Model (TAM) also understands auditor behavior for example, auditors adopt a particular technology and expands the TAM to include technological features and complexity by analyzing perceived usefulness, and perceived ease of use. From the results of this research, perceived usefulness has a greater influence than acceptance of basic features in use, and perceived ease of use has a greater impact on acceptance of advanced features in use. As the complexity of the features increases, the perceived ease of use decreases as the system is used (Kim, Mannino, and Nieschwietz, 2009).

The Technology Acceptance Model (TAM) can be used to test the factors that influence auditors in adopting information technology, such as auditors finding perceived benefits and perceived ease of use which have a positive impact and have a statistically significant influence on the use of information

technology, and usability. perceived and attitudes toward use have a statistically significant influence on behavior-oriented intentions (Uyar, Alnipak, and Guner, 2015).

This section explains that if Public Accounting Firms want their auditors to use metaverse technology, then they must change their auditors' mindset that the use of technology in auditing, especially metaverse, is useful and easy to learn. For the auditors themselves, the implication is they have to be more aware with new technology in this era, which is metaverse. They can start conducting audit investigations through metaverse.

5. Conclusion and Suggestion

5.1. Conclusion

Result of this paper show that the factors that affect the use of metaverse technology by auditors in the audit process which aims to be able to find out what are the factors from the perception of usefulness, ease of use, attitudes and intentions in using metaverse audits on auditor performance. Therefore, the development of technology can facilitate auditor to do their job and save their time. The Grand Theory used in this research is Technology Acceptance Model (TAM).

The use of metaverse audit can provide real time assessment. There are some shortcomings that may be experienced by auditors in using metaverse technology in the audit process, such as the tools used in Metaverse audits are difficult to use, especially for senior auditors, auditors are not satisfied because they believe they can get the same evidence in the traditional way and the use of Metaverse technology is vulnerable and less secure for use by auditors in the audit process because of security risks, such as fraud or other technology crimes, such as data theft.

Therefore, this study will focus on the importance of the use of metaverse audit that it should be adopted by auditors despite the many challenges and this study analyzes regarding the factors that influence the adoption of metaverse auditing by such auditors. Based on the results obtained in this study, it can be concluded that:

Perceived usefulness to intention to use, perceived ease of use to intention to use, and perceived ease of use to perceived usefulness have a significant impact on auditors' adoption of metaverse audit process. The higher the auditor's assumptions that adoption of audit metaverse can provide benefits, the higher the auditor's intention to use and explore the use of the audit metaverse.

On the contrary, the auditor's attitude towards use metaverse audit has no effect on the intention to use the metaverse, as well as the auditor's perception of the ease of use of the audit metaverse to the attitude of using the audit metaverse and the perception of usefulness to the intention to use the audit metaverse.

Attitude towards the use of metaverse audit has no significant relationship with the use of audit because the behavior of auditors can be in the form of disapproval and skepticism towards metaverse audit, especially if there are auditors who reject the development of increasingly advanced audit. Moreover, the auditor's assumption about the advantages in using the audit metaverse does not significantly affect the auditor's intention to adopt the metaverse in the audit process because it can be caused by high rejection, lack of facilities, and are used to using methods they usually use that do not involve the use of virtual reality (VR).

The limitation of this research is that the research was only conducted within the scope of auditors in Indonesia with a sample size of 100 and data collection was only carried out once (cross section), namely by using a questionnaire distributed to auditors who are currently working at Public Accounting Firms in Indonesia. In addition, our research only provides result from questionnaire and based on empirical evidence, thus, there is still room for future studies that can broaden our research findings in determining factors influencing auditor's adoption on metaverse audit.

5.2. Suggestion

The suggestions that can be given by the researcher is hopefully this study can be used as a reference for further research in the use of metaverse technology in the audit process. It is expected that further researchers can also use other methods and new models about the variables that can affect the auditor's intention to adopt metaverse technology in the audit process that can support the auditor's performance and can expand the scope of the research object, such as auditor in other countries. On the other hand, this study has limitations, which are only use 107 respondents and limited only to auditors who work in public accounting firms located in Indonesia. Furthermore, some auditors have a busy schedule so that it took a long time for researchers to get a response. Therefore, future research might consider ways to overcome this issue and the research can be carried out in the form of studies on the sustainability of metaverse technology that can assist auditors in improving quality in the audit process.

References

Abd Majid, F., & Mohd Shamsudin, N. (2019). Identifying factors affecting acceptance of virtual reality in classrooms based on technology acceptance model (TAM). Asian Journal of University Education, 15(2), 1-10.

Agriyanto, R., Rohman, A., Ratmono, D., & Ghozali, I. (2016). Accrual based accounting implementation: An approach for modelling major decisions. Risk Governance & Control, 6(12), 531-539

Al-Gnbri, M. K. A. (2022). Accounting and Auditing in the Metaverse World from a Virtual Reality Perspective: A Future Research. Journal of Metaverse, 2(1), 29-41.

Alshurafat, H., Hamzah, A.., & Mohannad, O. A. S. (2022). The influence of technostress on the intention to use blockchain technology: the perspectives of Jordanian auditors. Development And Learning In Organizations: An International Journal.

Aras, M., Persada, I. N., & Nabella, S. D. (2023). The Influence of Service Quality, Trust, and Facilities on the Decision to Choose Sp Hotel Batam. International Journal of Accounting, Management, Economics and Social Sciences (IJAMESC), 1(4), 417-431.

Belk, R., Humayun, M., & Brouard, M. (2022). Money, possessions, and ownership in the Metaverse: NFTs, cryptocurrencies, Web3 and Wild Markets. Journal of Business Research, 153, 198–205.

Bowles, M., Ghosh, S., & Thomas, L. (2020). Future-proofing accounting professionals: Ensuring graduate employability and future readiness. Journal of Teaching and Learning for Graduate Employability, 11(1), 1– 21.

Buckless, F. A., Krawczyk, K., & Showalter, D. S. (2014). Using virtual worlds to simulate real-world audit procedures. Issues in Accounting Education, 29(3), 389-417.

Chau, P. Y. (1996). An empirical assessment of a modified technology acceptance model. Journal of management information systems, 13(2), 185-204.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13(3), 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace 1. Journal of applied social psychology, 22(14), 1111-1132.

Diaz, M. C., & Wolfe, C. (2007). Auditor Evaluation of Business Risks.

Dionisio, J. D. N., III, W. G. B., & Gilbert, R. (2013). 3D virtual worlds and the metaverse: Current status and future possibilities. ACM Computing Surveys (CSUR), 45(3), 1-38.

Doll, W. J., Xia, W., & Torkzadeh, G. (1994). A confirmatory factor analysis of the end-user computing satisfaction instrument. MIS quarterly, 453-461.

Duan, H., Li, J., Fan, S., Lin, Z., Wu, X., & Cai, W. (2021). Metaverse for social good: A university campus prototype. In Proceedings of the 29th ACM international conference on multimedia (pp. 153-161).

Earley, C. E. (2015). Data analytics in auditing: Opportunities and challenges. Business Horizons, 58(5), 493–500.

Etikan, I., Sulaiman, A. M., Rukayya, S. (2016). Comparison of Convenience Sampling and Purposive Sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1-4.

Ferri, L., Spanò, R., Ginesti, G., & Theodosopoulos, G. (2021). Ascertaining auditors' intentions to use blockchain technology: Evidence from the Big 4 accountancy firms in Italy. Meditari Accountancy Research, 29(5), 1063-1087.

Friedlob, G. T., and L. F. Schleifer. (1999). Fuzzy Logic: Application for Audit Risk and Uncertainty. Managerial Auditing Journal, 14(3), 127-137.

Fuller, S. H., & Markelevich, A. J. (2020). Should Accountant Care About Blockchain? Journal of Corporate Accounting & Finance, 31(2), 34–46.

Ghozali, Imam. (2008). Structural Equation Modelling. Badan Penerbit Universitas Diponegoro, Semarang, 2.

Ghozali, Imam. (2011). Structural Equation Modelling: Metode Alternatif dengan Partial Least Square. Semarang: Badan Penerbit Universitas Diponegoro.

Goertzen, M. J. (2017). Chapter 3. Introduction to Quantitative Research and Data. Applying Quantitative Methods to E-book Collections, 53(4), 12-18.

Golf-Papez, M., Heller, J., Hilken, T., Chylinski, M., de Ruyter, K., Keeling, D. I., & Mahr, D. (2022). Embracing falsity through the metaverse: The case of synthetic customer experiences. Business Horizons, 65(6), 739–749.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. Journal of Marketing theory and Practice, 19(2), 139-152

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European business review, 31(1), 2-24.

Handoko, B. L., & Marcell, D. (2022, July). The Impact of Understanding Audit Risk, Auditor's Competency, and Fuzzy Logic Analysis to Materiality Level Consideration. In 2022 13th International Conference on E-business, Management and Economics (pp. 500-506).

Hox, J. J. & Hennie, R. B. (2005). Data Collection, Primary vs. Secondary. Encyclopedia of Social Measurement, 1(1), 593-599.

Imene, F. & Imhanzenobe, J. (2020). Information technology and the accountant today: What has really changed?. Journal of Accounting and Taxation. 12(1), 48-60.

J.T. Roscoe, Fundamental research statistics for the behavioural sciences, 2nd ed. New York: Holt RineHart & Winston, 1975.

Karabiyik, U., & Aggarwal, S. (2014). Audit: Automated disk investigation toolkit. Journal of Digital Forensics, Security and Law, 9(2), 11.

Katterbauer, K., Hassan, S. Y. E. D., & Cleenewerck, L. (2022). Financial cybercrime in the Islamic Finance Metaverse. Journal of Metaverse, 2(2), 56-61.

Kazi, A. M., & Khalid, W. (2012). Questionnaire designing and validation. Journal of the Pakistan Medical Association, 62(5), 514.

Keil, M., Beranek, P. M., & Konsynski, B. R. (1995). Usefulness and ease of use: field study evidence regarding task considerations. Decision Support Systems, 13(1), 75–91.

Keni, K. (2020). How perceived usefulness and perceived ease of use affecting intent to repurchase?. Jurnal Manajemen, 24(3), 481-496.

Kim, H. J., Mannino, M., & Nieschwietz, R. J. (2009). Information technology acceptance in the internal audit profession: Impact of technology features and complexity. International Journal of Accounting Information Systems, 10(4), 214-228.

Krieger, F., Drews, P., & Velte, P. (2021). Explaining the (non-) adoption of advanced data analytics in auditing: A process theory. International Journal of Accounting Information Systems, 41, 100511.

Lasi, H., Fettke, P., Kemper, H. G., Feld, T., & Hoffmann, M. (2014). Industry 4.0. Business & information systems engineering, 6, 239-242.

Lee, B. K. (2021). The metaverse world and our future. Review of Korea Contents Association, 19(1), 13-17.

Lee, Y., Kozar, K. A., & Larsen, K. R. (2003). The technology acceptance model: Past, present, and future. Communications of the Association for information systems, 12(1), 50.

Lee, Y., Kozar, K. A., Larsen, K. R. T., Lee, Y. ;, Kozar, K. A. ;, Lee, Y., Kozar, K. A., & Larsen, K. R. T. (2003). The Technology Acceptance Model: Past, Present, and Future. Communications of the Association for Information Systems, 12, 752–780.

Liu, M., Wu, K., & Xu, J. J. (2019). How will blockchain technology impact auditing and accounting: Permissionless versus permissioned blockchain. Current Issues in auditing, 13(2), A19-A29.

Lui, H. K., & Jamieson, R. (2003). Integrating Trust and Risk Perceptions in Business-to-Consumer Electronic Commerce with the Technology Acceptance Model.

Meitasari, R. C., & Manurung, E. T. (2023, January). Perceived ease of use and usefulness of big data to audit quality. In Proceeding of the International Conference on Accounting and Finance (Vol. 1, pp. 123-128).

Morris, M. G., & Dillon, A. (1997). How user perceptions influence software use. IEEE software, 14(4), 58-65.

Mystakidis, S. (2022). Metaverse. Encyclopedia, 2(1), 486-497.

Nemoto, T., & Beglar, D. (2014). Likert-scale questionnaires. In JALT 2013 conference proceedings (pp. 1-8).

Ng, W. C., Yang Bryan Lim, W., Ng, J. S., Xiong, Z., Niyato, D., & Miao, C. (2022). Unified Resource Allocation Framework for the Edge Intelligence-Enabled Metaverse. IEEE International Conference on Communications, 2022-May, 5214–5219.

Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. Journal of applied psychology, 98(1), 194.

Sang, S. L., Lee, JD., Lee, J. (2010). E-government adoption in Cambodia: A partial least squares approach Transforming government: People, Process and Policy, (4), 138-57.

Saputro, B. F. T., & Manalu, G. O. (2019). The effect of perceived usefulness, perceived ease of use, and complexity upon the acceptance of computerized audit technique (ACAT) at the Finance and Development Supervisory Agency (FDSA) Republic of Indonesia. The Accounting Journal of Binaniaga, 4(01), 15-26.

Saraswati, I. G. A. M. A., & Aruan, D. T. H. (2021). The Antecedents of Customers' Intention to Use E-Marketplace Application in Indonesia: The Moderating Role of Gamification. In 2021 6th International Conference on Management in Emerging Markets (ICMEM) (pp. 1-8). IEEE.

Shrestha, N. (2021). Factor analysis as a tool for survey analysis. American Journal of Applied Mathematics and Statistics, 9(1), 4-11.

Sidek, Z. M., & Meng, F. J. (1996). Statistical sampling techniques for auditors. Jurnal Teknologi Maklumat, 8 (2). pp. 35-41.

Siew, E. G., Rosli, K., & Yeow, P. H. (2020). Organizational and environmental influences in the adoption of computer-assisted audit tools and techniques (CAATTs) by audit firms in Malaysia. International Journal of Accounting Information Systems, 36, 100445.

Smaili, N., & de Rancourt-Raymond, A. (2022). Metaverse: Welcome to The New Fraud Marketplace. Journal of Financial Crime.

Spanò, R., Massaro, M., Ferri, L., Dumay, J., & Schmitz, J. (2022). Blockchain in accounting, accountability and assurance: an overview. Accounting, Auditing & Accountability Journal, (ahead-of-print).

Tapscott, D., & Tapscott, A. (2016). Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World. London: Portfolio Penguin.

Upadhyay, K., Dantu, R., He, Y., Badruddoja, S., & Salau, A. (2022). Auditing Metaverse Requires Multimodal Deep Learning. In 2022 IEEE 4th International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS-ISA) (pp. 39-46). IEEE.

Uyar, M., Alnipak, S., & Guner, M. F. (2015). An evaluation on factors effecting auditors' information technologies in the accounting audit. International Journal of Academic Research in Business and Social Sciences, 5(9), 322–337.

Vasarhelyi, M., & Romero, S. (2014). Technology in audit engagements: a case study. Managerial Auditing Journal, 29(4), 350-365.

Wacker, J. G. (1998). A definition of theory: research guidelines for different theory-building research methods in operations management. Journal of operations management, 16(4), 361-385.

Widuri, R., O'Connell, B., & Yapa, P. W. (2016). Adopting generalized audit software: an Indonesian perspective. Managerial auditing journal, 31(8/9), 821-847.