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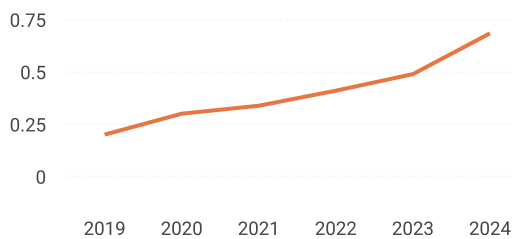
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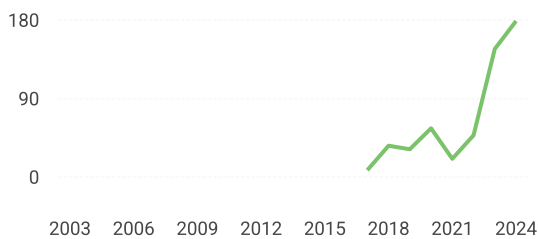
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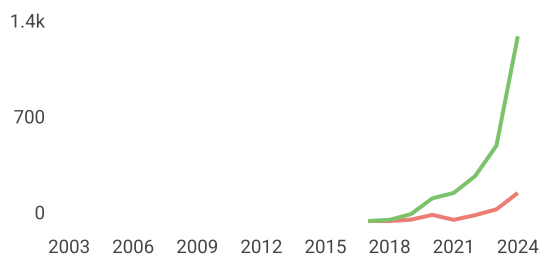
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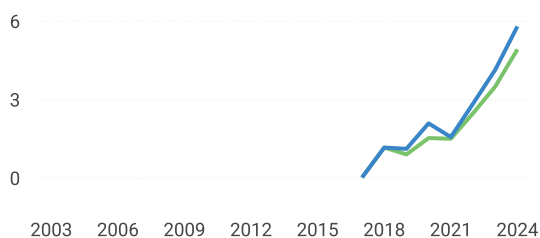
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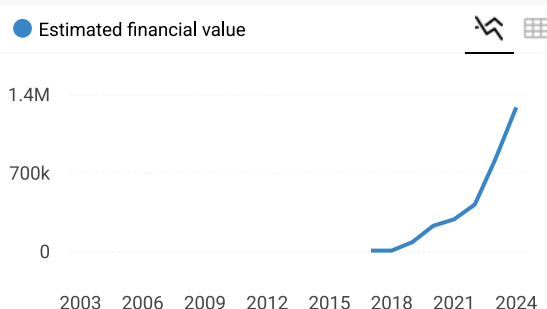
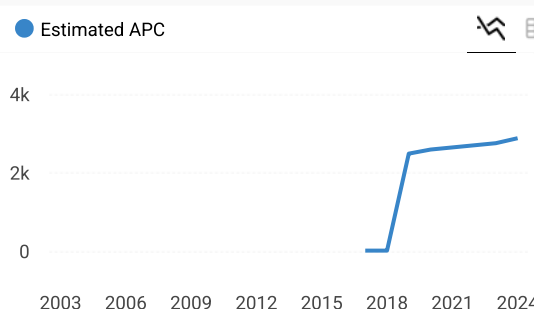
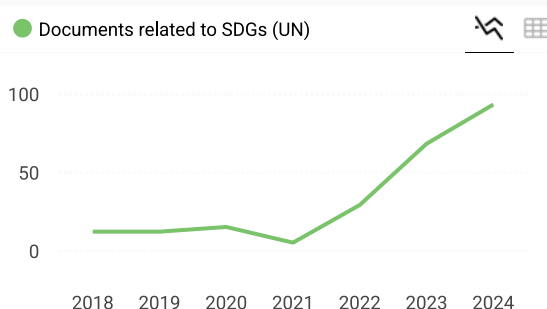
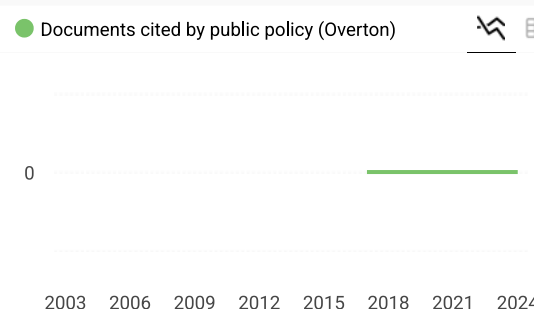
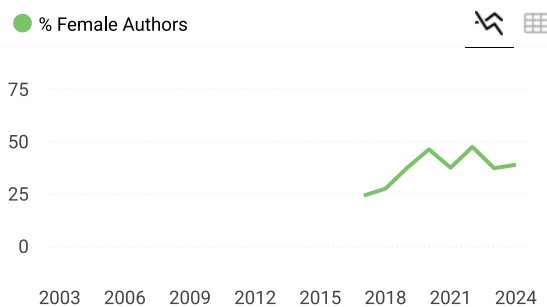
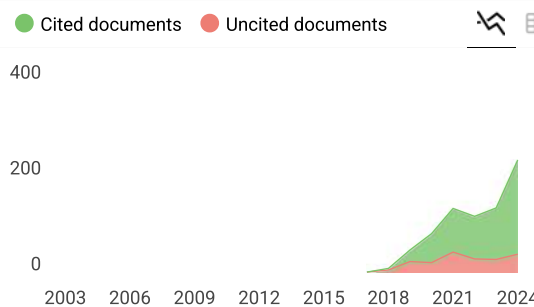
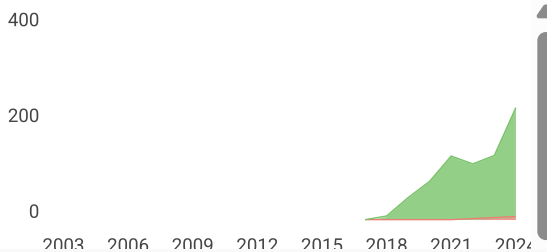
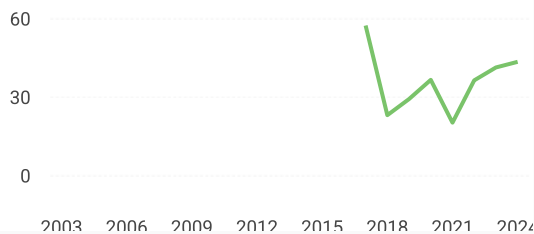
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Eyeballing internal auditors' and the firms' intention to adopt Metaverse technologies: case study in Indonesia

Intention to
adopt
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technologies

Saarce Elsy Hatane, Livia Sondak, Josua Tarigan,
Hendri Kwistianus and Sany Sany
*School of Business and Management, Petra Christian University,
Surabaya, Indonesia*

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Abstract

Purpose – This paper aims to give broad insights into what components can significantly influence the adoption of Metaverse from the perspective of internal auditors and their firms in Indonesia.

Design/methodology/approach – This research used primary data from questionnaires. Relying on the empirical view of 202 internal auditors in Indonesia, this research's framework is executed using structural equation model. Company's intention in adopting the Metaverse technology intervenes in the influence of perception of external control and usefulness on the internal auditor's intention to adopt that technology.

Findings – The perception of external control and perceived usefulness of Metaverse significantly influenced the adoption intention of Metaverse by internal auditors and their firms in Indonesia. This paper is helpful for practitioners who would like to know what factors are needed to make the internal auditors in Indonesia able to adopt Metaverse.

Research limitations/implications – Results might be varied from country to country as each country has different technology development. Therefore, upcoming research can compare similar studies in another country. This paper can contribute to further empirical development for the theory of acceptance model of the third version. Many researchers use the theory to study advanced technology adoption intention.

Practical implications – The paper is also essential for future research and could enhance companies' knowledge about staying updated in the market with the advanced technology that keeps developing.

Originality/value – This paper contributes to an integrated view of the intention of internal auditors and firms in Indonesia to adopt Metaverse. To the best of the authors' knowledge, this topic is relatively new in Indonesia.

Keywords Metaverse, Internal auditors, Adoption intention, Indonesia, TAM3

Paper type Research paper

1. Background

Metaverse was first made up by Neal Stephenson in his novel Snow Crash in 1992 (Newlevel XR, 2022). In the novel, Neal pictured Metaverse as one new world with integrated physical and virtual worlds, enabling people to meet in that virtual environment using their avatars



The authors appreciate the tremendous cooperation from the management of the Indonesian Institute of Internal Audit (IIA) and the members of IIA Indonesia who have participated in our survey. The authors also appreciate the respondents from several reputable companies and public accounting firms in Indonesia. This research is also financially supported by the Research Centre of Petra Christian University.

(Lee *et al.*, 2021). After 1992, not many people talked about Metaverse until today, as we have entered the digital age where almost all daily activities are done or assisted by advanced technology. Due to this, scientists developed many new technologies such as blockchain, cloud computing and others. Eventually, the scientists managed to create a world that used to be imaginary into a reality called the Metaverse. In short, Metaverse is an integrated technology that develops and offers humans the experiences of a three-dimensional environment where users share the same space and can communicate with one another using their avatars in that virtual space (Blau *et al.*, 2022).

Furthermore, the term Metaverse gained attention and popularity when, in October 2021, Facebook changed its name to Meta, claiming that it would enter Metaverse (Curry and Powell, 2022). Meeting virtually inside the Metaverse with meeting virtually via Google Meet and other video platforms is different. Meeting virtually inside Metaverse means people can meet and do activities together in their avatars. Due to the vast amount of investments made by giant companies recently, many companies have also been trying to enter the Metaverse.

Looking at the financial world, some accounting firms have also made their own office inside the Metaverse. As an example, Prager Metis has opened its first CPA firm inside the Decentraland, while PwC Hong Kong has also bought a building inside the Sandbox (Maurer, 2022). Furthermore, KPMG U.S. and KPMG Canada launched a Metaverse collaboration hub, requiring their employees to have Web 3.0 training to prepare for the digital world (KPMG, 2022). Web 3.0 is the future internet that integrates blockchains, cryptocurrencies and NFT technologies (Ethereum, 2023). If this collaboration goes well, KPMG will become the first big four companies that provide extensive services inside the Metaverse. These actions done by various accounting firms have proved that sooner or later, the services provided by accountants will be made available and possible via the Metaverse (INAA, 2022).

From the investments made by giant accounting firms, it can be seen that Metaverse can significantly impact them. As an elaboration, accountants, especially the internal auditors in Indonesia, should also start learning about Metaverse as Indonesia is considered a developing country with vast potential to grow its digital economies in Southeast Asia (World Bank Group, 2022). Moreover, Indonesia's President Joko Widodo is trusted by the Group of Twenty (G20) 2022 country members to lead the summit held in Bali last November 2022 to discuss how economic conditions will look in the future (Faizasyah, 2022). This notable event proves that other countries consider Indonesia as a country with a robust infrastructure and will soon join other developed countries. Thus, accounting firms should anticipate this event by preparing to embrace the Metaverse. Accountants, especially internal auditors' essential job is to inquire with clients and do stock checking on a timely routine basis. With Metaverse, this routine can be made easier and more efficient. Internal auditors can inquire with clients whenever needed with the condition that their clients have also made their business operations available inside the Metaverse.

Adopting the Metaverse will help both entities achieve efficiency and effectiveness, but it can also attract more job opportunities for accountants, especially the internal auditors inside the Metaverse. Due to its popularity and usefulness, this paper aims to study whether Indonesian internal auditors and their firms intend to adopt Metaverse at their workplace in the future. Thus, here is the research question that is going to be answered by this paper:

RQ1. Do internal auditors, and their firms in Indonesia have the intention to adopt Metaverse technology at their workplace?

The format of this paper will be organised as follows. Part 2 will explain the theoretical background, and Part 3 will explain how the hypotheses are developed. Moving on, Part 4 will analyse the research methodology, and Part 5 will show the results from the running data. Then, Part 5 will discuss the findings' implications, followed by the research's conclusion in Part 6. Lastly, the research paper will be closed with Part 7 describing the limitations of this research paper.

2. Literature review

2.1 *Theory of acceptance model third version*

The theory of technology acceptance model was first created by [Davis et al. \(1989\)](#). The theory explains why users would or would not want to try using new technology and has been used by many researchers to study the intention of users adopting new technology. This theory discusses how the user believes that perceived usefulness and ease of use are the driving factors to determine whether users would like to adopt an information system ([Johnson and Diman, 2017](#)). The old theory of technology acceptance model is then modified into TAM2 ([Marikyan and Papagiannidis, 2023](#)). The technology acceptance improvement model (TAM2) adds other variables, such as voluntariness and image, to better explain why adopting a new system is done ([Zhong et al., 2021](#)).

However, this old technology acceptance theory is not enough to measure Metaverse as it did not consider the perception of external control where Metaverse is included as a new integrated technology. Not all companies will want to invest in this technology because it is costly. Thus, to study the adoption intention of the Metaverse, the Theory of Acceptance Model Third version is used to make the results more reliable and represent the real intention of users in adopting it ([Masrizal et al., 2023](#); [Madan and Yadav, 2018](#)). In the Theory of Acceptance Model Third Version, the perception of external control is included as one crucial variable under the perceived ease of use variables, where it is believed that support from the organisation exists to enable users to adopt the technology. It will make users perceive that using the technology will be easier and ease the employees' daily jobs. The theory of acceptance model third edition is the updated version of the old theory that has also been used and trusted by many researchers. This theory considers nomological networks of individuals' IT adoption ([Stroh et al., 2023](#)). In this case, this research aims to use the new theory to observe and study the Metaverse adoption intention by internal auditors and their companies in Indonesia in a more integrated way.

2.2 *Perception of external control*

Perception of external control has been proven to directly affect determining the user's intention to adopt new technology ([Ferri et al., 2020](#)). Besides, the perception of external control is already inside the old theory of acceptance model because the perception of external control is believed to help ease the use of technology by users. This research paper believes that analysing the perception of control to analyse internal auditors' intention in adopting Metaverse is suitable. This is because Metaverse is a new integrated technology in which many programs, equipment and other supporting items are needed to work using the Metaverse ([Al Gnbri, 2022](#)). This means a user, which in this context, internal auditors, should obtain support from the firms to make working inside the Metaverse a reality ([Caminiti, 2022](#)). Hence, analysing the perceived ease of use, particularly the perception of external control variables, will give a broader view of the individual's adoption intention ([Zhao et al., 2022](#)). The perception of external control could be analysed with the Technology of Acceptance Model third version ([Montargot and Ben Lahouel, 2018](#)). Furthermore, it can

be concluded that the more support received by external parties, the more intention accountants will have to adopt the Metaverse.

2.3 Perceived usefulness

Perceived usefulness is defined as the individual perceiving that using the technology will help improve their quality of job results, which also, in some past studies it is well-known as job relevance (Stroh *et al.*, 2023; Abu Afifa *et al.*, 2023). This study is confident that measuring the adoption intention from the perceived usefulness side is appropriate, as the primary purpose of adopting new technology is to be useful and help users carry out their job. If the new technology is not helpful, there are no reasons for users to adopt the technology (Mamonov and Benbunan-Fich, 2020; Jaiswal *et al.*, 2021; Nguyen *et al.*, 2021; Handayani *et al.*, 2021). In this research paper, perceived usefulness will examine the practical side of job relevance and output quality. The job relevance here means the Metaverse can add value to the internal auditor's job. Subsequently, the output quality here is to analyse how the Metaverse can be helpful and produce good output quality to users.

3. Hypotheses development and research framework

Adopting new technologies requires energy and effort; the most important is the resources. Based on TAM3, the perception of external control is one of the determinants of perceived ease of use (Ferri *et al.*, 2020). If the perception of external control is believed to be one of the factors that could help users to have an ease of use for a new system, the adoption intention by users will get high. Similar studies have also proven that the perception of external control positively affects the adoption intention level (Darmansyah *et al.*, 2020; Zhao *et al.*, 2022). Therefore, it leads to the following hypothesis:

- H1. The perception of external control has a positive effect on the internal auditor's intention to adopt Metaverse.
- H2. The perception of external control has a positive effect on the firm's intention to adopt Metaverse.

Like in the business world, customers are willing to pay a high price if they know the excellent service quality and delivery (Abutaleb *et al.*, 2021). This means that output quality strongly correlates with the perceived usefulness of a thing. Output quality defines how well a system can offer to the user in finishing their tasks (Abu Afifa *et al.*, 2023; Venkatesh *et al.*, 2012). Besides output quality, job relevance is another factor contributing to perceived usefulness.

Abu Afifa *et al.* (2023) and Stroh *et al.* (2023) define job relevance as the degree to which a user perceives that the new technology to be adopted is suitable for their job. It is believed that the more the technology could be helpful to the user, the higher the user would adopt the technology. If the user deems that the new system is not useful and relevant for their job, then they will not adopt it. On the other hand, a company will likely have a strong intention to adopt the new technology whenever it could improve business efficiency, performance and productivity. From this argument, it leads to the development of these hypotheses:

- H3. Perceived usefulness has a positive effect on the internal auditor's intention to adopt Metaverse.
- H4. Perceived usefulness has a positive effect on the firm's intention to adopt Metaverse.

If a new information system or technology is deemed useful, the user will trust it by providing the resources and support needed to adopt the new system. The more useful the system is, the firm's intention to support the decision and, eventually, the intention to adopt the system will increase. Before the resources and support are decided to be given, the system's usefulness should be considered first. The system's useful level will determine the user's support and adoption intention (Marquez *et al.*, 2020). Then, suppose the firms in which the internal auditor works decide to adopt the technology, the internal auditor's intention to adopt will be influenced simultaneously. In that case, company resources and support will be available to make the adoption happen:

- H5. Perceived usefulness strengthens the influence of perception of external control on firms' intention to adopt.
- H6. Perceived usefulness strengthens the influence of perception of external control on internal auditor's intention to adopt.
- H7. Company's intention to adopt strengthens the influence of perception of external control with internal auditor's intention to adopt.

4. Methodology and data

The main objective of this study is to analyse the factors that influence the internal auditor's intention to apply metaverse technology. Company intention is the mediating variable that connects the functions of perceived usefulness and external control in enhancing the intention of internal auditors in applying Metaverse technology. Up until now, there are no studies that analyse how deep the internal auditors in Indonesia's intention to adopt Metaverse as Metaverse is considered to be a new topic. This research uses a quantitative case study approach. This study modified a set of questionnaires from Ferri *et al.* (2020). The type of data is cross-section data in which the researcher aims to study many individuals in one period. The survey distribution began in October 2022 and was completed within a month in November 2022. Besides distributing the questionnaire to internal auditors in many companies in Jakarta and Surabaya, this study also used the chance to get respondents at Indonesia's Institute of Internal Auditor (IIA) Conference 2022 in Bali. The Likert scale is used for the questionnaires to measure the responses. On a Likert scale, respondents can choose 1–5 as the responses for each question. The range starts from 1 to 5 with 1: Very disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Very Agree.

The questionnaires were sent to about 500 internal auditors and responded to by 370 respondents. In the end, the ones that meet the criteria are 202 internal auditors with a criterion of having at least three years' experience. This sample size is deemed appropriate and adequate as the previous study about accountants' adoption intention who also used the PLS-SEM method has a similar sample size ($n = 279$) (Ferri *et al.*, 2020). Furthermore, based on the previous study by Hair *et al.* (2017b), a G*Power analysis is used to decide the sample size. With an effect of 0.1 and 3 predictors, the software suggested using 132 sample sizes.

This research paper used WarpPLS 7.0 software to run the data. The PLS-SEM technique is the most suitable methodology because this research paper's sample size is small. The structural equal model (SEM) is also the right methodology to study the relationship between latent variables and structural relationships (Md Husin *et al.*, 2022; Rasoolimanesh *et al.*, 2021). Furthermore, this methodology can be adopted to assess the intricate cause-effect connection models using latent variables as the most prominent research technique. Before the data were assessed, the model was inspected for its reliability

and validity. The model is examined by constructing the model goodness of fit measure shown in the [Appendix](#). If they were deemed appropriate, then the data were run accordingly.

5. Analysis and discussion

5.1 Data analysis

[Table 1](#) shows the profile of the respondents, which indicates that most of the respondents are male, mature in their age and have three to fifteen years of working experience as internal auditors.

[Table 2](#) reveals that each variable produced the highest loading factor with the measured construct it is associated with, compared to its association with other constructs. [Table 3](#)

Characteristics	Category	Frequency	%
Age	<26	30	14.9
	26–<35	30	14.9
	35–<45	65	32.1
	45–<= 55	66	32.7
	>55	11	5.4
Gender	Female	68	33.7
	Male	134	66.3
Tenure	3–5 years	73	36.1
	5–15 years	95	47.1
	15–25 years	34	16.8
Companies	Government state companies	92	45.5
	Private companies	101	50
	Accounting or Consultant firms	9	4.5

Table 1.
Respondent’s profile **Source:** Data collection compiled by authors

Variables	Indicators	Min	Max	Mean	Loading and cross-loading			
					PEC	PU	CI	IAI
Perception of external control	PEC1	1	5	3.480	0.811	–0.190	–0.007	0.231
	PEC2	1	5	3.366	0.844	–0.258	0.150	0.207
	PEC3	1	5	3.639	0.769	0.548	–0.338	–0.195
	PEC4	1	5	3.361	0.666	–0.074	0.209	–0.317
Perceived usefulness	PU1	1	5	3.678	0.317	0.755	–0.152	–0.185
	PU2	1	5	3.450	0.326	0.796	0.028	–0.264
	PU3	1	5	3.664	0.109	0.856	0.063	–0.073
	PU4	1	5	3.545	–0.139	0.837	–0.008	0.043
	PU5	1	5	3.446	–0.175	0.873	0.085	0.110
	PU6	1	5	3.480	–0.198	0.883	0.044	0.067
	PU7	1	5	3.574	–0.147	0.862	0.035	0.090
	PU8	1	5	3.535	–0.025	0.833	–0.118	0.172
Company’s intention	CI1	1	5	3.173	–0.008	–0.170	0.873	0.169
	CI2	1	5	2.876	0.008	0.170	0.873	–0.169
Internal auditor’s intention	IAI1	1	5	3.361	0.105	0.007	0.270	0.903
	IAI2	1	5	3.332	–0.105	–0.007	–0.270	0.903

Table 2.
Statistical
descriptive, loading
and cross-loading **Source:** Output of statistical tests compiled by authors

depicts the correlations among latent variables with square roots of average variance extracted. The model has an overall composite reliability higher than 0.7, Cronbach's alpha higher than 0.6 and average variances extracted value higher than 0.5. It concludes that the model can be relied on.

Table 4 and Figure 1 explain the direct and indirect effects of the variables. Then, the adjusted *Q*-squared coefficients found from the model are $1 - ((1 - 0.439) * (1 - 0.446) * (1 - 0.753)) = 92\%$. The score of 92% indicates that the combined influence, direct and indirect, of PEC and PU on CI and IAI is 92%. The *p*-value used for this research is below 0.001, which indicates that the research can be reliable.

H1 and *H2* demonstrated a significant effect towards the adoption intention to use. This result is supported by Darmansyah *et al.* (2020), who argued that the acceptance model in which perception of external control is part of it has a significant impact on the adoption intention of Islamic FinTech in Indonesia. It becomes the most critical factor in determining the intention of adoption. *H3* and *H4* are accepted as the result is consistent with previous studies about adopting blockchain technology (Ferri *et al.*, 2020). However, this is in contrast to Abu Afifa *et al.* (2023), who found that job relevance undermines the intention of accountants to use blockchain technology. *H5*, *H6* and *H7* are accepted as the findings are supported by previous studies that mentioned that perceived ease of use with perceived usefulness significantly affects the adoption intention to use the technology (Marquez *et al.*, 2020; Mamonov and Benbunan-Fich, 2020; Jaiswal *et al.*, 2021; Nguyen *et al.*, 2021; Handayani *et al.*, 2021).

Variables	Correlation among latent variables with square roots of AVEs				Composite reliability	Cronbach's alpha	AVE	VIF
	PEC	PU	CI	IAI				
PEC	0.775	0.662	0.567	0.688	0.857	0.776	0.601	2.040
PU	0.662	0.838	0.640	0.826	0.950	0.939	0.702	3.363
CI	0.567	0.640	0.873	0.706	0.865	0.688	0.762	2.069
IAI	0.688	0.826	0.706	0.903	0.898	0.774	0.816	4.061

Source: Output of statistical tests compiled by authors

Table 3.
Reliability tests

Path	Direct effect	Indirect effect	Total effect
PEC→PU	0.665***		
PEC→CI	0.253***		
PU→CI	0.477***		
PEC→IAI	0.199***		
PU→IAI	0.536***		
CI→IAI	0.246***		
PU→CI→IAI		0.117***	0.653***
PEC→PU→CI		0.317***	0.570***
PEC→PU→IAI		0.434***	0.697***
PEC→PU→CI→IAI		0.078**	0.695***

Notes: **Sig at 5%; ***sig at 1%

Source: Output of statistical tests compiled by authors

Table 4.
Inner model result

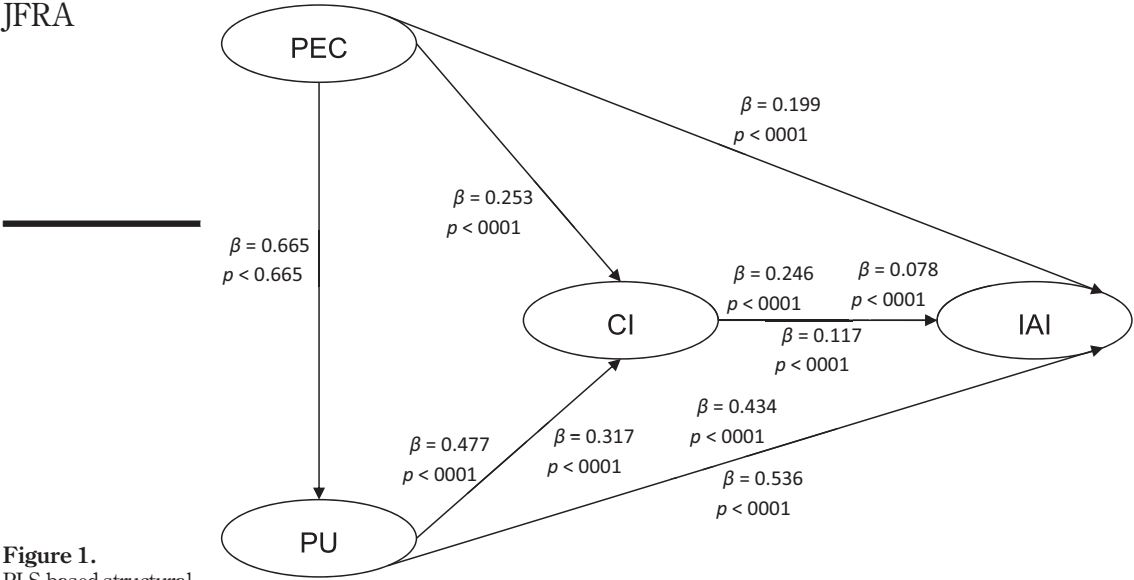


Figure 1.
PLS-based structural
equation model

Source: Output of statistical tests compiled by authors

5.2 Discussion

The currency exchange for Metaverse is called the NFT (non-fungible tokens) (The Wall Street Journal Dow Jones and Company, 2022). NFT is frequently associated with cryptocurrency. Until now, no regulations have regulated the usage and sales of NFT. There was a case when back then, in January 2022, a university student, Sultan Gustaf Al Ghozali, 22, from Semarang, Indonesia, sold his selfie photos as a NFT in the Opensea (Baker, 2022). It led him to a fortune in which he earned US\$1m due to people buying his self-portraits. The initial reason accountants exist in the first place is to protect goods sold by recording their transactions and disclosing them accordingly. If more and more transactions such as the Ghozali case occur in the near future, accountants will indeed be needed to record and disclose these kinds of transactions. If Indonesian accountants never knew about Metaverse, then Indonesian businessmen would see this as a gap for buying vast amounts of NFTs inside the virtual world to embezzle their funds in the real world. If this is the case, the financial crime rate will rise (Al Shamsi et al., 2023; Schneider, 2022).

Moreover, the internal auditor division is famous for having a complicated process in the accounting profession (Ebrahimi et al., 2022). It is not easy because internal auditors are usually required to meet clients all the time to make inquiries. The primary responsibilities of internal auditors are to help the boards manage the risks inside the company by giving assurance and feedback on how to enhance internal control, financial performance and others (Khelil and Khelif, 2021). The internal auditor's tasks are considered complex since, to carry out their daily responsibilities, accountants should often go to the client's firm to interview related key people or do a stock count for the recording process. All of these processes can be made simpler and easier with the existence of Metaverse (Al Gnbri, 2022). Using Metaverse, internal auditors can virtually meet their clients and do activities together,

just like how they do physically right now. The condition can happen if both companies (the accounting firms and the clients) have the resources to operate inside the Metaverse (Martin, 2023). If this is the case, internal auditors will not need to put effort into travelling to the client's premises to do business. It does not close the possibility that Indonesian companies will implement this kind of working environment, especially as lousy traffic jams are one of Jakarta's main issues. The existence of Metaverse might solve this problem and help Indonesian companies achieve their ESG activities to reduce carbon footprints, which has also been the attention of society.

To elaborate, one Indonesian company that has started giving services in the Metaverse is Telkom Indonesia (Pratama, 2022). The metaverse world for Telkom Indonesia is called metaNesia. Even so, Metaverse is a new technology that many might need to be made aware of due to its existence that originated in Western countries (Marr, 2021). With the supporting evidence above, many accounting firms in Western countries can be seen to have a high interest and have started adopting the Metaverse as well (Friedman *et al.*, 2022; Shaw, 2022). One of the respondents that filled out the questionnaire is an internal auditor working for KPMG Siddharta Advisory Indonesia, one of the Big 4 companies in the accounting field. From his response, he agreed that his company has the resources to make Metaverse a reality at his workplace, but he has a neutral response about whether Metaverse will ease his job. This response might be because he is unfamiliar with the Metaverse world. Nevertheless, he agreed that Metaverse would bring him more job opportunities in the future and that Metaverse would increase his efficiency in doing his job. The respondent expressed that he would stay positive if Metaverse were implemented by his organisation. He would give extra effort to study and operate Metaverse if he ever found it challenging.

Based on the statistical analysis, the highest loading factor in the Perception of External Control (PEC) is the resources supported by the company (PEC2), which has a value of 0.844. This result indicates that PEC2 best represents the correlation between the perception of external control and Metaverse's adoption intention. However, looking at the mean value in the perception of external variables, the highest mean falls to internal auditors' perception that if the company supports Metaverse, they can adopt the Metaverse (PEC3) at a mean value of 3.639. In similar studies, the perception of external control proved to influence the adoption intention of technologies, such as blockchain, mixed reality, and digital twin adoption which are considered integrated technology, just like the Metaverse (Ferri *et al.*, 2020; Sepasgozar *et al.*, 2021). It implies that the company's resources are the most influential factors for the adoption intention of Metaverse. Indonesian internal auditors are confident that Metaverse technology will ease their job only if the company has adequate resources and knowledge to adopt Metaverse technology at the workplace.

Moving on to the following variable, perceived usefulness, the highest loading factor is in PU6, where adopting the technology will increase the job efficiency of accountants is the indicator variable that best explains the correlation between perceived usefulness and the adoption intention of Metaverse technology. Nonetheless, the highest mean value for perceived usefulness is in the PU1. The results point out that respondents believed adopting the Metaverse technology would give them more opportunities to reach a huge scope of work in the future than in the present rather than increasing job efficiency. The statistical results showed that perceived usefulness impacts the accountant's and company's intention to adopt the Metaverse. These findings are supported by Handayani *et al.* (2021), stating that perceived ease of use and usefulness significantly influence SMEs' adoption of a cloud-based accounting information system in Bandung, Indonesia. Perceived usefulness and ease of use became the two highest contributors to adopting new technologies (Pipitwanichakarn and Wongtada, 2021; Yaseen and El Qirem, 2018; Stocchi *et al.*, 2019; Pham and Vu, 2021).

6. Conclusion and policy implication

Based on the statistical results, the perception of external control is relatively low because the internal auditors felt less support from the company. The perception of internal auditors on the usefulness of adopting Metaverse is also relatively low. It is because the internal auditors do not feel that the Metaverse is helpful in making their job more efficient. They only perceived Metaverse as a medium to find more job opportunities. In the end, Indonesian internal auditors' intention level to adopt Metaverse is relatively low.

The contribution of this research to the TAM3 theory provides empirical evidence that supports from management is a determining factor for internal auditors in Indonesia to adapt to Metaverse technology. The results of this study suggest that policymakers in companies can consider starting to equip their office equipment with Metaverse technology while providing training to their organizational members on the development of this technology. Likewise, professional institutions such as the accounting profession, the public accounting profession and the internal audit profession can begin to prepare accountants and auditors for this metaverse technology. These supports can increase the internal auditors' perceived usefulness of the metaverse technology that can support their work.

In light of studying the adoption intention of Indonesian internal auditors and firms towards Metaverse, Metaverse can be more well-known in the internal auditor's circles so that accounting firms in Indonesia can start adopting it. If this happens, more and more accounting firms in Indonesia who see this will also start to join the trend, and the jobs of internal auditors can be made easier using Metaverse, the future virtual world. By then, accounting firms in Indonesia might also gain new opportunities, such as getting more foreign clients inside the Metaverse and increasing their company's profitability.

There is already much proof of how Metaverse's existence can make working operations easier. However, until now, it has been analysed that only a few companies have implemented Metaverse in Indonesia. Furthermore, from the statistical results, it is clear that there is a high correlation between the adoption intention by internal auditors with the technology's ease of use and usefulness. It is because the technology is deemed to be useful. This intention should be supported by help from the company's firms so that adopting Metaverse can be made a reality as soon as possible in Indonesia.

Even though the goodness of fit measure reached 92%, internal auditors' perception of external control and perceived ease of use in Indonesia is relatively low from the mean in [Table 3](#) for each indicator. Due to these facts, the internal auditor's intention to adopt Metaverse in Indonesia is not high. The output is like that because the development of the auditor profession and the urgency of using Metaverse in different countries depends on the business dynamics in that particular country. Thus, future studies can be developed by comparing the internal auditor's perception of an emerging country to a developed country with integrated technologies. Furthermore, Metaverse is considered a new topic in Indonesia. Consequently, this study focuses on the perception of external control and perceived usefulness as exogenous variables in explaining the adoption intention of Metaverse technologies. Future studies can expand this framework by analysing internal auditors' social influence and behavioural use in adopting Metaverse technologies.

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Appendix 1. Model goodness of fit measure

- Average path coefficient (APC) = 0.396, $p < 0.001$
 - Average R -squared (ARS) = 0.550, $p < 0.001$
 - Average adjusted R -squared (AARS) = 0.546, $p < 0.001$
 - Average block VIF (AVIF) = 1.919, acceptable if ≤ 5 , ideally ≤ 3.3
 - Average full collinearity VIF (AFVIF)=2.883, acceptable if ≤ 5 , ideally ≤ 3.3
 - Tenenhaus GoF (GoF) = 0.629, small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36
 - Sympton's paradox ratio (SPR) = 1.000, acceptable if ≥ 0.7 , ideally = 1
 - R -squared contribution ratio (RSCR) = 1.000, acceptable if ≥ 0.9 , ideally = 1
 - Statistical suppression ratio (SSR) = 1.000, acceptable if ≥ 0.7
 - Nonlinear bivariate causality direction ratio (NLBCDR) = 1.000, acceptable if ≥ 0.7
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Appendix 2

Intention to adopt Metaverse technologies

Construct: Perception of external control	Item
PEC1	I am sure my company can adopt the Metaverse technology
PEC2	My company has the resources needed to adopt the Metaverse technology
PEC3	If my company has adequate resources and knowledge to adopt Metaverse technology, then I am sure that the Metaverse technology will help to ease my job
PEC4	I have Information Communication Technology, so I will be able to use the Metaverse technology
Construct: Perceived usefulness	Item
PU1	Metaverse technology will enable me to have a huge scope of work than in the present
PU2	In carrying out work activities, the adoption of Metaverse technology is considered relevant
PU3	Metaverse technology is relevant for my job in the future
PU4	I hope the output quality that I got will be enhanced if I adopted the Metaverse technology
PU5	Adopting Metaverse will increase my job effectiveness
PU6	Adopting Metaverse will increase my job efficiency
PU7	I hope the output quality from adopting the Metaverse technology will be outstanding
PU8	In my opinion, the results of adopting Metaverse technology will be useful to all parties related
Construct: Company's intention	Item
CI1	My company has the intention to start adopting Metaverse technology for auditing activities
CI2	My company has a plan to buy lands inside the Metaverse and start giving services from there
Construct: Internal audit intention	Item
IAI1	I am positive in adopting/ using the Metaverse technology to carry out my job
IAI2	Whatever challenges that I will face, I will stay positive in adopting the Metaverse technology for my occupation

Source: Items of perception of external control, Perceived usefulness and Company intention are modified from [Ferri et al. \(2020\)](#). Items of internal audit intention are developed by authors

Table A1.
List of questionnaire

About the authors

Saarce Elsy Hatane is an Associate Professor in Accounting Department. She is majoring in Managerial Accounting. Her research areas are intellectual capital, corporate governance and accounting behaviour. Saarce Elsy Hatane is the corresponding author and can be contacted at: elsyehat@petra.ac.id

Livia Sondak is a graduate of International Business Accounting. She has working experience as an Internal Auditor at KPMG for several months. Later, she joined PwC Indonesia as an external auditor, particularly in auditing in Financial Services.

Josua Tarigan is a doctor in Organizational Development and an Associate Professor in the Accounting Department of Petra Christian University. He is majoring in Managerial Accounting. His research areas are intellectual capital, corporate governance and accounting behaviour.

Hendri Kwistianus is Head of the Business Accounting Program at Petra Christian University. He is focusing on financial accounting, accounting information systems and the internal audit fields.

Sany is a doctor in Accounting Science and a graduate of Warwick University. She is an Assistant Professor in Petra Christian University's Accounting Department, focusing on social capital.