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INNOVATION DIFUSSION MODEL IN AUDITORS' ACCEPTANCE OF METAVERSE TECHNOLOGY

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ABSTRACT

Technological developments in the current industry 4.0 era have provided many rapid changes, including the metaverse technology that uses virtual reality. This technology metaverse has also penetrated the world of auditing. Many digital assets, including virtual assets in the metaverse, must also be audited. it requires auditors to master metaverse technology. This is what made us compile research on the factors that influence auditors' intention in accepting the metaverse technology from the point of view of innovation diffusion theory. The contribution of research in the IT field is to provide an overview of the use of information technology, especially in the metaverse field that is applied in the auditing field. Our research is a quantitative study, we use primary data obtained from distributing e-questionnaires to auditors who work in public accounting firms. We performed data analysis using the structural equation modeling partial least square method. The results of our study state that trialability, observability and user compatibility have a significant effect on auditors' intention to accept metaverse technology, while the other two variables, namely complexity and relative advantage, have no significant effect.

Keywords: *Metaverse, Technology, Auditor, Innovation, Diffusion, Theory.*

1 INTRODUCTION

1.1 Research Background

The existence of Metaverse in the midst of society and its rapid development and related supporting technologies can certainly generate various benefits. In fact, currently Metaverse technology is increasingly commonly used for various activities, both individuals and businesses. Metaverse as a technology that is quite flexible so that it can be flexibly applied to various fields is certainly one of its advantages. One of the popular uses of Metaverse is its use in the auditing process in the accounting field [1].

The audit process is one area that is very commonly carried out by auditors in the financial sector, especially in the world of accounting. Audit itself is a series of processes of examining financial statements to the operational financial records of a company. The purpose of this auditing process is to ensure that the company's financial statement complies with applicable laws and regulations. Thus, this audit activity plays a crucial role in maintaining the transparency and accountability of a company's business operations [2].

Audits can also be useful for companies to identify areas that can be developed within the company. Like many other areas of human life, technological developments also have positive impacts on the audit process activities carried out by this auditor [3].

Rapid technological developments, especially those that can be found in blockchain technology, in fact, provide benefits for the audit process in today's digital era. Thanks to the blockchain technology, the audit process in modern times can run more efficiently and have much better security [4].

One of the technologies belonging to the blockchain technology group referred to above is Metaverse technology. As one of the technologies that use the blockchain platform, Metaverse is able to create decentralized processes. Metaverse is also

able to provide a more secure environment for this audit process.

As a public blockchain technology platform, Metaverse can create decentralized applications and smart contracts. Thus, Metaverse is able to provide high security guarantees as well as a more transparent environment, especially for data storage and management needs [5].

In Metaverse, of course, auditors can have an ideal platform to carry out audit process activities. Even though the audit process can run more simply and efficiently, auditors still have to follow some basic steps in carrying out the audit process. After the benefits are quite a lot, but the current conditions are not many auditors who utilize this metaverse technology in their work. This makes us interested in conducting research on the factors that influence auditors' willingness to use metaverse technology. These factors are derived from the innovation diffusion theory by [6], which is consist of: trialability, observability, user compatibility, complexity and relative advantage. Our research will provide empirical evidence regarding the use of information technology, especially in the field of metaverse among financial auditors

1.2 Problem Statement

Problem statement in this paper is as follow:

1. Does trialability has significance effect on auditors' intention to accept metaverse technology?
2. Does observability has significance effect on auditors' intention to accept metaverse technology?
3. Does user compatibility has significance effect on auditors' intention to accept metaverse technology?
4. Does complexity has significance effect on auditors' intention to accept metaverse technology?
5. Does relative advantage has significance effect on auditors' intention to accept metaverse technology?

2 LITERATURE REVIEW

2.1 Metaverse

The term metaverse is now a hot topic that is busy being discussed by the public. Countless times I have received webinar invitations to attend discussions regarding the development of the metaverse in Indonesia. However, none of the webinars, both in the academic and professional spheres, discussed the influence or impact of the metaverse on the destiny of certain professions, including audit.

This paper will try to dig deeper into how the metaverse, which is predicted as a form of technological progress in this century, has an impact on the world of accounting. Metaverse is a digital platform that allows its users to interact virtually, using an "avatar" surrogate role. The term metaverse is increasingly being discussed, especially when Mark Zuckerberg changed Facebook's name to "Meta" on October 28, 2021. In fact, exactly one day after the name change, Facebook's stock price rose 1.51 percent.

Looking back, the term metaverse first appeared in Neal Stephenson's novel Snow Crash in [7]. The term appears on page 25, in the character Hiro, a hacker. On the back of the business card, in addition to including the name and zip code, Hiro also includes the metaverse as the address. Even though the world of the metaverse is closely related to the use of technology, for us accountants, the use of technology in the world of accounting is nothing new. Because apart from being defined from an "art" or "science" approach, accounting can also be explained from a technological perspective. Therefore, we accountants are not surprised by today's increasingly massive technological developments, which eventually gave birth to the metaverse.

On December 28, 2021, Pragers Metis International LLC, a company based in New York, United States of America, became the first public accounting firm in the world to get involved in this metaverse world [8]. This company bought property through the decentraland platform with a value of 35,000 US dollars. Pragers Metis International LLC is considered a pioneer in the accounting world for its courage in running operations in the metaverse world. Even more, this company bought a three-story virtual building through Sandbox.

What Pragers Metis International LLC has done has encouraged its competitor, PricewaterhouseCoopers (PwC), through PwC Hong Kong, as one of the best public accounting firms in the world, to also buy virtual land through Sandbox [9]. This is done in order to form a business model that is adaptive to technological developments, as well as the company's efforts to attract clients using a different approach.

The company's second step will enable accountants or their auditors to communicate with clients or colleagues from anywhere more interactively. What the two companies are doing can be understood as a business strategy to attract potential customers (clients) who were previously

untouchable by using a traditional business approach [10].

2.2 Innovation Diffusion Theory

Innovation diffusion theory is originated from [6]. [11]describes the diffusion of innovation as a process of reducing uncertainty. Uncertainty is a major hurdle for individuals or systems society to adopt the innovation. Rogers offers the characteristics of innovation, an attribute of innovation that can help reduce innovation uncertainty and will determine the speed of a person to adopt an innovation.

According to [6], individual perceptions of the characteristics of innovation can predict the rate of adoption or the rate of acceptance of a product innovation. Rate of adoption is the relative speed of an innovation being adopted by members of the social system. Furthermore, the number of individuals who adopt innovation at any given time can be measured as the rate of adoption rate innovation. These five characteristics, according to [6], are in the decision process innovation is in the persuasion stage or the persuasion stage which has an important role in making innovation decisions

2.2 Auditors' Intention to Accept Metaverse Technology

At least in the next 5-10 years there will be more companies involved in the metaverse, these things need to be a concern for auditor. The most basic thing about this is related to how accounting sees virtual assets as tangible or intangible assets that can be recognized in the company's balance sheet. Even though accounting has a variety of ways that can be used to overcome these problems, it does not mean that it is easy for auditor to do, and it must be admitted, not all auditor have good and proper understanding of it [5]. This is what makes it important for the auditor's intention to accept the technological metaverse, in addition to using the Metaverse to carry out the auditing process is proven to provide various benefits for the auditor. Because, with Metaverse, the auditing process can run more simply which of course makes it easier for auditors to do it and minimizes human error [12].

2.3 Effect of Trialability on Auditors' intention to Accept Metaverse Technology

Trialability is what level an innovation can be tried first or must be bound to use it. An innovation that can be tested on the real situation first will generally be adopted more quickly [13]. Auditor will try using metaverse technology services new to know whether required services can be met and how to use it should be easy to learn. Metaverse can be trial, auditor is able to login to metaverse world as a guest, which is no need to have metaverse account or Metamask (Crypto wallet) and explore the metaverse world. Through this trial auditor will learn how metaverse technology is able to satisfy their needs and affect their intention to accept metaverse technology. We also found similar statement in [14]. Based on this perspective, we formed our hypothesis as follows:

H1: Trialability has significance effect on auditors' intention to accept metaverse technology

2.4 Effect of Observability on Auditors' intention to Accept Metaverse Technology

Observability is the level of how the results of using an innovation can be observe by others. The easier someone observes the results of an innovation, the greater the possibility of innovation adopted by a person or group of people [14]. Auditors can observe that metaverse technology provides benefits for auditors in work, so can encourage other auditors to using metaverse technology. This result also supported by previous study in [15]. Referring to this understanding we make the following hypothesis:

H2: Observability has significance effect on auditors' intention to accept metaverse technology

2.5 Effect of User Compatibility on Auditors' intention to Accept Metaverse Technology

Compatibility is the level of compatible of an innovation, whether it is considered consistent or in accordance with existing values, experiences and needs [13]. Compatibility is very influential in auditor decision making to use an innovation. Metaverse technology that are in accordance with material and vital values that are useful for the auditor's minds can be utilized to meet their daily needs. If metaverse technology are easier to use and more enjoyable than previous conventional audit systems, then the auditor will be quicker to use metaverse technology [10]. This shows that the presence of metaverse technology can be said to be in accordance with the needs of the auditor community in terms of works and do not conflict with prevailing values and social norms [16]. Based on this assumption, we form our hypothesis as follow:

H3: User compatibility has significance effect on auditors' intention to accept metaverse technology

2.5 Effect of Complexity on Auditors' intention to Accept Metaverse Technology

Complexity is the level of complex of an innovation to be adopted, how difficult it is to understand and use the innovation. The easier an innovation is understood by adopters, the faster the innovation will be adopted. In order to adopt metaverse technology, auditor will see the ease of technology offered based on experience [17]. If the metaverse technology offered is easy to understand and helps in helping daily activities, then auditor will use metaverse technology, and vice versa if metaverse technology offered actually makes it difficult for auditors to carry out activities, the auditors will not be interested in using metaverse technology. This also supported by previous studies in [18]. Based on above explanation, we formulate our hypothesis:

H4: Complexity has significance effect on auditors' intention to accept metaverse technology

2.5 Effect of Relative Advantage on Auditors' intention to Accept Metaverse Technology

Relative advantage is the degree of superiority of an innovation, whether it is better than previous innovations or from things that are usually done [13]. The advantages of an innovation are added value for metaverse technology users in using the innovation. With an advantage in metaverse technology innovation, auditor will be very quick to adopt or use the technology because the level of metaverse technology is perceived to be better than previous innovation ideas [5]. The influence of the relative advantage on the interest in using metaverse technology considers that metaverse offer many advantages, including being more effective, efficient and precise in auditors' work [19]. Previous study in [20] also found that relative advantage affects intention to accept technology innovation. Based on those explanation, we form our hypothesis as follows:

H5: Relative advantage has significance effect on auditors' intention to accept metaverse technology.

3 RESEARCH METHODOLOGY

This research is explanatory research using a quantitative approach which aims to explain whether or not there is a causal relationship between the variables studied through a proposed hypothesis test [21]. This research was conducted to analyse how trialability, compatibility, complexity, observability and relative advantage affect auditor intention to accept metaverse technology. This research is important when there are known facts but not much information explaining the problem or research in the past [21].

The research is conducted in Greater Jakarta Area of Indonesia. The population in this study were auditor who work in public accountant office and the sample used in this study was 100 auditors. We consider approach by [22] for unknown population, who said that proper number of samples will be between 30-500 samples. This study uses a convenience sampling technique where respondents are willing to be used as a sample. The research was conducted by distributing research instruments in the form of online questionnaires to auditors in public accountant firm.

The data used in this research is primary data. The technique used to collect data is a survey by distributing questionnaires. The research instrument used in this study was a closed questionnaire because the respondents only gave a checklist to the alternative answers provided. Respondents were asked to make an assessment in the form of a questionnaire regarding relative advantage, compatibility, complexity, trialability and observability of auditors' intention to accept metaverse technology.

This study was tested using descriptive statistics to provide an overview of the sample as it is, without intending to make generally accepted conclusions. The research data was processed using Partial Least Square (PLS) analysis. Validity testing in this study used convergent and discriminant validity and reliability testing in this study was seen on the Cronbanch's alpha value and the composite reliability value [23]. The structural model in this study can be measured using the determination value of R^2 adjusted and the path coefficient values or p-values of each path for the significance test between constructs [24].

In order to measure the latent variable in this study, we conducted operation of variable, which is presented in Table 1.

Table 1 Operation of Variables

Operation of Variables		
Variable	**Main indicator**	**Source**
Auditors' Intention to Accept Metaverse Technology (INT)	*1. Likely to use* *2. Interested in using new technology*	[17]

Operation of Variables		
Variable	**Main indicator**	**Source**
	3. Want to use when available	
Trialability (TR)	*1. Being able to try out* *2. To find out how it work*	[25]
Observability (OB)	*1. Easy to observed* *2. Easy to communicate* *3. Other people can feel the benefit*	[25]
User Compatibility (UC)	*1. Conformity with the way people do at the moment* *2. Conformity with values and past experience* *3. Conformity with the belief of the adopter*	[26]
Complexity (CO)	*1. Easy to learn clean and understand* *2. Easy to become skillful* *3. Easy to use* *4. Controllable and flexible*	[27]
Relative Advantage (RA)	*1. Work more quickly* *2. Job performance* *3. Increase productivity, effectiveness, productivity* *4. Makes job easier*	[28]

4 RESEARCH RESULT

4.1 Details of Respondents

The research data was analyzed using data analysis techniques that have been selected to achieve the research objectives. A summary of the questionnaires received is presented in Table 2 below:

Table 2 Details of Respondent

	Gender		Position
Male	47	Junior	13
Female	53	Senior	54
	Age	SPV/ Manager	23
21-30 years	21	Partner	10
31-40 years	43		Work length
41-50 years	24	1-5 years	23
> 50 years	12	6-10 years	42
		11-15 years	20
		> 15 years	15

Refers to to Table 2, majority of our respondent are female, ages between 31-40 years old, positioned as senior auditor and has work length between 6-10 years.

4.2 Outer Loading Test

Outer model, which is the specification of the relationship between latent and constructs the indicator. Outer model, which is also called the outer relation or measurement model, defines the characteristics of constructs with variables the manifest. Indicator considered able to represent construct when the outer loading value is more than 0.7. We present the outer loading value in

Table 3 Outer Loading Value

Indicator	Loading	Indicator	Loading
INT.1	0.937	UC.3	0.855
INT.2	0.906	CO.1	0.861
INT.3	0.836	CO.2	0.859
TR.1	0.910	CO.3	0.870
TR.2	0.912	CO.4	0.855
OB.1	0.879	RA.1	0.876
OB.2	0.914	RA.2	0.840
OB.3	0.833	RA.3	0.837
UC.1	0.934	RA.4	0.824
UC.2	0.928		

Based on table 3 we can conclude that all indicators have passed outer loading test and it means that all indicators are able to represent their construct.

4.3 Convergent Validity Test using AVE

Validity test is a technique used to measure the extent to which the measuring instrument used can actually measure what is to be measured. In research, validity testing is important to ensure that the instrument used can measure what is to be measured correctly.

Based on the outer loadings table which is summarized in table 3 can shows that the questionnaire for measuring all the indicators used in the study is stated valid. This is evidenced by looking at the value of the loading factor that shows numbers more than 0.70. In addition, Convergent Validity can be assessed by the Average Variance Extracted (AVE) value. In [29] said that the AVE value should be greater than 0.50, so as to meet the requirements of convergent validity.

Details of the results of the Average Variance Extracted (AVE) analysis can be seen in the table 4

Table 4 Average Variance Extracted

Variable	Average Variance Extracted (AVE)
Auditors' Intention to Accept Metaverse Technology (INT)	0.799
Trialability (TR)	0.830
Observability (OB)	0.767
User Compatibility (UC)	0.822
Complexity (CO)	0.742
Relative Advantage (RA)	0.713

4.4 Cronbach's Alpha and Composite Reliability

The reliability test is carried out by looking at the composite reliability value of construct indicator. Composite Reliability results will show a value that satisfactory if ≥ 0.6. The reliability test can also be strengthened with Cronbach's Alpha where the value is said to be good if α ≥ 0.6.

The result of composite reliability and Cronbach's Alpha are both presented in Table 5.

Table 5 Cronbach's Alpha and Composite Reliability

Variable	Cronbach's Alpha	Composite Reliability
Auditors' Intention to Accept Metaverse Technology (INT)	0.873	0.923
Trialability (TR)	0.795	0.907
Observability (OB)	0.849	0.908
User Compatibility (UC)	0.894	0.933
Complexity (CO)	0.886	0.920
Relative Advantage (RA)	0.866	0.909

Table 5. shows that the composite reliability value for all construct are even greater than 0.9 which indicates that all constructs in the estimated model has high reliability and meets reliable criteria. In Table 4 it can also be seen that the Cronbach's Alpha value is for all construct even > 0.7. Thus, it can be concluded that all variables have good reliability.

4.5 Coefficient of Determination

After the model meets the criteria for the outer model, then it is carried out structural model testing (inner model). The inner model is evaluated by looking the percentage of variance explained is by looking at the adjusted R-Square value. This test is called coefficient of determination. In table 6 the value is 0.866 for the construct of auditors' intention to accept metaverse technology.

This means that the value indicates that the variable trialability, observability, user compatibility, complexity and relative advantage are able to explain variants auditors' intention to accept metaverse technology is around 86.6%, the rest is influenced by other factor not discussed in this study.

Table 6 Coefficient of Determination

Variable	R Square	Adjusted R Square
Auditors' Intention to Accept Metaverse Technology (INT)	0.873	0.866

4.6 Hypothesis Testing

After evaluating the outer model and inner model, the next step is hypothesis testing. Hypothesis testing is based on processing research data using SmartPLS. With the resampling method boostraping, obtained t-statistic values which will then be compared with t-table value. If the t-statistic value is greater than the t-table value then the hypothesis the proposed research is accepted and vice versa. Likewise, with the p-value, if the p-value is less than 0.05 it means that the hypothesis is accepted, and vice versa. The confidence level used is 95%, so the limit inaccuracy of (α) = 5% = 0.05 with a t-table value of 1.98. Hypothesis testing result is presented in table 7.

Table 7 Hypothesis Testing

Path	Original Sample	T statistic	p-value sig.
TR →INT	0.450	4.618	0.000
OB →INT	0.593	6.152	0.000
UC →INT	-0.191	2.910	0.004
CO →INT	0.105	1.328	0.184
RA →INT	0.010	0.160	0.873

Referring to table 7, we can conclude that variable trialability, observability, and user compatibility are able to provide significance effect on auditors' intention to accept metaverse technology. It can be analyzed from path coefficient t-statistics which is 4.618, 6.152, and 2.910 which is ≥1.98 with p-values 0.000, 0.000, and 0.004 which is ≤0.05. This conclude that hypothesis 1, hypothesis 2 and hypothesis 3 are accepted.

Variable complexity and relative advantage have no significance effect on auditors' intention to accept metaverse technology. It can be analyzed from path coefficient t-statistic which is 1.328 and 0.160 which is > 1.98 with p-values 0.184 and 0.873. which is > 0.05. This conclude that hypothesis 4 and hypothesis 5 are rejected.

Here in Figure 1 we presented the path coefficient and coefficient of determination of this study.

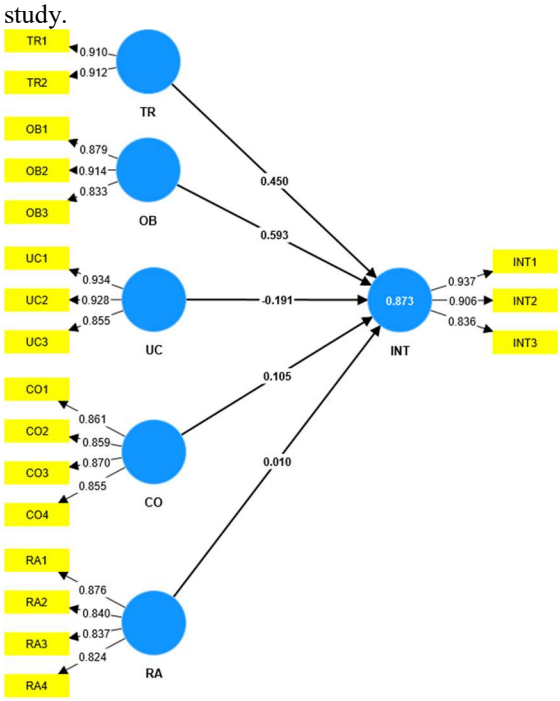

Figure 1 Research Path Coefficient

4.7 Discussion

Based on the results of hypothesis testing, it was found that trialability has a significant effect on auditors' intention to accept metaverse technology. This result support previous study in [14], [30]. This means that if auditors can try the metaverse first, this can make them willing to accept metaverse technology.

Observability affects auditors' intention to accept metaverse technology. This indicates that when the auditor can make preliminary observations of the metaverse. For example, knowing what the benefits are, how to operate it, this makes the auditor willing to accept the technology metaverse. This finding also in line with previous study in [25]. Specifically regarding observability, that observation is indeed one of the audit procedures that are often applied by auditors in their work. So, we can see here that observability has the highest t-statistics value among the other variables.

User compatibility has a significant effect on auditors' intention to accept the metaverse. This means that if there is another auditor who has mastered metaverse technology and he can tell other auditors who have not, then the auditor who has not been able to switch becomes willing to accept metaverse technology. So references from fellow auditors are a determining factor. This result also supported preliminary study by [25], [27].

Complexity has no significant effect on auditors; intention to accept the metaverse. It is suspected that auditors are very busy, especially during the peak season. So they tend not to accept new technologies that are considered quite complex and difficult, which require a long time and high effort to learn. Other researcher in [27] also has similar result, or in [31] they found negative effect.

The relative advantage in this study has no significant effect on auditors' intention to accept metaverse technology. This is because mostly our respondents do not understand the advantages of this metaverse specifically. This result is in opposite with the previous study by [20].

In overall our study support explanation in [5] about phenomena regarding metaverse world application in the field of accounting and auditing. How auditor need to mater metaverse technology in order to be able to conduct virtual reality audit for client's digital assets in metaverse world.

5 CONCLUSION AND SUGGESTION

The implications of our research results for the auditor profession and public accounting firms are that if you want to make auditors willing to accept metaverse technology, then several efforts can be made. Public accounting firms can create mateverse technology simulations, so auditors can experience and try. By trying the auditors at the same time make observations of the metaverse. Need to do training, how to operate the metaverse. Starting from creating

an account, Metamask cryptocurrency wallet, creating an avatar and exploring the world of the metaverse. Audit firm can choose a trainer who is also an auditor, so that it meets the requirements as in variable user compatibility. Auditors can reflect on other auditors who have mastered metaverse technology.

Another finding is that for some auditors, the metaverse is still considered very complex and they think that the metaverse is something difficult. In addition, they still do not understand in detail the benefits of this metaverse technology. This is homework for professional body auditors, auditing standards drafting boards and also public accounting firms. How can we create synergy to explain in detail about this metaverse so that auditors no longer misunderstand, and understand how to run the metaverse technology and at the same time its benefits

Our own opinion based from our observation and inquiry with auditors along the process of this study conclude that in general, financial auditors are ready to face the metaverse technology and conduct virtual reality audit when necessary.

The strength of our research is that the topic of technology metaverse in the field of auditing is relatively new and still small so that the results of our research can later become a reference for future researchers. Meanwhile, the weakness of our research is that our research sample only includes auditors located in the Greater Jakarta area. Meanwhile, there are still many auditors who use technology metaverse from other cities in Indonesia, even though Jakarta is indeed the most numerous one.

Suggestions for future research are to conduct similar research on the acceptance of metaverse technology among auditors by taking samples from auditors in other countries, for example in the US or in Europe where the development of metaverse technology there is also more rapid. So that the research results can be compared, what factors influence when the sample is in a country where the metaverse technology has been absorbed more quickly. For fellow Indonesian researcher, we can suggest to conduct similar research in others city and region. Some cities like Surabaya in East java also have big four audit firm which is ready to provide metaverse audit in their service list

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