

Factors Affecting Cloud-Based Accounting Adoption in the Indonesian Banking Sector

Ryandika Ramadhan Al Farishi¹ and Lauw Tjun Tjun^{2*}

^{1,2} Faculty of Law and Digital Business, Maranatha Christian University, Indonesia

Email Address:

ryandikaramadhan.alfarishi@gmail.com, lauwtjuntjun@gmail.com*

*Corresponding Author

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Abstract: This study aims to analyse the factors influencing the adoption of cloud-based accounting in the Indonesian banking sector. The sample size in this study was 80 respondents of Indonesian banking employees who implemented cloud-based accounting through Google Forms. The data was processed using SmartPLS 4 with SEM-PLS analysis. The results showed that human and organisational factors significantly affect the adoption of cloud-based accounting. On the other hand, technological, environmental, and perceived trust factors are insignificant to adopting cloud-based accounting. This study can contribute to human and organisational factors that can influence developments in the application of cloud-based accounting in the banking sector. In contrast, technological and environmental factors must be considered by banks and the Indonesian government, especially clarity regarding data security protection from cloud adoption to provide confidence to users of cloud-based accounting applications.

Keywords: Cloud-Based Accounting; Human; Technological; Organisational; Environmental; Perceived Trust.

Abstrak: Penelitian ini bertujuan untuk menganalisis faktor – faktor yang mempengaruhi adopsi akuntansi berbasis *cloud* di sektor perbankan Indonesia. Besar sampel dalam penelitian ini sebanyak 80 responden pegawai perbankan Indonesia yang menerapkan akuntansi berbasis *cloud* melalui *google form*. Data diolah menggunakan SmartPLS 4 dengan analisis SEM-PLS. Hasil penelitian menunjukkan bahwa faktor manusia dan organisasi berpengaruh signifikan terhadap adopsi akuntansi berbasis *cloud*. Di sisi lain faktor teknologi, lingkungan, dan persepsi kepercayaan tidak signifikan terhadap adopsi akuntansi berbasis *cloud*. Penelitian ini dapat memberikan kontribusi bahwa faktor manusia dan organisasi dapat mempengaruhi perkembangan dalam penerapan akuntansi berbasis *cloud* di sektor perbankan, sedangkan faktor teknologi dan lingkungan merupakan hal yang harus diperhatikan oleh perbankan dan pemerintah Indonesia terutama kejelasan mengenai perlindungan keamanan data dari adopsi *cloud* sehingga memberikan kepercayaan kepada pengguna aplikasi akuntansi berbasis *cloud*.

Kata Kunci: Akuntansi Berbasis *Cloud*, Manusia, Teknologi, Organisasi, Lingkungan, Persepsi Kepercayaan.

INTRODUCTION

Cloud-based accounting (CBA) is an accounting system accessed online through a web browser. It allows business owners to manage their finances from anywhere at any time as long as they are connected to the internet. It is important to understand how these changes will affect organisations in the future and evaluate their impact objectively, especially about accounting processes and standards (Deegan, 2017).

Cloud-based accounting technology replaces traditional accounting systems that are inefficient and less secure because they rely on local storage such as USB or hard discs. Traditional systems require complex technological infrastructure and high costs, while cloud technology allows access to computing resources via the internet without the need to manage the infrastructure yourself. It also reduces maintenance and training costs. In Indonesia, cloud-based accounting technology is growing with system updates that utilise



cloud-based solutions (Tawfik et al., 2023). Cloud-based technology saves costs and improves organisational effectiveness through government, private and public sector collaboration. In Indonesia, adopting cloud-based accounting contributes to the digital economy, with a projected GDP of US\$10.502 trillion by 2022 (PWC, 2022).

Companies must explore opportunities for new business ideas by following changing technology trends (Blichfeldt & Rita, 2021), especially in the banking sector. In recent years, technologies like the internet, business digitalisation, and data storage have greatly influenced businesses. CBA technology has been widely adopted to optimise business performance in the future (Ferry & Tomo, 2020). This technology helps companies reduce operational costs, increase efficiency, and produce more accurate reporting (Ilyas et al., 2018).

Several factors influence the decision to implement CBA organisational factors such as adequate infrastructure support these technologies' implementation (Usman, 2019). The external environment, including competitive pressures and government support, is important (Lawan et al., 2021; Hamzah et al., 2023). Human factors, including training, experience, and individual attitudes towards technology, influence the success of implementation (Permadi et al., 2018). Awareness of the benefits of technology and adequate knowledge are also important to bridge the knowledge gap (Almaiah et al., 2022; Permadi et al., 2018). Finally, support from technological aspects, such as safety and convenience, can increase users' confidence in new technologies, affecting their adoption (Karasioylu and Garip, 2019; Abd Malik et al., 2023; Furner et al., 2021).

This study differs from previous research (Hamundu et al. 2020) on the factors influencing the adoption of cloud-based accounting (CBA). First, this study focuses on the factors influencing CBA in the banking sector. Many studies on cloud-based accounting adoption from several countries, for example, Pakistan (Rahman et al., 2021), Nigeria (Olayinka et al., 2023), Saudi Arabia (Albar & Rakibul, 2019), and South Africa (Modisane, I. & Jokonya, 2021). These studies provide evidence regarding cloud-based accounting in various countries, but it is very limited in Indonesia. However, Indonesia is the largest country in Asia and the fourth largest internet user in the world, with a total of 276,386 million. The banking sector is the top choice for cloud-based accounting implementation due to the pressing need for high data security. According to (Perbanas, 2023), the sector faces 1,131 cyberattacks every week, including major data leaks such as the one that happened to Bank Syariah Indonesia in 2022. This case involved the data of 15 million customers and employees being leaked due to a ransomware attack, demonstrating the importance of strong protection systems and sophisticated security infrastructure, which can be enhanced through cloud computing.

In addition, the banking sector is one of the most competitive and technologically advanced sectors. Cloud technology enables banks to stay relevant in the competition by improving operational efficiency, better data management, and the ability to develop more innovative digital services (Naurah, 2023). Banks are also consistently increasing investments in information technology to meet the growing cybersecurity challenges. Implementing cloud-based accounting supports these efforts by providing a flexible and scalable platform.

The growth of cloud services in Indonesia is rapidly increasing. IDC Global data (2022) shows that 81 per cent of respondents from Indonesia plan to increase their use of cloud-based technologies by 2023, with projected growth in cloud services reaching US\$933 million (Putri, 2023). This shows that the banking sector in Indonesia has an



excellent opportunity to use cloud technology more widely to improve efficiency and security.

Finally, the risk of cyberattacks, including phishing, continues to increase. A report from IDX (2023) noted an increase in phishing scams from the 4th quarter of 2022 to the 1st quarter of 2023 with 20,569 cases (Naurah, 2023). Phishing attacks targeting banks are becoming more frequent, as shown by a Kaspersky report in March 2024, where more than 709 million accesses to phishing sites were detected (Puspita, 2024). Cloud-based accounting can provide additional security solutions in protecting customer data and transactions. Thus, the banking sector must adopt cloud computing to remain secure, competitive, and ready to face future technological challenges.

This study adds human variables and perceived trust. Human factors play a key role in managing and overseeing sensitive financial data. Employees' understanding, expertise, and trust in cloud technology affect data security, regulatory compliance, and system integrity. In addition, people must be able to adapt to technological changes and ensure adequate training supports the optimal and effective use of the cloud system. The perceived trust factor in CBA in the banking sector is important because it ensures that customers and banks believe that their data is safe, that the system complies with regulations, and that the financial information managed remains accurate and reliable. This trust drives the adoption of cloud technology, improves efficiency and maintains data integrity in the highly risk-sensitive banking environment.

The main objective of this research is to examine the variables that influence cloud-based accounting adoption in the Indonesian banking sector. The determinants to be examined are humans, technology, environmental organisation, and perceptions of trust from research to update previous research (Hamundu et al., 2020). This research contributes new insights and measurements for future research on accounting information systems. In addition, this research also contributes to banks finding out the factors that support the adoption of their technology transformation.

THEORETICAL REVIEW

Cloud-Based Accounting. Cloud-based accounting is a SaaS (Software as a Service) cloud service model that can perform online accounting tasks and be accessed from anywhere (Tawfik et al., 2023). This technology can facilitate the accounting process by recording, reconciling, and generating real-time financial reports. In this service model, service providers are responsible for all the infrastructure they provide (Ismail & El Haddad, 2020). Cloud-based accounting can provide accountancy professionals with the potential benefits of mobility by exchanging information promptly and quickly and making decisions (Uko et al., 2023).

Human-Technology-Organisational-Environmental Model. This HTOE model is a combination of HOT-Fit and TOE in this study. This differs from other models because neither discusses the four factors of cloud-based accounting adoption, so a combination of the two is required. The HOT-Fit model does not include environmental factors, while the TOE model includes them (Mahama & Halina, 2022). The TOE model is used to process the adoption of a technological innovation influenced by technology, organisation, and environment, which was introduced and modified by (Mallam et al., 2023) by adding the variable of perceived trust. This model was developed from the TOE model and contributed by including human factors. The TOE Model is widely used in research for IT (Information Technology) and IS (Information Systems) adoption studies and has produced consistent



empirical results (Awa et al., 2017). In addition, there is also TAM (Technology Acceptance Model) in cloud computing adoption theory, which was introduced by Davis in 1989. TAM is the model that best understands the application of new technology and the process of use (Tripoposakul, 2018). Despite showing agreement on the characteristics of TAM that can predict technology adoption, there is some disagreement and incoherent findings in the current industry sector (Scherer et al., 2019).

Human Factors. Human factors are important in adopting information systems (Alfina & Irfan 2020). Human factors describe the modern use of human resources, experience, and assets in the successful use of technology. When adopting new technology, the human component in user perceptions relates to training, experience, knowledge, expectations, acceptance, and rejection of technology (Permadi et al., 2018).

Technological Factors. Technological factors can encourage companies to adopt technologies such as cost savings, data security, reliability, relative advantage, complexity, and compatibility (Chemjor, 2017; Atiti, 2021; Ali & Anup, 2020). Technical elements related to collecting internal and external technologies relevant to the company's business are characteristic of technological factors (Omar et al., 2018).

Organisational Factors. Organisational factors can refer to the characteristics of an organisation, such as size, business scope, technology readiness, top management support, number of resources, and relationships between employees (Hamundu et al., 2020).

Environmental Factors. Environmental factors are an atmosphere that supports the successful adoption of technology in the company, such as laws, geographical location, surrounding environment, government support, support from technology providers, competitor pressure and socio-cultural issues (Sithole & Ruhode, 2021).

Perceived Trust Factor. Perceived trust is a person's confidence in applying new technology to their lives. This factor eliminates concerns about new technologies, such as data security, dependence, and competence in cloud-based technology (Senali et al., 2023).

Hypothesis Development. This study uses the Human-Technology-Organization-Environment (HOTE) model or a combination of two models, namely HOT-Fit and TOE. Many studies have examined the factors that influence the adoption of cloud-based accounting in various corporate sectors, especially with one of these models.

Human Factors and Cloud-Based Accounting Adoption. Human factors are the first factor of the HOT-Fit model. Human factors are important in applying new technology through user perceptions of cloud-based accounting adoption. Human factors are based on an individual's understanding of new technology. This user perception consists of skills, training, acceptance, knowledge, innovation, and so on (Dondjio. I & Haafst, 2017). Research (Tawfik et al., 2023) shows that knowledge is essential in using technology, especially cloud-based accounting.

Meanwhile, research (Mahama & Halina, 2022) shows that innovation can help implement new systems and reduce uncertainty. Human resources in this research are personnel who use cloud-based accounting. This relates to technology and innovation in terms of knowledge and skills. Cloud-based accounting is a technology used by all personnel, not just accounting personnel. Based on the description above, the following hypothesis is formed:

H1: Human factors have a positive effect on cloud-based accounting adoption.

Technological Factors and Cloud-Based Accounting Adoption. Technological factors are the first factor of the TOE model, consisting of cost savings, security and privacy,



reliability, technology readiness, relative advantage, complexity, and compatibility (Chemjor, 2017). This study only covers some aspects of technological factors, such as relative advantage, complexity, data security and compatibility. Research findings (Chemjor, 2017; Sithole & Ruhode, 2021; Modisane & Osden, 2021) show that complexity has a negative effect on cloud-based accounting implementation. The more complex a system is to use, the more difficult it is to implement. The easier it is to understand and use cloud-based accounting, the staff and management will provide a pleasant experience and be very helpful in running. In addition, compatibility from research results (Chemjor, 2017; Sithole & Ruhode, 2021; Modisane & Osden, 2021) has a positive influence, which means that the compatibility of the cloud system with traditional systems is to the needs and appropriate technology in the current conditions. The result of the relative advantage is that it fails to be proven against cloud accounting applications in the banking sector. This is due to constraints during the COVID-19 pandemic, which imposed large-scale restrictions (lockdown). Research results on relative advantage variables (Hamundu et al., 2020) contradict research (Chemjor, 2017; Sithole & Ruhode, 2021; Modisane & Osden, 2021).

Research (Chemjor, 2017; Sithole & Ruhode, 2021; Modisane & Osden, 2021) shows that relative advantage significantly affects cloud computing implementation. Not surprisingly, relative advantages represent cost savings, time efficiency, reliability, performance improvement, etc. This relative advantage is a determining factor for management implementing cloud-based technology, including cloud-based accounting. The results of the security variable from research (Priyadarshinee et al., 2017) show that data security is important for MSMEs to adopt the cloud and is also supported by research (Kumar et al., 2017; Skafi et al., 2020) which shows that security issues have a negative impact on cloud-based technology. Security issues refer to perceivable violations, where companies lose information, personal records, or other sensitive data by adopting cloud-based technology. Based on the description above, the following hypothesis is formed:

H2: Technological factors have a positive effect on cloud-based accounting adoption.

Organisational Factors and Cloud-Based Accounting Adoption. Organisational factors are the second factor of the TOE model. This study only takes three organisational factors: top management support, technology readiness, and company size. The study results (Jhonson & Kristina, 2017) show that top management support significantly and positively affects cloud-based technology. Meanwhile, research (Sithole & Ruhode, 2021; Modisane & Osden, 2021) shows that top management support in adopting cloud computing among SMEs is insignificant in cloud computing adoption. This is because organisations cannot implement new technology if top management does not support it. In addition, research results (Hamundu et al., 2020) from technological readiness show a positive and significant effect on cloud computing adoption. The results of this study are inversely proportional to research (Modisane & Osden, 2021), which shows that technological readiness is not significant in the adoption of cloud computing among MSMEs. Technological readiness draws on organisational resources influencing the decision to adopt new technology. This technological readiness is not only about finance but support from the necessary technical requirements, internet connection, IT staff capabilities and skills, and so on (Abied et al., 2022). Based on the description above, the following hypothesis is formed:

H3: Organisational factors have a positive effect on cloud-based accounting adoption.



Environmental Factors and Cloud-Based Accounting Adoption. Environmental factors are the third factor of the TOE model. This study only takes environmental factors that refer to competitor pressure. Competitor pressure is the action and presence of competitors that can create pressure on the business. Competitor pressure comes from adopting the technology used, affecting the company's intention to adopt the technology.

On the other hand, government support for technology implementation is invaluable for companies to continue developing technology (Anwer, 2018). Environmental factors from competitor pressure and government support show a high level of companies adopting cloud-based accounting (Kumar et al., 2017). Based on the description above, the following hypothesis is formed:

H4: Environmental factors have a positive effect on cloud-based accounting adoption.

Perceived Trust Factors and Cloud-Based Accounting Adoption. A lack of trust can lead to resistance to implementing new technology. Research (Meyliana et al., 2019) shows that perceptions of trust can significantly influence the adoption of new technology, where new technology concerns about data security, dependence, and competence of cloud-based technology are felt. Research (Tian et al., 2023) reveals that people's intention to use e-commerce platforms is strongly influenced by their perceptions of transaction security and the level of trust in vendors. Trust perception influences people's attitudes and behaviour when adopting new technology. Based on the description above, the following hypothesis is formed:

H5: The perceived trust factor positively affects cloud-based accounting adoption.

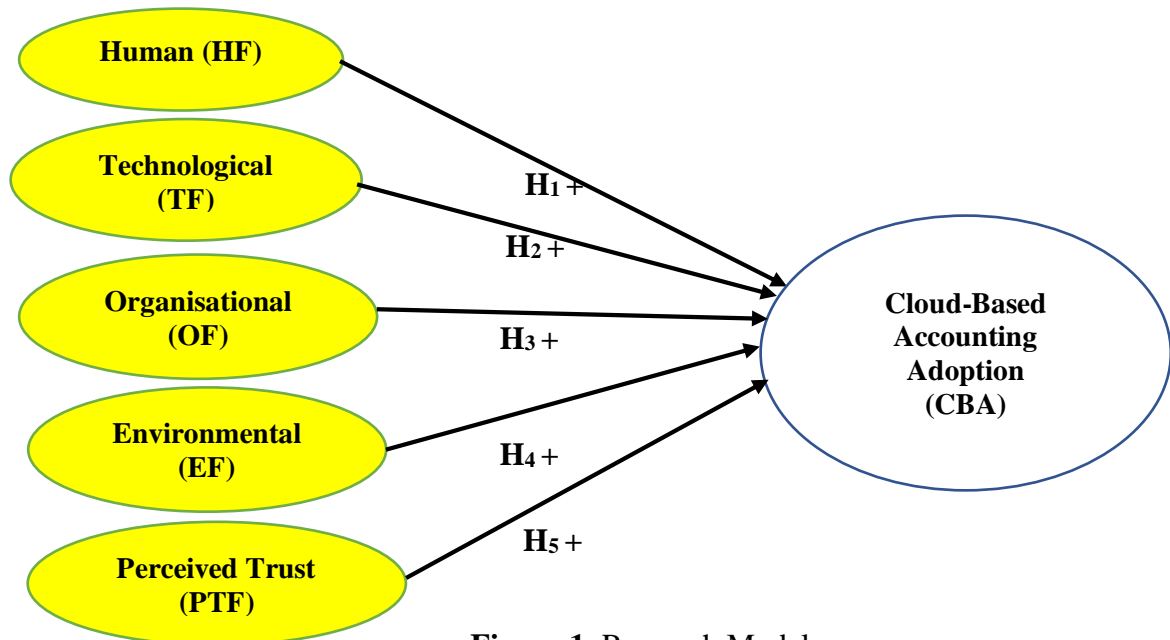


Figure 1. Research Model
(Processed by the author)

METHODS

This research uses a quantitative descriptive method. The method statistically explains the influence of technological, organisational, environmental, and human factors on

adopting cloud-based accounting in the banking sector. This type of research data is primary data taken through distributing questionnaires. The questionnaire uses Google Forms, which are distributed via social media, such as WhatsApp, Instagram, LinkedIn, and so on. This study uses a Likert scale of 4 (four) points: strongly disagree, disagree, agree, and strongly agree (Hamzah et al., 2023).

Respondents in this study were Indonesian banking employees who used cloud-based accounting. The data analysis technique uses SEM-PLS (Structural Equation Model - Partial Least Square), processed with the SmartPLS 4 application. The test carried out is a validity test using a reliability test using Cronbach's Alpha. Structural model evaluation can be done with six tests: the R-Square test, path coefficient test, t-test, predictive relevance test, model fit test, and effect size test.

Table 1. Variables and Indicators Research

Variables	Dimensions	Indicators	References
Human Factors (HF)	Innovation (HF1)	I am up to date with new technological innovations (HF11)	(Permadi et al., 2018)
		I create new ideas (HF12)	
		I experiment with new technologies (HF13)	
	Knowledge (HF2)	I have knowledge of cloud-based accounting (HF21)	
I understand how to use cloud-based accounting (HF22)			
Acceptance (HF3)	I understand the benefits of using cloud-based accounting (HF31)	(Chemjor et al., 2017; Hamundu et al., 2020)	
	Training (HF4)		I received training from the bank on using cloud-based accounting (HF41)
Technology Factors (TF)			Relative Advantage (TF1)
	Cloud-based accounting can increase transaction speed (TF12)		
	Cloud-based accounting can improve service quality to customers (TF13)		
	Cloud-based accounting can improve accuracy in transactions (TF14)		
	Cloud-based accounting can perform data updates in real-time (TF15)		
	Complexity (TF2)	Cloud-based accounting can be accessed by users from anywhere and anytime (TF21)	
		Cloud-based accounting should be easy for users to learn and use (TF22)	
		Cloud-based accounting can download data required by users (TF23)	
		Cloud-based accounting has application features that can be customised by users (TF24)	
		Cloud-based accounting can backup data automatically (TF25)	
		Cloud-based accounting can perform automatic data recovery (TF26)	



Variables	Dimensions	Indicators	References
	Data Security (TF3)	<p>Cloud-based accounting aligns with the functions of accounting information systems in banking. (TF27)</p> <p>Business data confidentiality is guaranteed when using cloud-based accounting services (F31)</p> <p>The security system built into cloud-based accounting services can protect banking data (TF32)</p> <p>The implementation of cloud-based accounting must have good security (TF33)</p>	
	Compatibility (TF4)	<p>Cloud-based accounting can operate well with other banking infrastructure (TF41)</p> <p>Cloud-based accounting must be in accordance with the banking SOP (Standard Operating Procedure) (TF42)</p> <p>Cloud-based accounting must comply with generally accepted accounting principles (TF43)</p> <p>Cloud-based accounting must comply with generally accepted financial regulations (TF44)</p>	
Organisational Factors (OF)	Top Management Support (OF1)	<p>Successful use of cloud-based accounting if there is top management awareness of the benefits to be gained (OF11)</p> <p>Successful use of cloud-based accounting if there is top management support in the resources provided (OF12)</p> <p>Successful use of cloud-based accounting if there is top management support in job completion (OF13)</p> <p>Top management maintains comfort and convenience in using cloud-based accounting (OF14)</p> <p>Top management plays a role in selecting systems for the implementation of cloud-based accounting (OF15)</p> <p>Top management can accept the risks that may arise from the implementation of cloud-based accounting (OF16)</p>	(Tawfik et al., 2023)
	Technological Readiness (OF2)	<p>Banks hire IT personnel to run cloud-based accounting (OF21)</p> <p>Banks have adequate technology resources for cloud-based accounting implementation (OF22)</p> <p>Banks allocate budget for the implementation of cloud-based accounting implementation (OF23)</p>	
Environmental Factors (EF)	Government Support (EF1)	<p>Government policies have a positive impact on the implementation of cloud-based technology (EF11)</p>	(Hussein et al., 2020; Tawfik et al., 2023)
	Competitor Pressure (EF2)	<p>With many competitors implementing cloud-based accounting, motivating banks to implement it as well (EF21)</p>	
Perceived Trust Factor	Privacy (PTF1)	<p>Banking data privacy can be guaranteed by using cloud-based accounting (PTF11)</p>	(Abd Malik et al., 2021)



Variables	Dimensions	Indicators	References
(PTF)	Simplify (PTF2)	Cloud-based accounting will make it easier to do work (PTF21)	
	Trustworthy (PTF3)	Information obtained from cloud-based accounting can be trusted (PTF31)	
Cloud-Based Accounting Adoption (CBA)	Option (CBA1)	Banks prefer cloud-based accounting over desktop accounting (CBA11)	(Hamundu et al., 2020)
	Optimal Use (CBA2)	Banking provides optimal use of data resources(CBA21)	
	Build & Develop (CBA3)	Banks have specialised divisions to build and develop cloud-based accounting (CBA31)	
	Maintain Information System Security (CBA4)	Banks have specialised divisions to develop and maintain information system security in the implementation of cloud-based accounting (CBA41)	
	Management (CBA5)	Banking can manage cloud data storage (CBA51)	
	Database Server (CBA6)	Banking has a database server for cloud-based accounting (CBA61)	
	Network Infrastructure (CBA7)	Banks have the network infrastructure to build and develop cloud-based accounting (CBA71)	

Source: Processed Data, 2024

Table 1 shows the indicators of each variable. In human factors, there are four dimensions and seven indicators; in technological factors, there are four dimensions and 19 indicators; in organisational factors, there are two dimensions and nine indicators; in environmental factors, there are two dimensions and two indicators; and in cloud-based accounting adoption, there are seven dimensions and seven indicators. The indicators used in this study were taken from previous journals. This indicator is filtered in order to get better results.

RESULTS

The data was collected through multiple linear regression analysis methods as a tool to conclude with the Smart PLS version 4 application. The test was carried out by testing the validity and reliability using Cronbach's Alpha. The data collected were 80 respondents of banking employees who used cloud-based accounting, which could be collected during June 2024. The following characteristics of respondents presented in this study include gender, education, and length of service:

Table 2. Respondent Characteristics

No	Respondent Characteristics	Total	Per centage
1	Genders		
	Male	24	30 per cent
	Women	56	70 per cent
2	Educations		
	Diploma	18	22.500 per cent
	S1	54	67.500 per cent
	S2	8	10.700 per cent



No	Respondent Characteristics	Total	Per centage
3	Ages		
	Less than 25 years	14	17.500 per cent
	25 to 35 years	56	70 per cent
	35 to 45 years	8	10 per cent
4	Years of Service		
	More than 45 tahun	2	2.500 per cent
	Less than 2 years	16	20 per cent
	2 to 4 years	31	38.700 per cent
	5 to 6 years	17	21.300 per cent
5	Bank Classifications		
	7 to 8 years	3	3.700 per cent
	More than 8 years	13	16.300 per cent
	BUKU 2	12	15 per cent
	BUKU 3	15	18.750 per cent
	BUKU 4	53	66.250 per cent

Source: Processed Data, 2024

Table 2 consists of the gender section, with the sample showing 24 male and 56 female respondents. Regarding the education section, the most samples were in undergraduate education (S1), with as many as 54 respondents, followed by diploma education, with as many as 18 respondents, and the least in postgraduate (S2) education, with as many as eight respondents. Regarding the age section, most samples were at the age of 25 to 35 years, with as many as 56 respondents, and the least were two respondents aged more than 45 years. Regarding the tenure section, the most significant sample was in the 2 to 4 years tenure, with as many as 31 respondents, and the least was three respondents in the 7 to 8 years tenure. Regarding the type of bank from where the respondents work, a significant sample works at BUKU (Commercial Bank Business Activities) 4 with 53 respondents, and the least sample at BUKU 3 as many as 15 respondents and BUKU 2 as many as 12 respondents. BUKU 2 is a bank with a core capital between Rp 1 trillion - 5 trillion, while BUKU 3 is a bank with a core capital between Rp 5 trillion - Rp 30 trillion, and BUKU4 is a bank with a core capital of more than 30 trillion.

Table 3. Validity and Reliability Test Results

Questionnaire	Item No.	Recount	Remarks	Cronbach's Alpha
CBA	CBA11	0.564	Valid	0.898
	CBA21	0.415	Valid	
	CBA31	0.797	Valid	
	CBA41	0.794	Valid	
	CBA51	0.832	Valid	
	CBA61	0.702	Valid	
	CBA71	0.803	Valid	
HF	HF11	0.485	Valid	0.843
	HF12	0.485	Valid	
	HF13	0.573	Valid	
	HF21	0.669	Valid	
	HF22	0.699	Valid	
	HF31	0.724	Valid	
	HF41	0.563	Valid	



Questionnaire	Item No.	Recount	Remarks	Cronbach's Alpha		
TF	TF11	0.809	Valid	0.954		
	TF12	0.828	Valid			
	TF13	0.800	Valid			
	TF14	0.815	Valid			
	TF15	0.726	Valid			
	TF21	0.640	Valid			
	TF22	0.704	Valid			
	TF23	0.781	Valid			
	TF24	0.816	Valid			
	TF25	0.694	Valid			
	TF26	0.675	Valid			
	TF27	0.873	Valid			
	TF31	0.714	Valid			
	TF32	0.726	Valid			
	TF33	0.461	Valid			
	TF41	0.806	Valid			
	TF42	0.524	Valid			
	TF43	0.480	Valid			
	TF44	0.560	Valid			
	OF	OF11	0.363		Valid	0.916
		OF12	0.801		Valid	
		OF13	0.772		Valid	
		OF14	0.790		Valid	
		OF15	0.810		Valid	
OF16		0.727	Valid			
OF21		0.664	Valid			
OF22		0.647	Valid			
OF23		0.778	Valid			
EF	EF11	0.744	Valid	0.852		
	EF21	0.744	Valid			
PTF	PTF11	0.789	Valid	0.922		
	PTF21	0.903	Valid			
	PTF31	0.837	Valid			

Source: Processed Data, 2024

Table 3 shows that each statement item's correlation coefficient value (r-count) exceeds the critical value of 0.300. The statement item score's correlation coefficient value with the statement item's total score; if the correlation coefficient (count) is greater than or equal to 0.300, the statement item is declared valid (Gio, 2022). Then, for the reliability test using Cronbach's Alpha method. The statement is declared reliable if the reliability coefficient (Cronbach's Alpha) exceeds 0.700 (Gio, 2022). The table above shows that the reliability value of Cronbach's Alpha results on the six variables is greater than the critical value of 0.700. These results indicate that the statement items submitted to respondents are reliable, and it is concluded that the questionnaire used to measure the six variables has provided consistent results. The results of this validity and reliability test indicate that all questionnaire statement items are valid and suitable for use as research measuring instruments so that they can be continued in further analysis.

In this study, the mean value and standard deviation were used to describe the condition of each variable for descriptive analysis. This analysis presents the variables related to adopting cloud-based accounting in the Indonesian banking sector.



Table 4. Descriptive Statistics Results

Variables	Total	Minimum	Maximum	Mean	Std. Deviation
HF	80	2	4	3.511	0.570
TF	80	2	4	3.482	0.540
OF	80	2	4	3.443	0.527
EF	80	2	4	3.444	0.523
PTF	80	2	4	3.446	0.554
CBA	80	2	4	3.459	0.575

Source: Data Analysis, 2024

Table 4 shows descriptive static results of the number of respondents, minimum, maximum, average, and standard deviation values. The results shown in the table provide an overview of the tendency and distribution of respondents' responses from each variable. The mean value shows the average perception of respondents on each variable. A higher mean value indicates a good perception or a higher level of adoption; if the value is lower, it indicates a lower level of adoption. The deviation value of each variable indicates greater variability in the respondents' perception or adoption level.

In this section, the results of research on factors affecting cloud-based accounting adoption will be presented. The data is processed using structural equation modelling with an alternative partial least square method as a tool for concluding. In human, technological, and organisational factors, indicators are not directly connected to variables but are connected through dimensions, so processing is done using two stages. The two stages used are analysis of loading factors for each manifest variable (indicator) and processing with SEM (Structural Equation Modeling).

The confirmatory factor analysis will present a measurement model of the human, technological, organisational, environmental, and perceived trust factor variables. Indicators are acceptable if they are greater than 0.500, have a Composite Reliability (CR) greater than 0.700, and have an Average Variance Extracted (AVE) value greater than 0.500 (Gio, 2022).

Figure 2 shows six latent variables (HF, TF, OF, EF, PTF, and CBA) with 22 manifest variables. The latent variable of human factors (HF) consists of 4 dimensions, the technology factor (TF) consists of 4 dimensions, the organisational factor (OF) consists of 2 dimensions, the environmental factor (EF) consists of 2 dimensions, the perceived trust factor (PTF) consists of 3 dimensions and the adoption of cloud-based accounting consists of 7 dimensions. Evaluation of the measurement model in SEM-PLS is carried out through convergent and discriminant validity. All factors positively relate to adopting cloud-based accounting (CBA) with an r square of 0.641. Among the five factors, the human factor provides the most significant effect (the largest coefficient) with a value of 0.251. In contrast, the environmental factor provides the smallest effect with a value of 0.064.



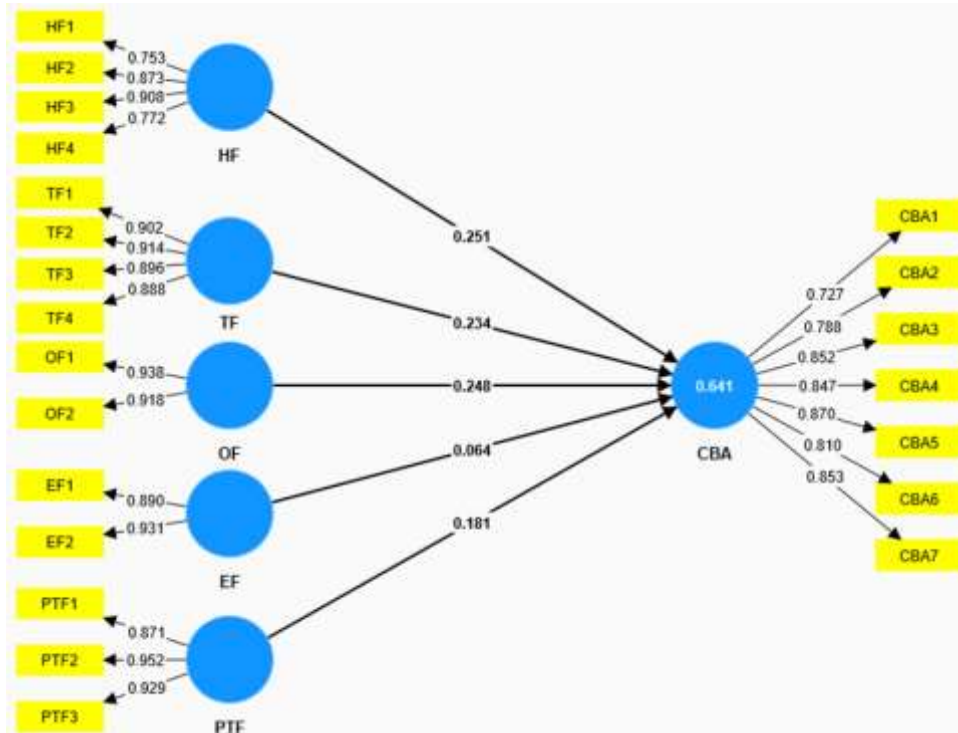


Figure 2. Path Diagram of All Models

Human factors, technology, environmental organisation, and perceptions of trust consist of several dimensions. Based on the results of data processing, the results of testing each dimension on latent variables of human factors, technology, organisation, environment, and perceptions of trust are presented in the following table:

Table 5. Model Test Results

Dimensions	Loading Factor	CR	AVE
HF1	0.753	0.897	0.687
HF2	0.873		
HF3	0.908		
HF4	0.772		
TF1	0.902	0.945	0.810
TF2	0.914		
TF3	0.896		
TF4	0.888		
OF1	0.938	0.925	0.881
OF2	0.918		
EF1	0.890	0.907	0.830
EF2	0.931		
PT1	0.871	0.941	0.843
PT2	0.952		
PT3	0.929		
CBA1	0.727	0.936	0.676
CBA2	0.788		
CBA3	0.852		
CBA4	0.847		
CBA5	0.870		
CBA6	0.810		
CBA7	0.853		



CBA7	0.853
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Source: Data Analysis, 2024

Table 5 shows that the loading factor of each questionnaire item (indicator) has an expected AVE value of more than 0.600, so convergent validity is not a problem (Gio, 2022). Furthermore, discriminant validity analysis is carried out to test the measuring instrument externally, namely by comparing it to the dimensions/indicators of other latent variables. The following presents the results of the discriminant validity analysis tested through cross-loading and the Fornell-Larcker criterion.

Table 6. Cross-Loading Test Results

Indicator	HF	TF	OF	EF	PTF	CBA
HF1	0.753	0.485	0.393	0.356	0.296	0.481
HF2	0.873	0.605	0.446	0.508	0.472	0.607
HF3	0.908	0.596	0.488	0.529	0.471	0.606
HF4	0.772	0.512	0.440	0.516	0.384	0.501
TF1	0.661	0.902	0.614	0.573	0.590	0.734
TF2	0.582	0.914	0.626	0.462	0.559	0.650
TF3	0.559	0.896	0.468	0.559	0.597	0.584
TF4	0.583	0.888	0.572	0.530	0.527	0.570
OF1	0.511	0.569	0.938	0.431	0.480	0.638
OF2	0.478	0.618	0.918	0.386	0.409	0.558
EF1	0.555	0.497	0.374	0.890	0.466	0.454
EF2	0.507	0.572	0.426	0.931	0.617	0.567
PTF1	0.406	0.557	0.351	0.536	0.871	0.489
PTF2	0.472	0.610	0.445	0.577	0.952	0.553
PTF3	0.482	0.576	0.511	0.547	0.929	0.628
CBA1	0.534	0.518	0.568	0.473	0.507	0.727
CBA2	0.520	0.574	0.405	0.476	0.526	0.788
CBA3	0.541	0.611	0.580	0.464	0.556	0.852
CBA4	0.513	0.489	0.513	0.427	0.416	0.847
CBA5	0.626	0.665	0.565	0.509	0.580	0.870
CBA6	0.507	0.562	0.553	0.397	0.358	0.810
CBA7	0.575	0.650	0.526	0.499	0.547	0.853

Source: Data Analysis, 2024

According to (Gio, 2022), cross-loading greater than outer loading indicates a discriminant validity problem. **Table 6** shows that there is no cross-loading value greater than outer loading. This data shows that the dimensions/indicators have a stronger relationship with their variables than with other variables.

Table 7. Fornell-Larcker Criterion Test Results

	FM	FT	FO	FL	PTF	CBA
HF	0.829					



TF	0.666	0.900				
OF	0.534	0.637	0.928			
EF	0.579	0.590	0.442	0.911		
PTF	0.496	0.632	0.481	0.602	0.918	
CBA	0.666	0.712	0.647	0.566	0.612	0.822

Source: Data Analysis, 2024

Still, according to (Gio, 2022), if the AVE square root value is smaller than the correlation value between latent variables, it indicates a discriminant validity problem. **Table 7** shows that the square root value of AVE (diagonal row) is greater than the correlation value with other latent variables. This data shows that the latent variable has a stronger relationship with its dimensions/indicators than other latent variables. The results of the Fornell-Larcker criterion test indicate no discriminant validity problem.

After the measurement model of each latent variable is described, the structural model will be described, which will examine the effect of the independent latent variable (exogenous latent variable) on the dependent latent variable (endogenous latent variable). The following is a summary of the values used in structural model testing.

Table 8. Results of Verification of Influence Between Variables

Path	Coefficient	t-statistic	p-value	R ²	f ²	Decision
HF => CBA	0.251	2.173	0.015	0.641	0.086	H1 accepted
TF => CBA	0.234	1.498	0.067		0.056	H2 rejected
OF => CBA	0.248	1.990	0.023		0.097	H3 accepted
EF => CBA	0.064	0.657	0.256		0.008	H4 rejected
PTF => CBA	0.181	1.688	0.046		0.047	H5 rejected

Source: Data Analysis, 2024

Table 8 shows that the R square value, human factors, technology, organisation, environment, and perceived trust simultaneously influence 64.100 per cent of the adoption of cloud-based accounting in the Indonesian banking sector. The effect size value (f²) is interpreted as a significant effect if it is greater than 0.350, a medium effect if it is greater than 0.150 and a small effect if it is greater than 0.020. The effect size (f²) shows that human factors, technology, organisation, and perceived trust do not affect cloud-based accounting adoption. Meanwhile, environmental factors alone do not affect the adoption of cloud-based accounting. The following is an explanation of the hypotheses in **Table 8**:

H1: Human factors have a positive effect on cloud-based accounting adoption.

Human factors in adopting cloud-based accounting are 2.173, with a p-value of 0.015. Because the p-value is smaller than 0.050, at the 5 per cent error level, it is decided to accept the prediction of H1. Thus, human factors positively affect cloud-based accounting adoption in the Indonesian banking sector. The results of this study provide empirical evidence that the better the competence of banking human resources, the more cloud-based accounting adoption in banking will increase.



H2: Technological factors do not affect cloud-based accounting adoption.

Table 8 shows the t-count value of the effect of technological factors on the adoption of cloud-based accounting is 1.498 with a p-value of 0.067. Because the p-value is greater than 0.050, at the 5 per cent error level, it is decided to reject the prediction of H2. Thus, technological factors do not affect cloud-based accounting adoption in Indonesian banking deposits. The results of this study provide empirical evidence that the lack of technological factor support from cloud-based accounting services will reduce adoption in banking.

H3: Organisational factors have a positive effect on cloud-based accounting adoption.

It can be seen that the t-count value of the effect of organisational factors on the adoption of cloud-based accounting is 1.990, with a p-value of 0.023. Because the p-value is smaller than 0.050, at the 5 per cent error level, it is decided to accept the prediction of H3. Thus, organisational factors positively affect cloud-based accounting adoption in the Indonesian banking sector. The results of this study provide empirical evidence that the stronger the support from the organisation, the more cloud-based accounting adoption will be in banking.

H4: Environmental factors do not affect cloud-based accounting adoption.

The count value of the effect of environmental factors on cloud-based accounting adoption is 0.657, with a p-value of 0.256. Because the p-value is greater than 0.050, at the 5 per cent level of error, the prediction of H4 is rejected. Thus, environmental factors do not affect cloud-based accounting adoption in the Indonesian banking sector.

H5: The perceived trust factor does not affect cloud-based accounting adoption.

It can be seen that the count value of the effect of perceived trust factors on the adoption of cloud-based accounting is 1.688, with a p-value of 0.725. Because the p-value is greater than 0.050, at the 5 per cent level of error, the prediction of H5 is rejected. Thus, the perceived trust factor does not affect cloud-based accounting adoption in the Indonesian banking sector.

DISCUSSION

After a thorough theoretical review and considering the research location in the Indonesian banking sector, five variables were selected: a combination of the TOE and HOT-Fit models and perceived trust as an extension of the TOE and HOT-Fit models. All these variables are proposed to have a very beneficial relationship towards cloud-based accounting. It is evident from the results of hypothesis testing that three variables (human, technology, and organisation) show a significant positive relationship to cloud-based accounting adoption. Environmental factors and perceptions of trust do not affect cloud-based accounting adoption. A discussion of the results of this research variable and previous research will be described in this section.

The results of human factors research, which include innovation, knowledge, acceptance, and training, align with the research hypothesis that human factors have a significant positive effect on CBA. The research results align with the opinion of



(Premarathne et al., 2021). Human factors such as innovation, knowledge, acceptance, and training significantly influence cloud accounting adoption in the banking sector. Innovation helps increase efficiency and the ability to adapt to new technologies. Sufficient knowledge allows employees to be better prepared to use the technology. Acceptance from employees is crucial because if they support the new technology, the adoption process will be smoother. Adequate training also reduces resistance and errors in the use of technology.

The results imply the importance of individual readiness in supporting digital transformation. Innovation from employees allows companies to be more flexible in adopting new technologies, while sufficient knowledge makes it easier to understand the benefits and workings of CBA. Acceptance from employees is key as their positive attitude accelerates the transition to the new system. Adequate training minimises errors and resistance, increases technical competence, and ensures that technology can be effectively integrated into daily operations. This result is in line with the opinion of (Premarathne et al., 2021), which emphasises the importance of human factors in the technology adoption process in the banking sector.

Technological factors (TF), including indicators of relative advantage, complexity, data security, and compatibility, are not aligned with the research hypothesis and the study by (Premarathne et al., 2021), which states that TF significantly influences the adoption of cloud-based accounting (CBA). TF does not affect CBA, which is consistent with the view of (Hamundu et al., 2020), attributed to Indonesia's lack of technological preparedness, particularly concerning privacy security. Cloud-based accounting raises many concerns in the banking sector due to the vulnerability of client financial data to third parties (Eldalabeeh et al., 2021). Another factor is that banks may already have well-established and reliable systems, thus not perceiving significant advantages in switching to CBA. Technological complexity can also hinder adoption, especially if significant changes to existing infrastructure are required.

Additionally, data security issues may be a primary concern given the banking sector's strict regulations regarding customer information protection. Compatibility with existing systems can also be a challenge, leading banks to hesitate in adopting new technologies if significant additional investment is required. This lack of adoption can impact banks' competitiveness, particularly against more agile fintech and digital finance companies. It may also slow down the digital transformation of the banking sector, ultimately affecting banks' ability to respond quickly to market changes. Therefore, it is crucial to monitor technological developments continuously, and the market needs to remain responsive and competitive.

Organisational factors (OF) include indicators of top management support and technological readiness, as shown by hypothesis testing results, which show a significant positive effect on CBA. This finding is in line with the hypothesis in this study and line with previous research (Hamundu et al., 2020), which reveals that organisational factors of top management support and technological readiness have a significant positive effect on CBA, this relates to the readiness of support both human resources, infrastructure, and budget in the organisation. This finding implies that organisations with top management support, adequate technology infrastructure, and prepared human resources are likelier to adopt CBA technology successfully. In addition, the results of this study are consistent with previous research.

Environmental factors (EF), which include indicators of government support and competitor pressure, were found to have no impact on CBA. These findings are inconsistent with the proposed hypothesis and do not align with the statements of (Chen J. & K. Wakil,



2020) and (Tawfik et al., 2023), which state that EF positively affects CBA. Environmental factors, such as government support, cannot drive banks towards CBA (Ali & Anup, 2020), which is a concern for the Indonesian government, particularly regarding issues of management, digitalisation, storage, transmission, and data protection in the implementation of sector-based banking technology (Riswandi & Abdurrahman, 2018). Several European countries, including the Netherlands, Spain, and Italy, have addressed this issue (Korizma, 2018). Other research identifies specific threats to implementing cloud-based technology in Indonesia, including data security threats, data protection, trust, jurisdiction issues, and a lack of specific regulatory standards related to cloud-based technology (Arsjad et al., 2020). Banks store customers' private information, so they must be able to protect this data from cyber attacks.

According to the hypothesis testing results, the Perceived Trust Factor (PTF), which includes privacy, simplicity, and reliability, did not impact CBA. This outcome is inconsistent with the proposed hypothesis and does not align with the findings of (Kenesei et al., 2022), which suggested that trust does affect CBA. When factors like privacy, simplicity, and reliability do not influence CBA, it could indicate that users already consider these aspects as integral to standard CBA solutions or feel they have sufficient trust in the technology. This also implies that users are more focused on the practical and functional benefits of the CBA system.

CONCLUSION

The researcher's results show that human factors significantly affect cloud-based accounting adoption in the Indonesian banking sector. This reveals that human factors are the main determining factor and need to be considered for further improvement by banks, thus creating an opportunity to adopt cloud-based accounting.

Technological factors have an insignificant effect on adopting cloud-based accounting in the Indonesian banking sector. This is due to the privacy issues of cloud-based accounting in the sector, which have raised many doubts due to the vulnerability of client financial data to parties.

Organisational factors significantly affect cloud-based accounting adoption in the Indonesian banking sector. This reveals that the organisation supports cloud implementation, top management support, and technological readiness that is, readiness for supporting human resources, infrastructure, and budget.

Environmental factors are not significant in cloud-based accounting adoption in the Indonesian banking sector. This reveals that one environmental factor, government support, cannot encourage banks to adopt cloud-based accounting. This finding is a concern for the Indonesian government, one of which is the problem of management, digitisation, storage and transmission, and data protection, which is an issue in applying this technology in the banking sector.

The perceived trust factor is insignificant in cloud-based accounting adoption in the Indonesian banking sector. This finding is due to decreased trust when there is a data leak in banking. If there is a data leak in banking, it is recommended that users have control over their data. If it is resolved, the perception of trust can encourage respondents to apply cloud-based accounting in the Indonesian banking sector.

This study found that human, technological, and organisational factors can influence cloud-based accounting adoption. This finding is helpful for the banking sector to pay attention to and improve these factors so that the development of this software is in line with



infrastructure, standard operating procedures, government regulations, and accounting standards. If this factor is applied correctly and maximally, the perception of trust from users will continue to survive. These findings are also helpful for knowledge because human, technological, and organisational factors can significantly affect cloud-based accounting adoption in the Indonesian banking sector. In contrast, other company sectors need further development of environmental factors and perceived trust.

The first limitation of this research is that the respondent sector is only the banking sector, so the location of the research data is less extensive. The second limitation is that the research only obtained less than 100 respondents and was conducted for only one period, so no data was omitted to get maximum results on each variable. This situation recommends that future researchers expand this study's sample size or research location and expand existing factors. Expanding factors by adding or replacing those that have been researched, such as taking cultural factors on cloud-based accounting adoption. It could also expand from environmental factors by adding industry characteristics or external support (service providers).

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