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ANALYSIS OF FACTORS AFFECTING ADOPTION OF CLOUD ACCOUNTING IN INDONESIA

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ABSTRACT

Cloud accounting is a novelty in accounting information systems. Cloud accounting is the result of the digitization process in accounting, based initially on complex traditional application systems to cloud-based applications to handle accounting tasks more flexibly and efficiently. Research on cloud accounting has not become a common topic in developing countries, especially in Indonesia. This study analyzes the factors of cloud accounting in Indonesia. A self-administered questionnaire was conducted with 175 accounting staff in Indonesia. The results indicate that top management support, organizational competency, service quality, and system quality positively affect the perceived usefulness and ease of use of cloud accounting. Perceived usefulness positively affects the intended use, while perceived ease of use positively impacts the perceived usefulness and intention to use cloud accounting. Intention to use cloud accounting has a positive effect on adoption. Therefore, accounting staff can adapt to the dynamic technology innovation by investing in cloud accounting, which has the potential for high industry values. The use of cloud accounting can also facilitate accounting staff to manage their work better. The ability of the small firm to use cloud accounting is a crucial factor in creating new development for industry continuity, accompanied by establishing relationships based on data.

Keywords: *Cloud Accounting, TOE (Technology, Organization, Environment), TAM (Technology Acceptance Model), D&M (DeLone-*McLean)

1. INTRODUCTION

Cloud computing has been introduced to create a new business model. It is one of the platforms for future business changes [1]. The existence of cloud computing has become a transformation and has shown a direct impact on future accounting. Cloud service providers are also developing cloud-based accounting applications. Accounting-based software acts as an integrated accounting application that operates on a server and can be accessed through a web browser. It has changed the way accounting works in the company [2]. In the Practice of Now 2018 survey, about 67% of accountants believe that cloud technology can make accounting work easier to complete.

In comparison, 53% of respondents use cloud-based technology for project management and customer communication [3]. Cloud is becoming a popular technology that allows companies easy access, especially in accounting. Furthermore, it has become a solution in a pandemic condition with a working system that can switch remotely. It also offers a solution for creating workflows to save time. The benefits of cloud accounting encourage businesses to switch to cloud-based accounting systems.

Another phenomenon is that widespread development of online-based accounting software has excellent digital potential due to the significant increase in Internet users worldwide (i.e., 204.7 million), startup spread, and the digital transaction economy of Southeast Asia [4]. The 77% of Indonesian companies use cloud-based IT, and 83% believe it can become a business solution during the pandemic [5].

In the age of globalization, the need for access to information has become an important requirement, including in the field of accounting. It indicates the presence of a cloud accounting system used by accountant. The adoption of cloud accounting is important because as a solution to the current problems, one of the problems discussed in

this study is the desktop accounting system used by companies in handling transaction accounting processes that are very inefficient or cannot be integrated with other systems, such as runs on a single computer and data can only be transferred via USB drive or hard drive. This type of storage is insecure and unreliable. Insecure data storage makes users nervous because data is stored on a local server so it can be accessed and manipulated; Access is granted to only one person, so no one else can access financial details and important customer data. In addition, desktop accounting software makes customers expensive in maintenance costs and operational training, and is vulnerable to unauthorized data entry so that data is not up to date. These problems affect the company like market value loss and can also affect the company's performance and fatally affect the company's reputation [6].

According to [7], [8], [9] cloud accounting is more profitable and has many advantages. The existence of cloud accounting offers many long-term benefits for businesses. One of them is a cloud accounting system that provides real-time financial reports and visibility across the company as long as the device is connected to the internet and can also be integrated with other systems; Businesses can get regular software updates without purchasing additional systems, helping businesses manage success and costs [10]. According to [11] cloud accounting is an innovative solution for small and medium-sized businesses because it can save funds for accounting software development; and [10] found that cloud accounting and its costs have a significant impact on the performance of public manufacturing companies.

However, the decision to adopt cloud accounting in the company or used by accountants is still relatively low, influenced by logistical problems [12]. For example, the lack of top management support in terms of socializing cloud-based accounting technology [13]. Inadequate organizational competencies when utilizing digital transformation such as the competence of accountants and human resource technology infrastructure. In addition, perceived usefulness and perceived ease of use lead to perceptions of users who tend to avoid developing accounting technology [9], [14]. Finally, service quality and system quality are still in doubt by users such as the level of data security where there is data leakage [11], [8], [9]. Based on survey results from security insiders, 68% of misconfigurations on cloud platforms caused data leaks, 58% of insecure access data that could be manipulated, and 52% of problems in the API (Application Programming Interface), 50% account hijacking, service , and traffic. In addition, 43% share data, 36% malicious insiders, 33% hackers, 28% denial-of-service attacks in the cloud [6].

For some of the above issues, cloud accounting can have a powerful impact and successfully manage risk. One of them is as management that provides support in using and leveraging cloud accounting so that the accounting staff have a high level of confidence in getting their jobs done; Improving organizational readiness such as human resource quality, adequate technological resources for cloud accounting implementation such as full computer access and high-bandwidth connectivity; As a provider, you can improve service and system quality by adding convenience, data security, as well as reliable cloud accounting operating system, quick system responses according to business needs, effective data integration from different company departments, and cloud accounting systems with easily accessible information facilities; Perceived usefulness Organizations must provide understanding to users in order not to create user perceptions that tend to avoid adopting cloud accounting. For users to believe that using a cloud accounting system will improve performance within the company; Perceived ease of use, the company's importance of providing users with confidence that using a cloud accounting system does not require a great deal of effort, rather it is easy to understand, use and operate to complete and fulfill tasks or work; Finally, intending to use cloud accounting means building attitudes and supporting service users to use cloud accounting in their work as much as possible so that they can have a positive impact on businesses when they use cloud accounting systems in their work and use.

The above research shows that the cloud accounting performance has an efficiency advantage that is better than the desktop accounting software. As a novelty of this study, we combined TOE (Technology, Organization, Environment) framework, D&M (DeLone-McLean) success factors and TAM factor (Technology Acceptance Model) and observed several factors from the

framework such as top management, organizational compentency, service quality, system quality, perceived uselfulness, perceived ease of use, intention to use that influence intentions when introducing cloud accounting. We will observe the presence of cloud accounting in several companies in the Indonesia region, which has increased cost management success and company performance.

In the past, researchers [15] put forward a theory called Technology-Organization-Environment (TEO), which states that technology acceptance, technology use, and value creation from technological innovations depend on technological developments. They examine these three aspects as factors affecting the potential adoption of technology in an organization or business. In this theory, the basis for cloud accounting adoption is variable top management support and organizational competence. The researcher uses the variable top management support to determine the actions of organizational leaders about the usefulness of innovation in creating value for the organization; organizational competency variable to determine organizational readiness in relation to the company's resources.

Technology Acceptance Model (TAM) is the behavioral intention influenced by the individual's personal attitude towards information systems. The TAM model is a derivative of the TRA model, in which the success of using information technology is the user's willingness to accept information technology, one of which is perceived usefulness and perceived ease of use [16]. Perceived usefulness and perceived ease of use are the main determinants of system usage [17]. Theoretically, there is a strong relationship between acceptance and intention to use TAM [18]. In this theory, the research proposal for the hypothesis technique is the perceived utility variable. This study uses these variables to observe the perceptions of people using cloud accounting to improve their performance; Perceived ease of use to observe cloud accounting users' confidence in using the system does not require much effort; Intention to use cloud accounting is the observation of cloud accounting user attitudes in the form of acceptance or rejection as an impact after using the system.

The latest theory of this research was provided by [19] describes a theory called the Information System Success Model (De Lone and McLean Model), which means a model for measuring the success of information systems. They created an information systems success model and proposed a comprehensive instrument for measuring success that combines individual measures of the information systems success categories. One of the variables used in this study is service quality and system quality. This study uses these variables to observe the subjective assessment of cloud accounting users towards the provider of the system service provider; System quality to observe the characteristics of availability, reliability, usability, flexibility and responsiveness of the system as success factors in cloud accounting adoption.

This study is expected to benefit various parties, mainly accountant, and change the paradigm and perception of accountants: cloud accounting systems do not pose a threat. It will also positively impact the work order of accountants. This study is also expected to provide benefits and good input for organizations regarding cloud accounting adoption. Consequently, this study aims to expand existing knowledge by offering several new contributions to the existing literature. First, trying to add to the existing literature by providing evidence of the factors of cloud accounting adoption in Indonesia by combining the three best theories of TEO, TAM, and De Lone and McLean. Second, it provides new evidence about the extent to which all tested variables positively affect the intention to use cloud accounting. Finally, it offers new evidence about the influence of cloud accounting adoption factors on the level of top management support, organizational competency, service quality, system quality, perceived usefulness and perceived ease of use, and intention to use cloud accounting. Furthermore, this study can benefit academics.

This research is structured as follows: literature review, discussion, and conclusion. In the next part, the literature review will be presented. The discussion part reveals significant discoveries and discusses their theoretical and practical implications, limitations, and future research. The final section concludes the results.

2. LITERATURE REVIEW

This study seeks to investigate the factors which influence cloud accounting in Indonesia.

2.1 Cloud Accounting

Cloud technology optimizes information at an efficient cost and investment level. It is transforming traditional, static, closed, and centralized technology schemes into dynamic and

open technology with the possibility of unlimited time and space access [20]. Standard accounting software is usually installed on the user's computing device. However, cloud-based accounting software is a service provided by a provider with a license and other required additional equipment accessible through a computer or other technological device connected to the Internet [8]. Cloud accounting processes financial data without access restricted by time and location [21]. Cloud accounting was initially based on a complex traditional application system to a cloud-based application system to become more mobile, flexible, and efficient in completing accounting tasks. The form of cloud accounting services is web-based [22]. The accounting process performed via the cloud is an innovative solution for small and medium-sized businesses because it allows cost savings in developing accounting software [11].

Some types of cloud-based accounting software products for manufacturing companies that are accurate and online are SAP software, Deskera MRP, Oracle, and Netsuite. Meanwhile, some types of accounting software for SMEs include FreshBooks, QuickBooks, Xero, and Harmony [23], [22]. Cloud accounting provides benefits to a company, such as no maintenance, reduced internal IT requirements, time-saving, real-time, remote access, cost-effectiveness, avoiding downtime, and accounting security [8], [9], [7]. The accounting process performed via the cloud is an innovative solution for companies because it saves costs for the development of accounting software.

Despite the advantages of cloud accounting, this policy tends to be prone to cyberattacks. Some of the risks of cloud accounting are service disruption, application modifications, the potential for unwanted access, lock-in to a cloud service provider, financial vulnerabilities, incompatibility with business systems and processes, accidental breaches, and duplicate transactions [11], [7], [8], [24], [9].

2.2 Cloud Accounting Adoption Theories

This research is based on three theoretical frameworks: the TOE (Technology, Organization, and Environment), TAM (Technology Acceptance Model), and D&M (DeLone-McLean) models. These theories have been widely reported and tested in the literature. TOE and TAM are used in technology adoption at the individual level. Therefore, the authors recommend combining TAM and TOE to increase predictive power and overcome the limitations of the resulting model. However, TAM and TOE framework variables vary contextually, and the results of their significance are different in each research case [25]. In addition to the combination of TOE and TAM, this research combines the D&M (DeLone and McLean) model. Based on the inherent definition and studies focused on the D&M model, this model can measure the success of information systems. However, extending, refining, and validating the model in different cases are necessary to cover the congruent variables [26]. Therefore, the authors combine these models to increase explanatory power.

2.3 TOE (Technology, Organization, Environment) Framework

TOE shows innovation supports technological, organizational, and environmental development [27]. TOE tends to have an unclear structure [28] and is considered a generic model [29]. Therefore, the TOE framework needs to be strengthened by integrating models that have an explicit construction. This study develops organizational factors which are essential to explain the new system. Organizational factors include tangible and intangible resources required by organizations in terms of characteristics, structures, processes, and resources, including top management support and organizational competency [30]. Top management is one of the predictors of the best results in introducing system innovations [31]. Meanwhile, organizational competency is a very influential factor in increasing the use of technology [32].

2.4 TAM (Technology Acceptance Model)

TAM is used to provide information systems for users with insights and knowledge about the factors of acceptance and use of information systems and to enable management interventions to increase their use [33]. The initial key to the successful implementation of information technology is the willingness of users to accept information technology, whether information technology is useful and provides users with convenience [34]. TAM factors affect the system usage, perceived usefulness, perceived ease of use, attitude toward using the system, and actual system use [16]. Two of the most critical factors in the TAM model are perceived usefulness and ease of use which are then complemented by intention to use. The perceived benefit is a crucial factor in the intention to use the system [35], [36].

Meanwhile, perceived ease of use is the best indicator for system adoption [37]. Not only the two models, but the other most crucial endogenous variable identified from the TAM model is also the intention to use. Intention plays a vital role in using new technologies [16].

2.5 D&M (DeLone and McLean) is A Success Model)

D&M (DeLone and McLean) is a model describing the dimensions of information systems' success [38]. The D&M model can be described as follows: system quality, information quality, system usage, user satisfaction, individual impact, and organization impact [38]. However, some researchers have argued and changed this research. Therefore, the model has been revised by adding service quality variables and changing several variables to adapt the model to technological developments. In this case, the revised model consists of six factors which include three quality factors: information quality, system quality, and service quality. The remaining three factors are usage intentions, user satisfaction, and system benefit [26]. The revised D&M model provides strong support that quality factors are important aspects of information success [39], [40], [41]. However, it lacks theoretical support for the relationship between quality features and beliefs and individual intentions to use in the context of cloud computing. Therefore, the authors use theoretical support from D&M and TAM to complement each other and help overcome each other's weaknesses. One of the successful models of information systems used in this study includes service quality and system quality. Service quality is a motivation for system adoption [32]. Meanwhile, system quality is mentioned as one of the crucial factors in increasing usability [42].

2.6 Combining TOE, TAM, D&M

The TOE, TAM, and D&M, which have been widely used in the literature, serve as the foundation for this investigation. TOE and TAM are used in technology adoption at an individual level. Using perceived usefulness and ease of use, TAM explains about 40% of system usage with undefined variables and is added many times to extend the model [43]. TOE tends to have an unclear construction [44] and is considered an overly generic model [29]. Therefore, the TOE must be strengthened by incorporating it into models with precise construction. The authors recommend integrating TAM and TOE to increase predictive power and overcome the limitations of the resulting model.

TAM is developed by understanding the behavioral aspects of accepting new technologies. Therefore, the authors add some additional external variables to construct TAM [45]. In addition to combining TOE and TAM, the authors also combine the D&M models. The D&M model can measure the success of information systems. However, there is a need to extend, refine, and validate the model in different cases to include aligned variables [26]. As a result, the authors conceptualize this model to increase its explanatory power.

Combining the three theories, the authors use several factors from these three theories. In TOE, the elements used in this study include top management support and organizational competency. Top management support is essential to create a supportive climate for introducing new technologies [46]. In addition, organizational competency describes organizational readiness, accompanied by awareness, resources, and commitment to adopting IT. Organizations with competence drive corporate decisions for IT adoption [47]. Consequently, it becomes essential for the authors to make organizational competency one of the variables in the study.

TAM uses two main constructions: perceived usefulness and perceived ease of use [48]. Perceived usefulness and perceived ease of use are the most important determinants of system usage [47], [49]. Theoretically, there is a strong relationship between acceptance and intention to use TAM [18]. Therefore, the intention to use is a valid measure in the system implementation phase. The revised D&M strongly supports that quality score is an essential aspect of information success [39], [40], [41]. The authors then use the theoretical support of D&M and TAM to account for quality factors, quality service and system quality, perceived usefulness, perceived ease of use, and intention to use.

Based on the above explanation, the literature determines the significance of integrating TAM, TOE, and D&M variable models [25]. Therefore, it is expected that this research can contribute to the literature on the successful adoption of cloud accounting systems.

3. HYPOTHESIS DEVELOPMENT

Based on the above arguments, the proposed model, as depicted in Figure 1, combines TOE, TAM, and D&M success factors. The combination of the three theories is believed to explain the adoption, acceptance, and successful implementation of systems in organizations. The theories used in this study will provide insights into the dimensions of the organization, service quality, and system quality and how it affects the perceived usefulness and ease of adoption of new technology. Therefore, the perceived usefulness and ease of use will encourage individuals to use and adopt new technologies. The seven factors included in the research model are top management, organizational competency, service quality, system quality, perceived usefulness, perceived ease of use, and intention to use.

3.1 Top Management Support (TMS)

Top management support is the perception and action by organizational leaders about the usefulness of innovation in creating values for the organization [50]. Top management support is crucial to create a favorable climate and allocating adequate technology adoption resources [51]. The top management support significantly impacts cloud technology use as management plays a vital role in adjusting resource budgets, service integration, and business design [25], [52]. One form of management behavior is to support initiative and participation in introducing and disseminating IT within the organization [53]. Previous studies have demonstrated that top management support is significantly associated with perceived usefulness and perceived ease of use [54]. Based on these arguments, this study postulates that:

H1a: Top management support has a positive effect on perceived usefulness

H1b: Top management support has a positive effect on perceived ease of use

3.2. Organizational Competency (OC)

Organizational competency is the readiness of the organization for the company resources [55]. Organizational readiness describes managers' perceptions and ratings of the trust level in the organizations they lead with the awareness, resources, commitment, and governance to adopt IT [56]. There are two dimensions of organizational readiness: financial resources and technological readiness [55]. Financial readiness relates to the implementation of technological innovations and sustainable usage costs. In contrast, technological readiness relates to the use and management of infrastructure and human resources [57]. Firms with adequate infrastructure, skilled labor, and financial support will increase the usability of technology [25]. Previous research has shown that organizational competency significantly affects perceived usefulness and perceived ease of use [54], [32], [25]. Based on these arguments, this study postulates that:

H2a: Organizational competency has a positive effect on perceived usefulness

H2b: Organizational competency has a positive effect on perceived ease of use

3.3 Service Quality (SCQ)

Service quality describes the quality of services given by information system service providers to users, such as reliability, empathy, response, and assurance [26]. Quality of service is a subjective assessment conducted by information system users towards providers or information service providers to the extent to which the specific needs of users are met [58]. Good service quality motivates companies to adopt IT. One level of service quality is the ease of access. Thus, companies will adopt IT if the services provided are easy to access. The adoption of cloud accounting provides direct benefits regarding ease of access [32]. Based on previous research, it has been proven that the level of quality of technology services to users significantly affects the use of online services in an organization [59]. However, other research results state that service quality has a negative effect on perceived usefulness [54]. Based on these arguments, this study postulates that:

H3a: Service quality has a positive effect on perceived usefulness

H3b: Service quality has a positive effect on perceived ease of use

3.4 System quality (SQ)

System quality measures essential characteristics in information systems, such as system availability, reliability, usability, flexibility, and response time, as success factors for a system [26]. System quality measures information system processes focused on user and information systems interaction [57]. An IT system is said to be good when it is relevant to the needs of its users or can provide utility and convenience. System quality is measured in terms of usability, functionality,

reliability, flexibility, data quality, portability, integration, and importance. The results of previous studies show that system quality positively impacts perceptions of perceived usefulness and perceived ease of use [54]. Based on these arguments, this study postulates that:

H4a: System quality has a positive effect on perceived usefulness

H4b: System quality has a positive effect on perceived ease of use

3.5 Perceived Usefulness (PU)

Perceived usefulness is the subjective probability of potential users who perceive that using the system will improve work performance in the organizational context [16]. Cloud computing provides many benefits for users, such as a mobility system, reduced cost of efficient computing, ease of installation and maintenance, and easy data analysis online [60]. Individuals will usually use new technology if they feel it brings more usefulness than the effort required, which significantly influences the behavioral intention of users [61]. Cloud computing provides significant advantages to users [62], [36]. Previous research has proven that perceived usefulness significantly affects the intention to use cloud accounting [63], [54]. Based on these arguments, this study postulates that:

H5: Perceived usefulness has a positive effect on the intention to use cloud accounting

3.6 Perceived Ease of Use (PEU)

Perceived ease of use is the perception that using the system can affect the perceived benefits, as the easy-to-use technology can be more beneficial [64]. Ease of use includes aspects for the acceptance of new technologies, such as mobile Internet [65], Internet banking [37], and smartphone technology [66]. However, hybrid statistical modeling was used in the context of mobile commerce adoption in China. It was found that ease of use was not statistically significant [67]. However, previous research stated that perceived ease of use is an essential determinant of the acceptance of information systems, such as wireless Internet, Internet, and mobile information systems [68], [69]. It also positively affects perceived usefulness and intention to use cloud accounting [54], [63]. Based on these arguments, this study postulates that:

H6a: Perceived ease of use has a positive effect on perceived usefulness

H6b: Perceived ease of use has a positive effect on the intention to use cloud accounting

3.7 Intention to Use Cloud Accounting (IA)

Intention to use is an attitude of acceptance or rejection because of the use of technology at work. Therefore, the attitude does not predict the intention or use [70]. However, a positive attitude will be present if the users believe that technology will help improve performance and productivity [71]. In this case, the intention to adopt cloud accounting technology will be positively influenced. Based on these arguments, this study postulates that:

H7: Intention to use cloud accounting has a positive effect on cloud accounting adoption

As shown in Figure 1, the suggested model incorporates the success factors of the TEO, TAM, and D&M) and includes multiple variables: organizational competency, service quality, and system quality as the exogenous variables. The endogenous variables are perceived usefulness, perceived ease of use, and intention to use cloud accounting. At the same time, cloud accounting adoption is a dependent variable.

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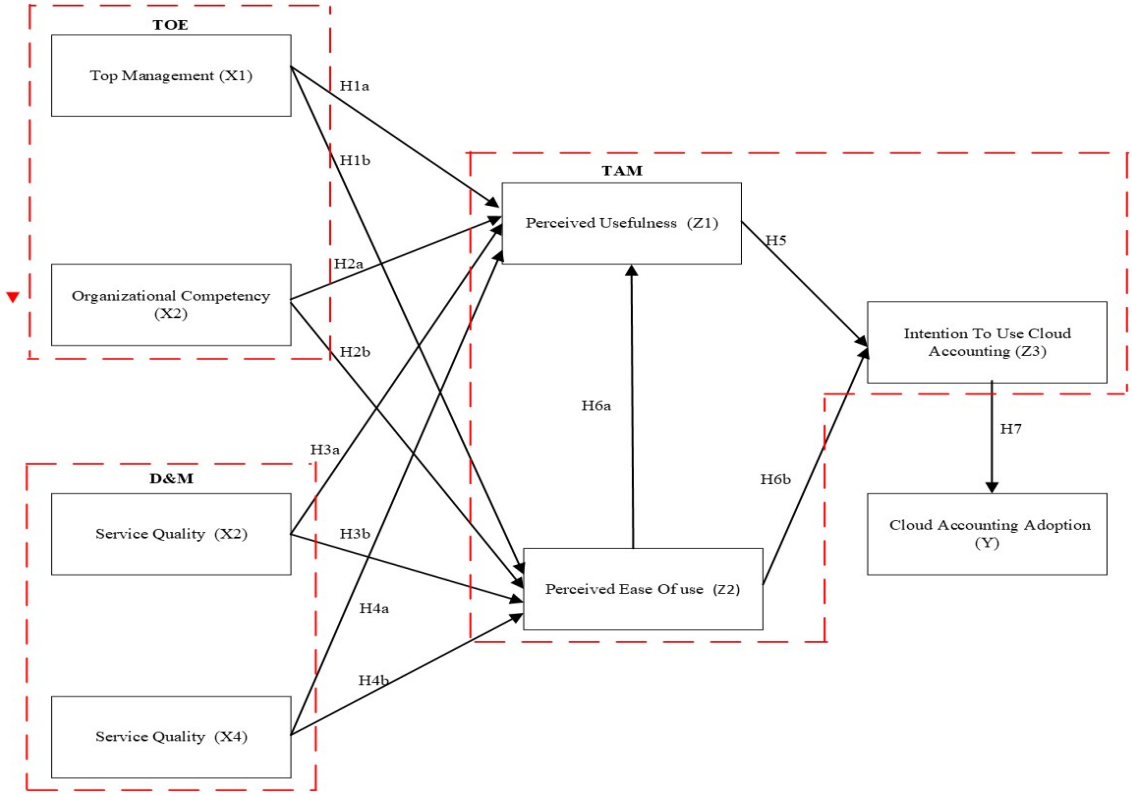

Figure 1: Conceptual Research Model

4. METHODS

This study has been tested using quantitative methods. Meanwhile, this study uses a purposive sampling method to obtain representative data. This method is used because it is suitable for quantitative research or non-generalized research [72]. The sampling criteria in this study were accounting staff and using cloud accounting. A quantitative research approach used a survey instrument to explore and evaluate the relationships in the postulated model. Quantitative research methods are used to examine specific samples formed from questions to find the number of phenomena and build research numerically or statistically [73]. The data source used in this study is primary data from questionnaires. A questionnaire survey is an appropriate approach to test hypotheses [74]. There are 35 questions divided into three parts. The items were adopted from well-established and published works based on the models. Four items were taken from [26] and [75] to measure cloud accounting adoption. The top management support construct was measured through 5 items adopted from [76], [73]. The four organizational competency constructs were derived from [25], service quality concept derived from [77], system quality and perceived usefulness constructs were adopted from [72], and perceived ease to use was adopted from [76].

In contrast, the intention to use cloud accounting was measured using three items adopted from [25]. All item indicators were scored using a four-point, Likert scale (Likert, 1932), from "1 = strongly disagree" to "4 = strongly agree. The questionnaire was created via a Google form and then shared via social media and group posts from April 26, 2022, to March 29, 2022. The participants of this study comprised accountant of private sectors who work in trading firms, services, banking, and manufacturing industries in Indonesia. Due to the unknown population of cloud accounting users, the formula was used to get the sample. The Lemeshow formula is:

$$n = \frac{z^2_{1-\alpha/2} \times p(1-p)}{d^2} \quad (1)$$

$$= \frac{1.96^2 \times 0.5(1-0.5)}{(0.1)^2}$$

$$= 96.04$$

$$\approx 100$$

From the formula, we obtained a minimum sample of 100 respondents. Two hundred and fifty-three respondents completed the questionnaires collected. Testing the validity and dependability of each indicator is the initial step in assessing the model, followed by hypothesis testing. The validity test uses convergent validity, average variance extracted (AVE), and discriminant validity. Reliability tests use composite reliability and Cronbach's Alpha. After completing these stages, we conduct structural model analysis (hypothesis testing). Hypothesis testing observes the P-values and t-tests to determine the relationship of the independent variable to the dependent variable.

5. DATA ANALYSIS AND RESULTS

From the results of 253 respondents who completed the questionnaire, only 175 were selected for this survey. The remaining respondents, including 78 individuals, contradictory and did not match every question. The number of respondents based on the distribution of the questionnaire is shown in Table 1.

Table 1: Questionnaire Distribution

Questionnaire Distribution	**Total respondents**
Return questionnaire	253
Questionnaires that do not use cloud accounting	61
Questionnaires that use cloud accounting not as accounting staff	17
Questionnaire that uses cloud accounting as accounting staff	175

Respondents who filled out this research questionnaire were 175 respondents. Respondents grouped by age were 8 respondents (4.6%) in the < 20 age group, 140 respondents (80%) in the 21 – 30 age group, 22 respondents (12.6%) in the 31 – 40 are group, and 5 respondents (2.8%). In the 41 – 50 age group. Table 1 and figure 2 shows the demographic respondents which include more details regarding the age, gender, education, level, category and size firms, provider, frequency, and fiture cloud accounting.

Table 2: Demographic respondents

	N	(%)
Age		
< 20 years old	8	4.6%
21 – 30 years old	140	80%
31 – 40 years old	22	12.6%
41 – 50 years old	5	2.8%
Gender		
Male	59	33.7%
Famale	116	66.3%
Education		
Senior High School	31	18%
Diploma Degree	6	3%
Under Graduate	134	77%
Post Graduate	4	2%
Level		
Accounting Staff	146	83.4%
Supervisor	20	11.4%
Manager	8	4.5%
Director	1	0.5%
Category Firm		
Trading Firms	28	16%
Services Firms	111	63%
Banking	15	9%
Manufacturing Industries	21	12%
Size Firm		
Large Firms	34	19%
Small Firms	25	14%
Medium - Size	116	67%
Cloud Accounting Provider		
Provided from Vendor	140	80%
Internally developed	35	20%
Frequency Of Use Of Cloud Accounting		
Rarerly Used	1	0.5%
Occasionally	26	15%
Frequently	148	85%

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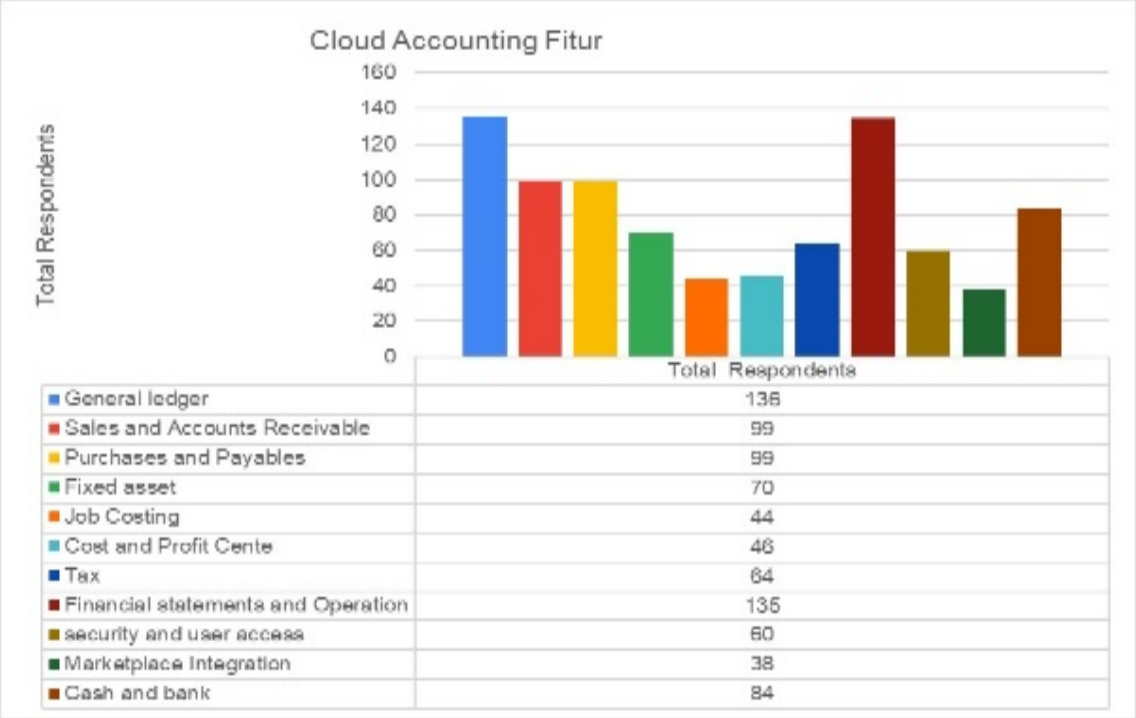

	Total Respondents
General ledger	136
Sales and Accounts Receivable	99
Purchases and Payables	99
Fixed asset	70
Job Costing	44
Cost and Profit Cente	46
Tax	64
Financial statements and Operation	135
security and user access	60
Marketplace Integration	38
Cash and bank	84

Figure 2: Respondents Based on Accounting Fitur

Figure 2 shows that the cloud accounting features used by respondents are general ledgers with a 78% respondent rate and financial and operational reports with a total of 77%. A feature rarely used by respondents is marketplace integration, with 22% of respondents.

5.1 Measurement Model Evaluation

Convergent validity is satisfied when all item loadings must be more than 0.70, showing that the constructs account for more than half of the variation. Table 3 shows that all item loading constructs are greater than 0.7. As proposed by [78] and [79], an additional convergent validity test is undertaken to confirm that the constructs have an Average Variance Extracted (AVE) larger than or equal to 0.50. The latent variable accounts for at least 50 percent of the indicator variables [76]. As such, the AVE for eighth constructs meets the AVE 0.50 requirement.

Discriminant validity was measured as follows: if the square root of the AVE of each construct is greater than the correlation score between constructions and other constructs in the model. Therefore the model achieves a good discriminant score [80]. As shown in Table 4, all items meet this requirement. In addition, scale reliability was assessed for top management, organizational competency, service quality, system quality, perceived usefulness, perceived ease of use, intention to use cloud accounting, and cloud accounting adoption via Cronbach's alpha and composite reliability [80]. The composite reliability and Cronbach's alpha score were > 0.7 [80]. As shown in table 3, the items meet this requirement.

The discriminant validity assessment confirmed that each item loaded more strongly on its target constructs than on any other constructs in the model [80]. As shown in Table 4, all items meet this requirement. Furthermore, scale reliability was assessed for top management, organizational competency, service quality, system quality, perceived usefulness, perceived ease of use, intention to use cloud accounting, and cloud accounting adoption via Cronbach's alpha and composite reliability [80]. The composite reliability and Cronbach's alpha score were> 0.7 [80]. As shown in Table 3, all items meet this requirement

Table 3: Validity and Reliability of the Measurement Model

Construct	Items	Loadings	CA	CR	AVE
Top Management Support	TMS 1	0.761	0.828	0.879	0.592
	TMS 2	0.739			
	TMS 3	0.791			
	TMS 4	0.767			
	TMS 5	0.788			
Organizational Competency	OC 1	0.806	0.839	0.892	0.674
	OC 2	0.841			
	OC 3	0.863			
	OC 4	0.771			
Service Quality	SCQ-1	0.742	0.807	0.866	0.564
	SCQ-2	0.739			
	SCQ-3	0.727			
	SCQ-4	0.782			
	SCQ-5	0.762			
System Quality	SQ-1	0.793	0.849	0.892	0.624
	SQ-2	0.807			
	SQ-3	0.763			
	SQ-4	0.793			
	SQ-5	0.791			
Perceived Usefulness	PU-1	0.789	0.841	0.887	0.611
	PU-2	0.793			
	PU-3	0.795			
	PU-4	0.786			
	PU-5	0.744			
Perceived Ease Of Use	PEU-1	0.855	0.891	0.924	0.753
	PEU-2	0.879			
	PEU-3	0.900			
	PEU-4	0.837			
Intention to Use Cloud Accounting	IA-1	0.852	0.828	0.897	0.745
	IA-1	0.879			
	IA-1	0.857			
Cloud Accounting Adoption	CA-1	0.785	0.822	0.882	0.652
	CA-2	0.802			
	CA-3	0.818			
	CA-4	0.824			

Table 4: Discriminant Validity based on Fornel-Larcker

	CA	IA	OC	PEU	PU	SCQ	SQ	TMS
CA	0.807							
IA	0.663	0.863						
OC	0.433	0.522	0.821					
PEU	0.578	0.453	0.181	0.868				
PU	0.640	0.621	0.605	0.459	0.782			
SCQ	0.350	0.331	0.313	0.464	0.352	0.751		
SQ	0.608	0.559	0.493	0.552	0.672	0.592	0.790	
TMS	0.574	0.438	0.492	0.445	0.566	0.418	0.609	0.769

5.2 Structural Model Evaluation

The second stage of PLS-SEM is evaluating the structural model, which is conducted following the measurement model's specification. The structural path model assessment involves the examination of its statistical significance. Evaluation of P values and T statistic results indicated that all hypotheses were significant. The seven hypotheses were statistically significant at a p-value < 0.05 with an anticipated sign direction. According to Figure 2, seven direct associations (p-values < 0.05 and t- > 1.96 were significant and have a positive effect. Table 3 and Figure 3 summarize the findings

Table 5: Results of Hypothesis Testing

Hypotheses		T – Value	P-Value	Decision
H1a	TMS -> PU	1.737	0.041	Accepted
H1b	TMS -> PEU	2.775	0.006	Accepted
H2a	OC -> PU	4.970	0.000	Accepted
H2b	OC -> PEU	2.814	0.003	Accepted
H3a	SCQ -> PU	2.198	0.006	Accepted
H3b	SCQ -> PEU	2.723	0.007	Accepted
H4a	SQ -> PU	4.883	0.000	Accepted
H4b	SQ -> PEU	4.437	0.000	Accepted
H5a	PU -> IA	8.027	0.000	Accepted
H6a	PEU -> PU	2.767	0.000	Accepted
H6b	PEU -> IA	3.368	0.001	Accepted
H7	IA -> CA	13.400	0.000	Accepted

Based on Table 5, the relationship between variables revealed that top management support positively affects perceived usefulness and perceived ease of use, supporting H1a and H1b. Organizational competency positively affects perceived usefulness and ease of use, supporting H2a and H2b. Service quality positively affects perceived usefulness and ease of use, supporting H3 and H3b. Regarding system quality, it positively affects perceived usefulness and ease of use, supporting H4a and H4b. The results show a significant path structure supporting both hypotheses. Perceived usefulness positively affects the intention to use cloud accounting, supporting H5. Lastly, perceived ease of use positively affects both perceived usefulness and intention to use cloud accounting, indicating support for both H6a and H6b. Intention to use cloud accounting positively affects cloud accounting adoption, supporting H7. The questionnaires were then processed using SmartPLS. It can be seen in Figure 3, which shows the SmartPLS software model.

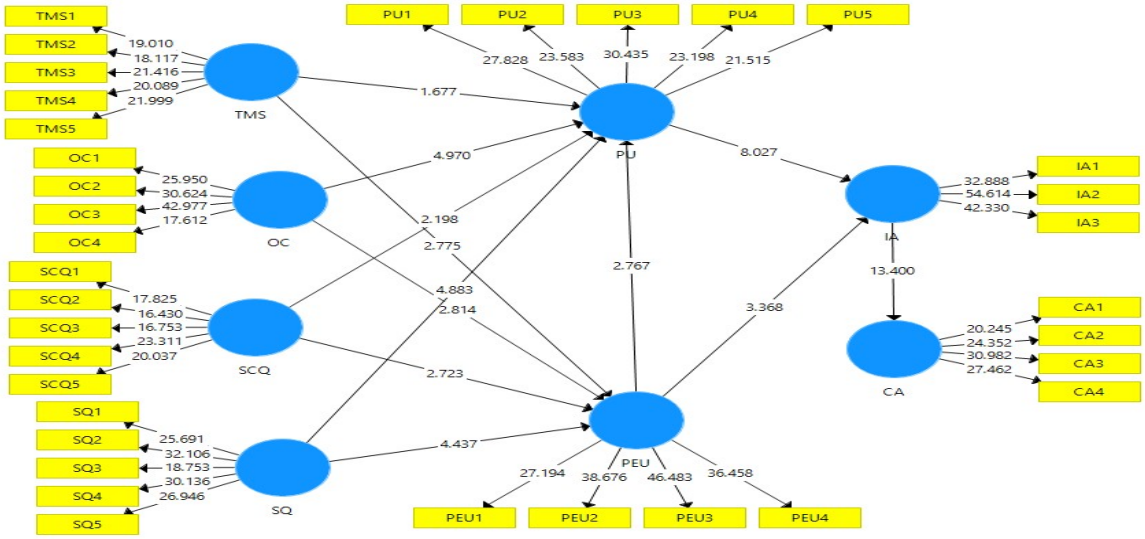

Figure 3: A Structural Research Model

6. DISCUSSION

This study examines the cloud accounting adoption factors using the TOE framework, DLone and McLean and TAM as the underpinned theories. The results of this research revealed the following:

The positive effect of top management support on perceived usefulness (H1a) and perceived ease of use (H1b) are in line with the findings from previous studies [25], [52], [54]. The higher the support from top management, the greater the perceived benefit. Top management support is essential to create a favorable climate for new technologies [28]. The perceived usefulness of using technology cannot be separated from managerial support. In terms of benefits, management awareness, and resource support, it positively impacts employee productivity. Without management support, there will be no success and performance in the perceived benefit. Similar to (H1b), the higher the top management support, the higher the positive influence on the perceived ease of use. The management maintains the comfort and perceived ease of the staff in using the cloud accounting system. Therefore, the users will feel at ease in implementing the cloud accounting system.

Similarly, the positive effects of organizational competency on perceived usefulness (H2a) and perceived ease of use (H2b) are in line with the findings from previous studies [28], [54]. The higher the organizational competency, the higher the effect on perceived usefulness. Organizational competency is an organizational readiness for the company's resources [71]. In this case, the company will employ IT professionals with adequate technological resources, full computer access, Internet connection, and budget allocation to implement cloud accounting. The more appropriate the level of organizational competency, the greater the perceived usefulness's effect. Similar to hypothesis 2b, the higher the organizational competency, the higher the effect on perceived ease. Organizations with competency drive organizational decisions for IT adoption [47]. However, the organization's readiness does not necessarily perceive ease of use of technology, notably when individuals within the company do not fully support it. Perceptions of the perceived ease of use offered by cloud accounting services lead to perceptions of reluctance to develop accounting technology. It is because the accountant group is worried about reducing professionally generated income. Therefore, companies need to overcome and minimize these problems so that system users can feel the ease. Organizational competency is essential, one of which is the organization's readiness for corporate resources. The results show that 77% of respondents have a bachelor's level (S1) education, meaning that the higher the level of education the person has, the more confident the company is of appropriate skills and expertise. Organizations with high competency drive organizational decisions to adopt cloud accounting, one of which is determined by the size of the business. Based on the demographics of the respondents, it was found that 67% of the respondents were cloud accounting users working in medium-sized businesses. Generally, companies classified as medium-sized have a better and more modern corporate governance, in which there is a clear division of responsibilities between production, marketing, and, most importantly, the finance department, which regularly implements accounting.

Meanwhile, the positive effects of service quality on perceived usefulness (hypothesis 3a) and perceived ease of use (hypothesis 3b) are in line with the findings from previous studies [59]. The higher the service quality, the higher the influence on perceived usefulness. When the cloud accounting provider offers service, attention, and strong security, it can motivate and influence organizations to use a system more effectively. However, this result rejects the research conducted by [54] which states that service quality has a negative effect on perceived usefulness. Similar to hypothesis 3b, the higher the service quality, the higher the influence on the perception of perceived ease of use. The level of service quality allows a perception of easy-to-access technology. However, a new problem might arise, which is the issue of data security [11], [8], [81], [9]. Therefore, it must be minimized by increasing the quality of service to improve user-perceived usefulness and perceived ease of user adoption of cloud accounting.

Next, the positive effects of system quality on perceived usefulness (hypothesis 4a) and perceived ease of use (hypothesis 4b) are in line with the findings from previous studies [54]. The higher the system quality, the higher the influence on perceived usefulness. The system quality influences the success of a system. More relevant cloud accounting systems should be designed for different types of businesses. Suppose the data in a cloud accounting system can integrate with

business departments. In that case, it can motivate businesses to use the system.

Similar to hypothesis 4b, the higher the system quality, the higher the influence on the perception of perceived ease of use. System quality is measured in terms of system availability, reliability, usability, flexibility, and responsiveness [26]. (DeLone and McLean, 2003). Therefore, a sound system offers a simple cloud accounting implementation.

The level of service and system quality is the main thing when adopting cloud accounting with solid security, which can motivate and influence organizations to use the system more effectively. The finding supports that 80% of respondents admit they are cloud accounting users of provider services. Thus, one can rely on the service quality and the provider's cloud billing system cost-effectively, like hardware and software costs. The company chooses to hire a vendor's services rather than produce or internally develop.

The positive effects of perceived usefulness on the intention to use cloud accounting (hypothesis 5) are in line with the findings from previous studies [63], [54]. The higher the perceived usefulness, the higher the positive influence on the intention to use cloud accounting. Perceived usefulness is an individual's perception of the extent to which a person believes using a particular information system will improve their performance [16]. Cloud accounting improves decision-making by getting work done more quickly and efficiently, increasing productivity, improving the quality of reports produced, and increasing competitiveness.

Similar to previous findings, perceived ease of use positively affects perceived usefulness (hypothesis 6a). The intention to use cloud accounting (hypothesis 6b) is in line with the findings from previous studies [54], [63]. Perceived ease of use determines information system acceptance [68], [69]. It also indicates that using the system is easy and not a burden [42]. The higher the perceived ease of use, the higher the positive influence on the perceived usefulness. This result suggests that cloud accounting is easy to understand and operate for completing work. In this case, it will affect individual confidence in using the system because it provides perceived ease of use for users. Similar to hypothesis 6b, the higher the perceived ease of use, the higher the positive influence on the intention to use cloud accounting. Therefore, the ease of using cloud accounting significantly affects individuals using the system because the users intend to accept the technology.

In addition to the findings (hypotheses 5, 6a, and 6b), this is supported by the demographics of respondents based on their frequency of cloud accounting use, which indicates that 84.6% of those surveyed use cloud accounting frequently. It demonstrates that cloud accounting offers lower costs and easy access and usability compared to other accounting software.

As predicted, the intention to use cloud accounting positively affects cloud accounting adoption (hypothesis 7). It is in line with the previous study's findings [71]. The higher the intention to use cloud accounting, the higher the positive influence on cloud accounting adoption. Intention to use has an essential role in using new technologies [71]. In this regard, individuals feel that technology changes productivity and improves performance. In other words, the intention to use will form an attitude to accept the technology. However, in contrast to the argument [82] attitude is not something that predicts reliably either intention or use. The attitude is about using cloud accounting systems as much as possible at work. Therefore, it supports the use of cloud accounting services. The results of the hypothesis strongly support the results of the respondents' demographics, which indicate that 83.4% of the accounting employees in the sample use cloud accounting and are familiar with it.

7. CONTRIBUTION, LIMITATIONS, AND FUTURE RESEARCH

7.1 Theoretical Contributions

This study has added information to the corpus on cloud accounting adoption factors and presented three critical theoretical contributions. Firstly, this study is one of the first empirical studies to identify several factors influencing cloud accounting adoption. This conceptual model could help enterprises understand the perceived usefulness and ease of use. Most previous research focused on literature review without identifying the factors influencing cloud accounting. According to [22], this research issue has not received much attention in Indonesia. It can be seen in Indonesia's lack of research in this area. Therefore, this study will determine the intention to use cloud accounting

and its effects on cloud accounting adoption. Secondly, this study combines three theories (i.e., TOE, TAM, and D&M success factors) as a relatively new conceptual model. Several researchers have examined cloud accounting adoption. However, none of them have combined these three models other than [54] and [25], who integrate two TAM-TOE models to understand the determinants of cloud computing adoption. Therefore, this study suggests that the three theories can be used to explain the factors influencing the adoption of cloud accounting. It also provides further support for the vital role of these theories in understanding the factors that influence cloud accounting adoption in various contexts and viewpoints. Given the proliferation of online-based accounting software in Indonesia, this study represents a novel opportunity to fill the information gap regarding the factors of cloud accounting adoption. With these developments and potential, it is very suitable to develop this research model to become a comparative study in the future to overcome the limitations found in this study.

7.2 Practical Contributions

Currently, a security issue often obstructs the high demand for introducing cloud accounting. It is one of the main obstacles to adopting cloud accounting. Information security providers and managers can work together to implement appropriate procedures to reduce risks related to cloud accounting. This study also encourages entrepreneurs or organizations to be more aware of adopting cloud accounting because of the potential benefits that can be obtained. Therefore, providers and organizations must develop more responsive plans to avoid security problems. This study also helps companies gain insights into strategic policies and policy implementation.

The findings of this study are helpful for many parties, especially for companies, accounting staff, and vendors, and for the development of science in cloud accounting adoption. This study is expected to change the paradigm and perception of accountants that the presence of a cloud accounting system is not a threat but has a positive impact on the work order of accountants. The presence of cloud accounting provides benefits in terms of perceived usefulness and perceived ease of use for accounting staff. It includes more effective and efficient ways of working, such as more straightforward communication strategies, collaboration, and sharing of data and information with fellow accountants to improve performance within the company. In addition, cloud accounting can encourage accounting staff to develop their skills when they adapt to cloud accounting.

Secondly, this study will provide benefits as good input for organizations adopting cloud accounting. Adopting cloud accounting can change business patterns which used to store data independently. The perceived usefulness, ease of use, and security offered by cloud accounting will increase the confidence to switch to using and storing data in cloud accounting. Therefore, it helps the company's activities in terms of management, working time, and cost efficiency. This research provides benefits to organizational policies. The ability of cloud accounting to display financial condition data in real-time will enable stakeholders to make crucial decisions faster and more relevant according to current conditions. Thus, the company can be more competitive in the current era of business digitalization.

Thirdly, this study provides insights for cloud accounting vendors. Vendors must provide reliable or trustworthy cloud accounting and service quality to increase users' confidence in adopting cloud accounting. Therefore, the more trusted the organizations are, the more benefits they will provide for cloud accounting service providers.

Finally, this study provides benefits for academics as a contribution to knowledge development, especially about the factors of cloud accounting adoption in Indonesia. The future study is expected to research on a larger scale. It can provide theoretical and practical advances in cloud accounting technology to carry out test results from various points of view.

7. 3 Limitations and Future Research

This study has limitations in which future researchers can continue the research development. The first limitation is that this research employs a local-based sample and is only conducted in regions in Indonesia, which does not represent global adoption behavior. Second, this study only focuses on accounting practices in companies. Therefore, further research can conduct studies on a larger scale by increasing the number of respondents outside Indonesia or globally for theoretical and practical advances in cloud accounting technology. Third, the number of research variables only represents several perspectives from each TOE,

TAM, and D&M success factor. Therefore, future research can add more variables to test results from different points of view.

8. CONCLUSION

At present, medium-sized enterprises in Indonesia are increasingly interested in adopting cloud accounting, attracted by cloud accounting systems that save the company's operating costs, access information in real time without being restricted by distance and location, and guarantee data security. However, businesses need to choose the right cloud-based accounting software. In this study, we examine the factors influencing the adoption of cloud accounting in Indonesia using the theories of TOE, DeLone and McLean , and TAM. The results of this study show that all variables used in this study have a positive impact. Therefore, it can be concluded that the results of this study can contribute to the research goals set on the factors of cloud accounting adoption in Indonesia and can open the door to future researchers for theoretical and practical advances in cloud accounting technology.

Overall, this study contributes to one of the first milestones in finding out the factors that influence cloud accounting adoption in companies in Indonesia with a combination of three theories. Based on the theory and findings, it has been proven that the adoption of cloud accounting has a positive impact on the work order of accountants. The cloud accounting technology, it is able to encourage accounting staff to develop themselves to adapt to new technologies. Adopting cloud accounting can change business patterns that previously still stored data independently. The perceived usefulness, perceived ease of use and security offered by cloud accounting, it will increase the confidence to switch to using and storing data in cloud accounting. In addition, this study also proves that improving service quality, and system quality such as user data security, provides a sense of comfort as a medium in completing work, as well as a cloud accounting system with easy access information facilities, so as to increase high trust in adopting cloud accounting.

Although this study positively influences all research variables, this study shows that there are still respondents who are less familiar with cloud accounting technology. It is considered that the lack of knowledge about cloud accounting is still relatively new in the territory of Indonesia. It is a new signal for service providers and the government to share efforts. However, cloud accounting service providers have invested in developing excellent and valuable systems. However, technological superiority can only be experienced if the technology is disseminated and used. Therefore, the effort is to provide understanding and awareness to prioritize accountants using cloud accounting.

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