ADOPTION OF CLOUD-BASED ACCOUNTING TO ACHIEVE SUSTAINABLE DEVELOPMENT IN BANKING INDUSTRY: A CASE OF INDONESIA

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ABSTRACT

Objective: This study aims to explain the factors that influence of cloud accounting adoption in the Banking industry by applying the technology acceptance model (TAM) and technology-organization-environment (TOE).

Methods: The research method that was evaluated empirically used survey data from employee in banking industry. Data processing was carried out using Partial Least Squares-Structural Equation Modeling (PLS-SEM).

Result: The results showed that management support, organizational competence, service quality, system quality, perceived usefulness and perceived ease of use had a significant relationship with intention to use cloud accounting. The intention to adopt of cloud accounting had a significant relationship to the use of cloud accounting.

Conclusions: This research contributes to a theoretical understanding of the factors that enable the intention to adoption of cloud accounting while providing benefits to financial firms in general that enable them to further develop cloud accounting frameworks.

Keywords: cloud accounting, TAM model, TOE model, sustainable development, banking industry.

Received: 29/05/2023
Accepted: 23/08/2023
DOI: https://doi.org/10.55908/sdgs.v11i6.881

RESUMO

Objetivo: Este estudo tem como objetivo explicar os fatores que influenciam a adoção da contabilidade em nuvem no setor bancário, aplicando o modelo de aceitação de tecnologia (TAM) e o ambiente de organização de tecnologia (TOE).

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Métodos: O método de pesquisa que foi avaliado empiricamente utilizou dados de pesquisa do empregado na indústria bancária. O processamento de dados foi realizado por meio de Modelagem de Equações Parciais Mínimos Quadrados-Estruturais (PLS-SEM).

Resultado: Os resultados mostraram que o suporte gerencial, a competência organizacional, a qualidade do serviço, a qualidade do sistema, a percepção da utilidade e a percepção da facilidade de uso tinham uma relação significativa com a intenção de usar a contabilidade em nuvem. A intenção de adotar a contabilidade em nuvem tinha uma relação significativa com o uso da contabilidade em nuvem.

Conclusões: Esta pesquisa contribui para uma compreensão teórica dos fatores que permitem a intenção de adotar a contabilidade em nuvem, ao mesmo tempo que proporciona benefícios às instituições financeiras em geral que lhes permitem desenvolver ainda mais os quadros de contabilidade em nuvem.

Palavras-chave: contabilidade em nuvem, modelo TAM, modelo TOE, desenvolvimento sustentável, setor bancário.

1 INTRODUCTION

Along with technological developments, many organizations or companies have become vulnerable to the effects of business digitization, the strong potential of the internet, the implications of big data, and the increasing importance of data mining (Laudien and Pesch, 2019). The banking sector has been slow to adopt new technologies and has never undergone a major transformation like other industries. The uniqueness of each industries is a challenge for the direct adaptation of technologies used in many industries. In this realm, Cloud Computing was introduced and at the same time paved the way for creating new business models. This is because Cloud Computing is predicted to become a platform for future changes in the economy (Ferry, et.al., 2019; Fu, et.al., 2019). Cloud Computing impacts the provision of services so that they can only be accessed remotely. In other words, Cloud Computing enables increased business flexibility, which is the main determinant of its implementation, which provides high efficiency of big data analysis, and it affects all economic actors (Attaran and Woods, 2019, Choi, et.al., 2019; Yoo and Kim, 2019).

Also, in cloud computing, there are several advantages compared to traditional IT including discreet data transactions, elasticity, resource sharing, pay-per-use, flexibility, easy configuration, low IT deployment costs, data center requirements, and improvement of IT and technology performance (Novais, et.al., 2019). According to (Gupta, et.al., 2013), cloud computing services provided over the net have become a constant substitute for in-house hosted computing systems. Based on previous studies, there are many levels of cloud computing based on geography due to economic factors and different
backgrounds (Tashkandi, and Al-Jabri, 2015). The adoption of cloud computing in organizations is often associated with their need to address various problems (operations and logistics). Meanwhile (Njenga, et.al., 2019) states that the determinants of cloud computing adoption may arise from technological, environmental, and organizational aspects, involving stakeholders such as cloud service providers, end users, corporate heads, regulatory bodies, and market competitors.

Several studies have been conducted to investigate the influence of cloud computing adoption factors, with various research models built by referring to various technology adoption theories including the Technology Organization Environment Model Factors (TOE) as has been done in research (Khayer, et.al., 2020; Oliveira, et.al., 2019; Tu, 2018; Effendi, et.al., 2020; Lakhwani, et.al., 2020; Yigitbasioglu, 2015) and the Technology Acceptance Model (TAM). That have been conducted in research (Ambarwati, et.al., 2020; Lee, et.al., 2017; Asatiani, et.al., 2019; Gangwar, et.al., 2015; Raut, et.al., 2017) and others. The related research model shows the factors considered by this study based on the knowledge collected, but a comprehensive research model of the Cloud computing model factors has not been done much to provide broad information about the importance of the factors and their relationship to the adoption of Cloud computing.

Based on this, the researcher tries to discuss how the adoption of Cloud computing, especially Cloud Accounting in Banking industry, because cloud accounting solutions also allow an increase in the rate of change that has penetrated the domain and field of Banking industry. As predicted, cloud service providers have developed cloud-based accounting applications that provide multiple benefits. Currently, cloud-based accounting applications are a contemporary business realm driven by technology (Alkhater, et.al., 2018). Cloud accounting software, or online accounting have a functions as an accounting application that is integrated into the user's computer, appears on the server offering the online service, and the user can access it via a web browser. Therefore, business owners, or employee in banking industry can actively link to their financial affairs from any location by using the Internet. In other words, Cloud Accounting which is one of the Accounting software is a necessity for employee managing Banking industry. Employee may effortlessly manage invoicing, receive payments, and report on project expenses thanks to these kinds of software.
2 LITERATURE

2.1 CLOUD ACCOUNTING

Cloud accounting defined as a form of parallel and distributed system consisting of a group of networked and virtualized computers that are dynamically provisioned and displayed as one or more unified computing resources based on service-level agreements (Buyya, et.al., 2008). In reality, there isn't yet a formal definition for "cloud accounting"; instead, its benefits and features are used to describe it. The primary feature of the accounting service is that it may be used without the need to install any software or invest in computer equipment, hence the name of the service (Dimitriu and Matei, 2014). But, Cloud Accounting can be defined as the processing and storage of accounting data through applications and servers located outside the company’s website provided by one of the service providers so that companies can access it through the Internet (Alqtish, et.al., 2019).

Accounting cloud is a basic mode that can be run directly through the Internet without the need for offline storage and offline programs. Using the accounting cloud-based model, users can access their accounts from their personal terminals wherever there is an Internet connection. It can also be said that cloud accounting is the accounting information infrastructure and services built with the concept of cloud computing technology (Li, 2018). Enterprise top management can also use cloud accounting application software real-time financial information and non-financial information in their own units of systematic analysis, can in a timely manner to the management risk of the enterprise comprehensive prediction, identification, control and adopt the method of dealing with, in order to reach the company to all aspects of the market changes and adjustments (Wang, and Huang, 2017).

2.2 INTEGRATION OF TOE-TAM MODEL

The literature framework or the model that underlies this research is the TAM and TOE frameworks, which are recommended in the form of integrating TAM and TOE models. Even though only a small number of studies in the past, particularly in the public sector, have employed the TOE framework (Marei, et.al., 2023). While other researchers have employed the Technology Acceptance Models (TAMs) to test the factors influencing individuals' willingness to adopt innovative technology (Purwanto, et.al., 2023). However, the integration of TAM and TOE is not a simple matter because the
external variables and their significance are different in the whole case. According to (Rad, et.al., 2018), TAM's constructions, PU and PEOU, may account for about 40% of system usage with the help of undefined external variables that have repeatedly been introduced to the model to make it more comprehensive. Comparatively, TOE's major constructs are ambiguous and it has been suggested that the model is overly general (Bazi, et.al. 2019). As a result, it has to be strengthened by integrating strong and distinct constructs from other models. To maximize the predictive potential of the combined model and get beyond its limitations, the authors have also suggested combining TAM and TOE in this regard.

Similar to this, TAM makes it possible to evaluate the adoption and acceptance of new technologies, including cloud computing, but adoption does not equate to success, and it restricts comprehension of behavioral factors, demanding a thorough understanding of success. Additionally, all phases of system utilization must be properly considered, including system design, information quality, and many other factors, as well as the system's utility and user satisfaction, and advantages realized after use. In other words, other external factors must be included in addition to the primary TAM constructs (Eldalabeb, et.al., 2021)

The intention to adopt cloud accounting and the use of cloud accounting refers to several studies which state that Management Support affects Perceived usefulness, and perceived ease of use (Gangwar, et al., 2015), organizational competence affects Perceived usefulness and perceived ease of use. (Gangwar, et al., 2015; Raut, et.al. 2017), Service Quality has an effect on Perceived usefulness and perceived ease of use (Almaiah et al., 2016; Alkhater, et.al., 2018; Al-Fraihat, et.al., 2020), system quality affects Perceived usefulness and perceived ease of use (Al-Fraihat, et.al., 2020; Park, 2020), perceived ease of use affects Perceived usefulness and intentions (Gupta et al., 2013; Sabi et al., 2016), Perceived usefulness affect intentions (Gupta et al., 2013; Lal and Bharadwaj, 2016) and intentions affect usage (Mohammadi, 2015; Chiregi and Navimipour, 2018). In other words, this study is supported by the TOE paradigm and theory, TAM, to develop a research model, which links the drivers of technological and environmental factors with usability and ease of use to intention to use cloud services based on the formulation of hypotheses formed in the research framework as shown in the following figure:
2.3 HYPOTHESIS

Based on Figure 1 dan explanation above, several hypotheses can be made as follows:

H1: There is a significant effect of management support on perceived usefulness
H2: There is a significant effect of management support on perceived ease of use
H3: There is a significant effect of organizational competence on perceived usefulness
H4: There is a significant effect of organizational competence on perceived ease of use
H5: There is a significant effect of Service Quality on perceived usefulness
H6: There is a significant effect of Service Quality on Perception of Ease of Use
H7: There is a significant effect of System Quality on perceived usefulness
H8: There is a significant effect of system quality on perceived ease of use
H9: There is a significant effect of perceived usefulness on the intention to adopt cloud accounting
H10: There is a significant effect of perceived ease of use on perceived usefulness
H11: There is a significant effect of perceived ease of use on the intention to adopt cloud accounting
H12: There is a significant effect of the intention to adopt cloud accounting on the use of cloud accounting
3 RESEARCH METHOD

The method used in this study is a quantitative research method with an exploratory descriptive approach. The data used as a research source comes from primary data and secondary data. This primary data was formed in a questionnaire which was distributed to employees of several Banking industrys in West Java - Indonesia. While secondary data is obtained from literature reviews or literature studies originating from supporting journals, books and the internet.

In this study the population consisted of employees of several Banking industrys in West Java-Indonesia. By using simple random sampling, the selected sample was adjusted to the research as a pilot project, namely through questionnaires distributed to employees of several existing Banking industrys. Respondents gave their responses regarding the statements in the questionnaire by indicating the level of agreement of each item using a Likert scale or 5-point scale (1: strongly disagree, 2: disagree, 3: undecided, 4: agree, 5: strongly agree).

Furthermore, to answer the previously formed hypothesis, data processing was carried out using Partial Least Squares-Structural Equation Modeling (PLS-SEM) as conducted by some previous research (Fatmawaty, et.al., 2023, Sabrina, et.al., 2023; Purwanto, et.al., 2023, Utomo, et.al., 2023). This is done because according to (Hair, et.al., 2017) PLS-SEM is the most appropriate technique to be used for exploratory studies, reflective modeling and formative construction. The PLS-SEM analysis uses the SmartPLS application.

4 RESULT AND DISCUSSION

4.1 RESULT

The results of hypothesis testing using SmartPLS from exogenous variables (Management Support, Organizational Competence, Service Quality, System Quality, Perceived usefulness and Perception of Ease of Use) and endogenous variables (Intention and Usage) are shown in Figure 2.
Based on Figure 2 above, it is known that the significance level of the causality relationship between variables processed by PLS-SEM produces answers to hypothesis testing as follows:

Table 1. Result of Hypothesis Test

<table>
<thead>
<tr>
<th>Structural path</th>
<th>Coef. β</th>
<th>t-values</th>
<th>f²</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Management Support → Perceived usefulness</td>
<td>0.182</td>
<td>2.624</td>
<td>0.048</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2: Management Support → Perceived ease to use</td>
<td>0.217</td>
<td>3.643</td>
<td>0.072</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3: competency → Perceived usefulness</td>
<td>0.221</td>
<td>2.827</td>
<td>0.061</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4: competency → Perceived ease to use</td>
<td>0.264</td>
<td>2.786</td>
<td>0.072</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5: Service Quality → Perceived usefulness</td>
<td>0.083</td>
<td>0.598</td>
<td>0.004</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6: Service Quality → Perceived ease to use</td>
<td>0.198</td>
<td>2.746</td>
<td>0.065</td>
<td>Accepted</td>
</tr>
<tr>
<td>H7: System quality → Perceived usefulness</td>
<td>0.342</td>
<td>3.284</td>
<td>0.102</td>
<td>Accepted</td>
</tr>
<tr>
<td>H8: System quality → Perceived ease to use</td>
<td>0.225</td>
<td>2.530</td>
<td>0.043</td>
<td>Accepted</td>
</tr>
<tr>
<td>H9: Perceived usefulness → Intention to use</td>
<td>0.390</td>
<td>4.102</td>
<td>0.145</td>
<td>Accepted</td>
</tr>
<tr>
<td>H10: Perceived ease to use → Perceived usefulness</td>
<td>0.244</td>
<td>2.905</td>
<td>0.075</td>
<td>Accepted</td>
</tr>
<tr>
<td>H11: Perceived ease to use → Intention to use</td>
<td>0.272</td>
<td>3.020</td>
<td>0.071</td>
<td>Accepted</td>
</tr>
</tbody>
</table>
Based on the test results, it is known that the estimated parameter for the effect of management support on Perceived usefulness shows a beta value of 0.182 with a t-value of 2.624 which is greater (>) than 1.96. So from the test results it is known that H0 is rejected and H1 can be accepted. Thus, management support has a significant effect on Perceived usefulness.

Based on the test results, it is known that the estimated parameter for the effect of management support on perceived ease of use shows a beta value of 0.217 with a t-value of 3.643 greater (>) than 1.96. So from the test results it is known that H0 is rejected and H2 can be accepted. Thus, management support has a significant effect on perceived ease of use.

Based on the test results, it is known that the estimated parameter for the influence of organizational competence on Perceived usefulness shows a beta value of 0.221 with a t-value of 2.287 greater (>) than 1.96. So from the test results it is known that H0 is rejected and H3 can be accepted. Thus, organizational competence has a significant effect on Perceived usefulness.

Based on the test results, it is known that the estimated parameter for the influence of organizational competence on perceived ease of use shows a beta value of 0.264 with a t-value of 2.766 which is greater (>) than 1.96. So from the test results it is known that H0 is rejected and H4 can be accepted. Thus, organizational competence has a significant effect on perceived ease of use.

Based on the test results, it is known that the estimated parameter for the effect of Service Quality on Perceived usefulness shows a beta value of 0.083 with a t-value of 0.598 which is smaller (<) than 1.96. So from the test results it is known that H0 is accepted and H5 is rejected. Thus the quality of service does not have a significant effect on the Perceived usefulness.

Based on the test results, it is known that the estimated parameter for the effect of Service Quality on perceived ease of use shows a beta value of 0.198 with a t-value of 2.746 greater (>) than 1.96. So from the test results it is known that H0 is rejected and H6 can be accepted. Thus the quality of service has a significant effect on the perception of ease of use.
Based on the test results, it is known that the estimated parameter for the influence of System Quality on Perceived usefulness shows a beta value of 0.342 with a t-value of 3.264 greater (>\) than 1.96. So from the test results it is known that H0 is rejected and H7 can be accepted. Thus the quality of the system has a significant effect on the Perceived usefulness.

Based on the test results, it is known that the estimated parameter for the influence of System Quality on perceived ease of use shows a beta value of 0.225 with a t-value of 2.530 greater (>\) than 1.96. So from the test results it is known that H0 is rejected and H8 can be accepted. Thus the quality of the system has a significant effect on the perception of ease of use.

Based on the test results, it is known that the estimated parameter for the effect of Perceived usefulness on cloud accounting adoption intentions shows a beta value of 0.390 with a t-value of 4.102 greater (>\) than 1.96. So from the test results it is known that H0 is rejected and H9 can be accepted. Thus the Perceived usefulness have a significant effect on the intention to adopt cloud accounting.

Based on the test results, it is known that the estimated parameter for the effect of perceived ease of use on Perceived usefulness shows a beta value of 0.244 with a t-value of 2.905 which is greater (>\) than 1.96. So from the test results it is known that H0 is rejected and H10 can be accepted. Thus the perception of ease of use has a significant effect on Perceived usefulness.

Based on the test results, it is known that the estimated parameter for the effect of perceived ease of use on cloud accounting adoption intentions shows a beta value of 0.272 with a t-value of 3.020 greater (>\) than 1.96. So from the test results it is known that H0 is rejected and H11 can be accepted. Thus the perception of ease of use has a significant effect on the intention to adopt cloud accounting.

Based on the test results, it is known that the estimated parameter for the effect of cloud accounting adoption intentions on the use of cloud accounting shows a beta value of 0.598 with a t-value of 5.470 greater (>\) than 1.96. So from the test results it is known that H0 is rejected and H12 can be accepted. Thus the intention to adopt cloud accounting has a significant effect on the usage of cloud accounting.
4.2 DISCUSSION

From the test results and analysis results, it is known that Management Support, Organizational Competence, Service Quality, System Quality, Perceived usefulness and Perceived Ease of Use have a significant effect on Intention and Usage of cloud accounting. In other words, the research results show that management support has a significant effect on Perceived usefulness and perceived ease of use. These results indicate that the higher the management support, the higher the Perceived usefulness and perceived ease of use. The results of this study strengthen the results of previous research conducted by (Gangwar, et al., 2015), it can be seen that Banking industry Management in West Java with employees who have IT skills or skills, especially updated cloud accounting, have a higher level of management support. and thus more likely to have the Perceived Benefit and Perceived ease of use of existing cloud accounting applications.

Furthermore, the results of testing and data analysis show that organizational competence has a significant effect on Perceived usefulness and perceived ease of use. These results indicate that the higher the organizational competence, the higher the Perceived usefulness, and perceived ease of use. The results of this study strengthen several previous studies which state that organizational competence affects Perceived usefulness and perceived ease of use (Gangwar, et al., 2015; Raut, et.al. 2017)). This is because the competence of the organization describes the level of adopting change in proportion to the level of competence of the organization; Therefore, the higher the organizational competence, the higher the Perceived usefulness, and perceived ease of use. Likewise, service quality and system quality have a significant effect on Perceived usefulness, and perceived ease of use, but are not significant for service quality on Perceived usefulness. These results reflect the higher the quality of the system, the higher the Perceived usefulness, and perceived ease of use. The results of this study are in accordance with previous research which states that System Quality affects Perceived usefulness, and perceived ease of use (Al-Fraihat, et.al., 2020; Park, 2020). Likewise, service quality has a significant effect on perceived ease of use, this is in accordance with previous research conducted (Almaiah et al., 2016; Alkhateer, et.al., 2018; Al-Fraihat, et.al., 2020), while Service Quality has no effect on Perceived usefulness, while it is known that the quality of services offered by technology to end users is good will able to increase the use of online services in the organization.
Then the perception of ease of use has a significant effect on Perceived usefulness and intentions. The results of this study are in accordance with several studies conducted by (Gupta et al., 2013; Sabi et al., 2016). Perceived usefulness affect intentions (Gupta et al., 2013; Lal and Bharadwaj, 2016) and intention affect usage of Cloud Accounting. This result is in accordance with research conducted by (Mohammadi, 2015; Chiregi and Navimipour, 2018). This is because the intention has an important role in the actual usage of new technologies.

Overall it can be stated that the research results contribute to both theory and practice. First, the results contribute to theory through a proposed comprehensive model that integrates the TOE and TAM models. Although the TAM framework has been commonly used in research on technology adoption, few studies have attempted to integrate it into TOE models, especially in financial institutions in developing countries. Another contribution is his two selected approaches, including extensive literature review and survey management. Second, the result contribute to practice, which is provided solid empirical evidence on the factors and the extent to which they influence the adoption of cloud accounting in banking industries in Indonesia, as well as their impact on their use, impacting Banking industries, vendors and policy makers looking for cloud accounting. From a technical point of view, cloud accounting providers can take into report the importance of system and service quality and ensure the proper functioning of their products and coordination with the company's other products.

5 CONCLUSION

From the results of the research that has been carried out, a conclusion is made that Management Support, Organizational Competence, Service Quality, System Quality, Perceived usefulness, and Perceived Ease of Use can be used to evaluate the level of Intention and Use of cloud accounting. Meanwhile, based on the results of hypothesis testing, it can be concluded that the level of Intention and Use of cloud accounting is significantly affected by management support, organizational competence, service quality, system quality, Perceived usefulness, and perceived ease, but not for service quality on Perceived usefulness. So it is recommended for the development of information technology, especially the use of cloud accounting on Banking industries in West Java to pay more attention to Management Support, Organizational Competence, Service Quality, System Quality, Perceived usefulness, and Perceived ease of use.
Research related to the variables used in this study still has many limitations and can be developed further, for example by adding other factors or variables that have a direct or indirect influence on the use and acceptance of a technology, especially cloud accounting or other technology applications. Sampling can also be done at organizations or other research locations globally from existing companies.
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