

Evaluation of the Use of Cloud Accounting in Micro, Small, and Medium Enterprises (MSME)

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ABSTRACT

Cloud accounting is a digital solution that supports operational and financial management in MSMEs in Indonesia. This study aims to evaluate the use of cloud accounting using the Technology, Organization, and Environment (TOE) framework in MSME X. A qualitative single-case study was conducted using semi-structured interviews, observations, and document analysis. The results show that cloud accounting provides benefits in improves operational efficiency, data integration, real-time information access, and more structured financial management. System use is strengthened by top management support, organizational readiness, and vendor support, though optimizing features remains a challenge. Overall, cloud accounting makes business operational and financial management more efficient, integrated, and structured.

Keywords: Cloud Accounting; MSMEs; TOE Framework; Digital Transformation

Evaluasi Penggunaan Cloud Accounting pada Usaha Mikro, Kecil, dan Menengah (UMKM)

ABSTRAK

Cloud accounting merupakan solusi digital yang mendukung pengelolaan operasional dan keuangan pada Usaha Mikro, Kecil, dan Menengah (UMKM) di Indonesia. Penelitian ini bertujuan untuk mengevaluasi penggunaan cloud accounting menggunakan kerangka Technology, Organization, and Environment (TOE) pada UMKM X. Penelitian ini menggunakan pendekatan kualitatif dengan desain studi kasus tunggal melalui wawancara semi-terstruktur, observasi, dan dokumentasi. Hasil penelitian menunjukkan bahwa penggunaan cloud accounting meningkatkan efisiensi operasional, integrasi data, akses informasi secara real-time, serta pengelolaan keuangan yang lebih terstruktur. Penggunaan sistem didukung oleh dukungan manajemen puncak, kesiapan organisasi, dan dukungan vendor, meskipun optimalisasi pemanfaatan fitur masih menjadi tantangan. Secara keseluruhan, cloud accounting mendukung pengelolaan operasional dan keuangan usaha yang lebih efisien, terintegrasi, dan terstruktur.

Kata Kunci Cloud Accounting; UMKM; Kerangka TOE; Transformasi Digital

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INTRODUCTION

A country's economic growth is influenced by employment, innovation, and economic expansion. One sector that plays a role in this growth is the Micro, Small, and Medium Enterprises (MSMEs) sector (Dlamini & Schutte, 2025; Sastararuji et al., 2022). Data from the Coordinating Ministry for Economic Affairs of the Republic of Indonesia (2023), the role of MSME business actors in Indonesia is around 65.5 million, amounting to 99% of the total national business units. The contribution of this sector to the formation of Gross Domestic Product (GDP) is around 61%, worth IDR 9,580 trillion. Furthermore, the absorption of labor from the MSME sector is around 97% of the total workforce in Indonesia. This contribution value shows that MSMEs play a vital role in maintaining economic stability, expanding employment opportunities, and encouraging equitable economic growth across all regions.

The strategic role of MSMEs in contributing to the nation is not without challenges in managing their businesses (Jian et al., 2025). Constraints that hinder the growth and operational efficiency of MSMEs are caused by limited financial and human resources, outdated management practices, and the use of outdated technology (Jian et al., 2025; Zhao et al., 2025). These constraints lead to slow and error-prone processes, difficulties in business analysis, and limited data accessibility (Akhtar & Liu, 2018; Hadis, Febrianita et al., 2022; Wiyana et al., 2023; Zhang & Wang, 2022).

In facing these challenges, the Industrial Revolution 4.0 era, which integrates the physical and digital worlds through new technologies such as cloud computing, provides opportunities to increase business competitiveness through information management capabilities (Omurgonulsen et al., 2021). Digital revolutions, such as cloud computing, are platforms that allow users to access data and applications online anytime and anywhere as long as the device is connected to the internet (Khanom, 2017). Technically, all relevant information is stored and processed in a cloud database located in a data center owned by a cloud service provider (Khanom, 2017).

A similar concept is applied to the accounting field through cloud accounting. This technology plays a role in assisting business owners in carrying out financial management functions (Al-Nsour et al., 2021; Dlamini & Schutte, 2025). Unlike traditional systems that require expensive and complex IT infrastructure investments, cloud accounting allows users to access cloud systems via the internet without the need to manage their own infrastructure (Farishi & Lauw, 2025).

For MSMEs, cloud accounting not only offers practical financial management tools but also increases operational efficiency (Dlamini & Schutte, 2025). Furthermore, cloud accounting allows business owners to access and process accurate, real-time, and reliable financial information from anywhere and at any time (Duan, 2023). However, its adoption rate among Indonesian MSMEs remains relatively low (Budiarto et al., 2018; Cahyono et al., 2022). This low adoption rate is due to traditional mindsets and the perception that small and medium-sized businesses do not require the latest technology in their operations (Cahyono et al., 2022).

The research framework in previous studies found a tendency to focus on factors that influence adoption or intention to use cloud accounting, with the TAM or TOE framework. The TAM framework approach focuses on individual-level perceptions, emphasizing perceived ease of use and usefulness from a user perspective, consistent with previous studies Dlamini & Schutte (2025), Musyaffi et al. (2025), and Yusuf et al. (2020). Meanwhile, the TOE framework approach provides a more comprehensive understanding of the technological, organizational, and environmental aspects that influence organizational decisions in using cloud accounting. This is consistent with research conducted by Saad et al. (2022) and Sastararuji et al. (2022), but these two studies have different research types. Saad et al. (2022) study used a quantitative approach to examine the influence of TOE factors on adoption intention, while Sastararuji et al. (2022), although qualitative in nature, utilized a multi-case approach to understand adoption factors.

Previous studies have provided insights into the factors influencing the adoption of cloud accounting; however, several limitations remain. First, most studies focus on MSMEs' intention to adopt cloud accounting rather than evaluating its actual use after implementation. Consequently, studies examining the use of cloud accounting in the post-implementation stage remain relatively limited. Second, the majority of previous studies employ quantitative approaches to identify relationships among variables, while qualitative studies that explore users' experiences and actual system use remain scarce. As a result, there is limited understanding of how cloud accounting is utilized in daily business operations. Third, most previous studies were conducted in contexts with different business characteristics and challenges, whereas the Indonesian MSME environment has distinct characteristics that may influence the use of cloud accounting.

Based on this literature review, this study offers both theoretical and practical contributions. Theoretically, it applies the Technology, Organization, and Environment (TOE) framework to shift the focus from adoption intention to the evaluation of cloud accounting use after implementation. The TOE framework provides a comprehensive understanding of cloud accounting use by examining technological, organizational, and environmental factors. Practically, this study is expected to provide insights into the benefits, compatibility, and ease of use of cloud accounting from the technological perspective, as well as the roles of internal and external support in facilitating its use. Therefore, this study seeks to understand how cloud accounting is utilized in business operations and the benefits perceived by Indonesian MSMEs through the TOE framework, providing a more comprehensive understanding of technological, organizational, and environmental aspects.

One MSME that has implemented cloud accounting in its business operations is MSME X, a business engaged in the distribution of food ingredients, including spices, vegetables, and fresh fruits, serving customers in the culinary sector. During its early operations, transaction processing, inventory recording, and customer quotation preparation were performed manually. However, frequent product changes and the short shelf life of inventory made manual processes time-consuming, particularly in preparing quotations, and increased the risk of recording errors as customer demand grew. To improve operational

efficiency and accuracy, MSME X implemented Accurate Online in 2021, integrating it with Accurate POS in its retail store. The nature of its business, which requires real-time financial and inventory information due to high transaction volumes and rapid inventory turnover, makes MSME X a relevant case for evaluating the use of cloud accounting in business operations. In understanding the use of cloud accounting in MSMEs, this study uses the Technology-Organization-Environment (TOE) framework, a model developed by Tornatzky & Fleischer (1990), which is shown in Figure 1. The Technology, Organization, and Environment (TOE) framework in several previous studies shows the influence of technological, organizational, and environmental aspects in the use of cloud accounting.

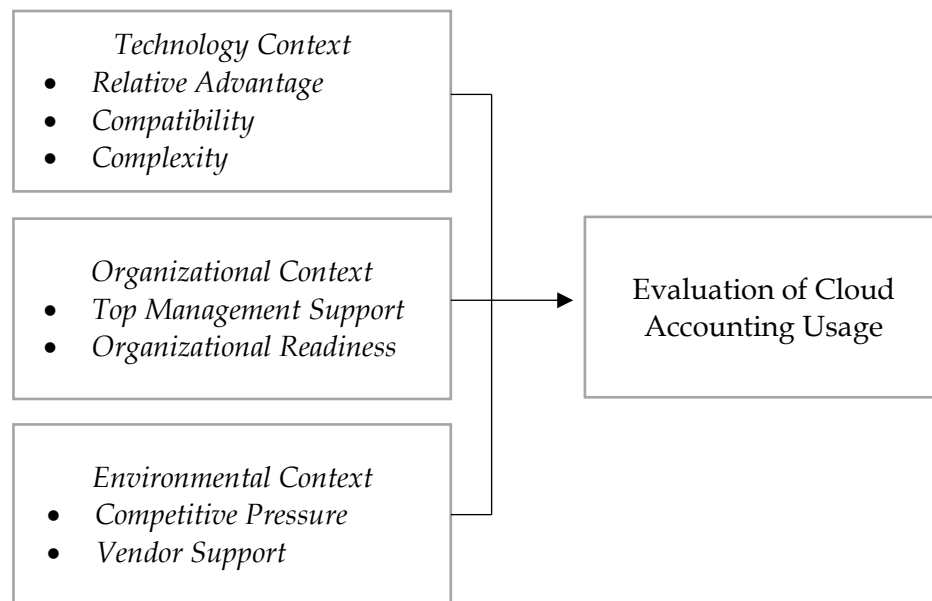


Figure. 1 TOE Framework

Source: Alshamaila et al. (2013), Chong & Olesen (2017), Gutierrez et al. (2015), Ngah et al. (2017), Rawashdeh & Rawashdeh (2023), Sastararuji et al. (2022) and Tornatzky & Fleischer (1990)

In the technological context, studies by Alshamaila et al. (2013), Chong & Olesen (2017), Gutierrez et al. (2015), Rawashdeh & Rawashdeh (2023), dan Sastararuji et al. (2022) highlight the importance of relative advantage, compatibility, and complexity in influencing the use of cloud accounting. Relative advantage refers to the extent to which users perceive an innovation as offering greater benefits than previous practices (Rogers, 2003). Compatibility refers to the degree to which cloud accounting aligns with business needs, existing business processes, and prior experience in managing business finances (Rogers, 2003). Meanwhile, complexity reflects the degree to which users perceive cloud accounting systems as easy or difficult to understand and operate (Rogers, 2003).

In the organizational context, studies by Alshamaila et al. (2013), Chong & Olesen (2017), Gutierrez et al. (2015), Ngah et al. (2017), dan Rawashdeh & Rawashdeh (2023) indicate that top management support and organizational readiness facilitate the use of cloud accounting. Top management support refers

to the role of business owners or managers in supporting cloud accounting implementation through decision-making, resource allocation, and providing direction to employees (Low et al., 2011). According to Thong (1999) top management support is particularly important in MSMEs to ensure the successful implementation of innovations such as cloud accounting. Organizational readiness, on the other hand, refers to the organization's preparedness to implement cloud accounting, including the availability of resources, organizational capabilities, and managerial readiness (Iacovou et al., 1995; Tan et al., 2007).

In the environmental context, studies by Alshamaila et al. (2013), Gutierrez et al. (2015), dan Rawashdeh & Rawashdeh (2023) show that competitive pressure and vendor support influence the use of cloud accounting. Competitive pressure refers to the extent to which MSMEs perceive pressure from competitors to adopt cloud accounting in order to remain competitive (Iacovou et al., 1995; Laforet, 2011). Vendor support refers to the assistance provided by cloud accounting service providers to ensure that the system operates effectively, securely, and reliably for MSME users (Awa et al., 2016).

Thus, this research focuses on evaluating its use with a single case study approach with MSME X as a relevant object in the research because it has carried out a transition process from a manual system to cloud accounting. This research uses the TOE framework, with the aim of providing a real, in-depth, and contextual understanding of the use of cloud accounting in Indonesia.

RESEARCH METHODS

This study employs an evaluative research design based on the perspective of Ellet (2018), which defines evaluation as an effort to understand and assess practices occurring in real-world contexts. This evaluative approach is consistent with the objective of the study, which is to evaluate the use of cloud accounting in Micro, Small, and Medium Enterprises (MSMEs) as an organizational practice influenced by technological, organizational, and environmental contexts. To achieve this objective, a qualitative approach was adopted. According to Creswell & Creswell (2023) a qualitative approach enables researchers to understand the meanings and experiences of participants within their natural settings. This study applies a single-case study strategy, focusing on MSME X as the unit of analysis. This strategy was selected to obtain an in-depth understanding of the use of cloud accounting in its operational practices.

The study utilizes primary data collected directly from the research object to evaluate the use of cloud accounting in MSMEs. Data were gathered through semi-structured interviews with open-ended questions, allowing participants to provide detailed explanations of their experiences and perspectives regarding the use of cloud accounting based on the Technology, Organization, and Environment (TOE) framework. The interviews were complemented by observations of cloud accounting use in daily business operations and an examination of documents generated by the system. These data reflect the actual implementation of cloud accounting within the selected MSME.

The unit of analysis in this study is a single MSME that has implemented cloud accounting in its business operations, namely MSME X. This business

distributes culinary ingredients with relatively short shelf lives, manages approximately 1,000–2,000 product items, and handles varying customer order volumes. These operational characteristics require transaction processing and inventory management that are fast, accurate, and integrated. Under such conditions, manual record-keeping was no longer sufficient because it slowed service processes, increased the risk of recording errors, and affected product availability and quality. Therefore, MSME X has been using the cloud accounting system Accurate Online since 2021.

Participants were selected using purposive sampling based on their level of involvement and roles in the use of cloud accounting. Accordingly, three participants were included in this study: the business owner (N1), the finance staff (N2), and the procurement staff (N3). These participants represent the primary functions related to cloud accounting, including system implementation decision-making, financial recording and management, and procurement and inventory updates. Given the single-case study design focusing on MSME X, these three participants were considered capable of providing comprehensive and in-depth information to address the research questions based on the TOE framework.

Data were collected through interviews, observations, and documentation during April by interacting directly with the participants at the premises of MSME X. Recorded interviews were transcribed verbatim to facilitate the identification of information related to cloud accounting use according to the TOE framework. In addition, observational data and documents generated by the cloud accounting system were classified and organized as supporting evidence to strengthen the interview findings.

Data analysis followed the qualitative data analysis model proposed by Miles et al. (2014), which consists of data reduction, data display, and conclusion drawing. Within this process, thematic analysis developed by Braun and Clarke (2008) was employed to analyze the interview data. The analysis began with transcribing the interviews, followed by repeated reading of the transcripts to gain a comprehensive understanding of the participants' experiences and perspectives. Subsequently, coding was conducted by identifying data relevant to the research framework, including the Technology dimension (relative advantage, compatibility, and complexity), the Organization dimension (top management support and organizational readiness), and the Environment dimension (competitive pressure and vendor support). Codes with similar meanings were then grouped into categories, which were further developed into themes representing patterns emerging from the interview data.

The resulting themes formed the basis for presenting the findings in a narrative format. Thematic analysis facilitated the organization of the data and the identification of patterns across participants, enabling a clearer understanding of the relationships between the emerging themes and the research objectives. Finally, conclusions were drawn through an iterative process of interpretation and continuously verified against the collected data to ensure the credibility and consistency of the research findings.

RESULTS AND DISCUSSION

The evaluation will be reviewed based on Technology, Organization, and Environmental (TOE) from Tornatzky & Fleischer's (1990) framework, which explains that technology use is influenced by technological, organizational, and environmental aspects. Findings were obtained through interviews, observations, and documentation of MSME X, which has used Accurate Online as a cloud accounting system in managing business transactions and finances.

The technological aspect in this study was analyzed using three indicators: relative advantage, compatibility, and complexity. These indicators not only describe the characteristics of the technology employed but also reflect users' perceptions and experiences in using cloud accounting. The findings indicate that cloud accounting offers several relative advantages compared with the manual system previously used by MSME X. Prior to implementing cloud accounting, financial records were maintained manually and were not integrated, resulting in incomplete financial information.

"We didn't know what the money was actually spent on... we only knew the sales figures." (N1)

This statement illustrates that the previous manual system focused primarily on recording sales without adequately documenting business expenses and profit or loss. Consequently, financial records were unstructured, difficult to trace when needed, and provided limited visibility into the firm's financial condition. This lack of information made it difficult for the business owner to evaluate performance and make informed business decisions.

The implementation of cloud accounting fundamentally improved transaction recording and financial management in MSME X. The system used, Accurate Online, integrates various operational activities, including transaction recording, inventory management, and financial reporting. Beyond technical improvements, the system has enhanced the quality of financial management and increased operational efficiency.

From an operational perspective, cloud accounting has streamlined business processes and reduced administrative workloads. All participants agreed that activities previously performed manually, such as recording customer orders on paper, can now be completed automatically within the system. This automation facilitates order consolidation, inventory management, and purchasing calculations. One example is the system's ability to consolidate customer orders into a single purchasing list, as described by N1:

"...we input the Purchase Order (PO), and then Accurate automatically generates a shopping list... the shopping list is already totaled." (N1)

MSME X follows a purchase-to-order business model, in which procurement activities are directly linked to customer orders. Under these circumstances, the ability of cloud accounting to automatically consolidate orders into purchasing lists provides substantial operational value by reducing manual calculations and improving coordination between finance and procurement staff. Therefore, the benefits extend beyond time savings to include improved coordination across business functions.

These findings suggest that the relative advantage of cloud accounting is reflected not only in time efficiency but also in increased productivity through

process automation. The system functions not merely as a bookkeeping tool but also as an operational support system that facilitates business decision-making.

Regarding ease of use, participants considered cloud accounting to be more practical than the previous manual approach. Accurate Online reduced dependence on paper-based records, which were vulnerable to loss, recording errors, and data inconsistency. The system also enhanced information accessibility by enabling financial data to be accessed more quickly and in real time. Because Accurate Online integrates purchasing, sales, and expense transactions into a single platform, business owners can monitor financial conditions more accurately, including cash flow and accounts payable and receivable, compared with the previous manual method that primarily recorded sales transactions.

The findings also indicate that cloud accounting contributes to improved data reliability. Transitioning from manual to digital record-keeping reduced common recording errors associated with manual processes. Nevertheless, cloud accounting does not completely eliminate the risk of human error. Instead, the source of error shifts from manual recording mistakes to inaccuracies during data entry. In other words, while the technology improves the accuracy of data processing, the quality of information still depends on the accuracy of user input. Therefore, careful supervision and attention remain essential when using the cloud accounting system.

In addition to improving data reliability, cloud accounting also contributes to operational cost efficiency. According to N2, when manual methods were used, records were maintained on paper, and recording mistakes often required additional paper, increasing operating costs. Although some processes, such as printing shopping lists, still require hard copies, the implementation of cloud accounting has significantly reduced overall operational expenses.

Overall, the findings demonstrate that the relative advantage of cloud accounting extends beyond operational efficiency. Its implementation enhances information quality, financial transparency, and real-time access to business data. Furthermore, the transition from a manual to a digital system reflects a shift in the business owner's mindset toward managing and utilizing financial information. Financial management has evolved from being limited and unstructured to becoming more systematic, integrated, and data-driven.

These findings align with research by Alshamaila et al. (2013) and Sastararuji et al. (2022), which states that perceived benefits are a crucial factor in optimally utilizing cloud accounting for business operations. This demonstrates a positive evaluation of the relative advantage indicator, as the system provides tangible benefits in business operations, both in terms of management and financial information. However, business owners still require oversight during use to reduce errors that lead to inaccurate data.

Based on the interview findings, all participants stated that the cloud accounting system, Accurate Online, is compatible with the operational needs of the business. In addition to supporting transaction recording, the system enables more structured financial management. These findings indicate that the technology is well aligned with organizational needs, serving not only as a bookkeeping tool but also as a system that supports broader business operations.

Consequently, the use of cloud accounting adapts to the operational requirements of MSME X without requiring significant changes to its existing workflows.

The findings further indicate that implementing cloud accounting did not require fundamental changes to the established work processes of MSME X. Instead, the system aligned with existing business practices, demonstrating compatibility between the technological characteristics of the system and the organization's operational procedures. This alignment enabled the implementation process to be carried out smoothly and efficiently.

This compatibility is attributable not only to Accurate Online's ability to record transactions but also to its features, which effectively support the business processes of MSME X. Given that the company follows a purchase-to-order model, the system integrates purchasing, inventory management, sales, and financial reporting within a single platform. This demonstrates that the system supports business operations comprehensively rather than functioning as an isolated accounting application. Therefore, its compatibility extends beyond accounting functions to the broader characteristics of the firm's business processes. This finding is reflected in the statement of N2:

"...It is not only for purchasing but covers all of our business activities." (N2)

This statement illustrates that the system's functionality aligns well with the operational needs of the business. Rather than simply replacing manual procedures, the system enhances integration across business activities, making operations more efficient and coordinated. However, despite the integration of business activities within the cloud accounting system, a gap remains between the availability of system features and the extent to which they are utilized by users. The wide range of available features presents opportunities for users to further explore and optimize the system's capabilities.

"...There are so many features, so we want to know what each of them is actually for..." (N1)

These findings suggest that system compatibility does not necessarily translate into optimal system utilization. Although the system provides features that match organizational needs, the extent of their use depends largely on users' understanding of the available functions. In other words, technological compatibility is a prerequisite for system use but does not guarantee that all system capabilities will be fully utilized. N1's statement also indicates opportunities to optimize the use of existing features. Therefore, improving users' understanding and utilization of cloud accounting features has the potential to further enhance business effectiveness and operational efficiency.

Compared with the previous manual approach, cloud accounting offers significant improvements in data accessibility and data management efficiency. Under the manual system, searching for and managing information was time-consuming because data were stored in physical documents or separate Microsoft Excel files that were not fully integrated. In contrast, cloud accounting enables information to be retrieved quickly and conveniently, as explained by N2:

"...When everything was on paper, we had to search one by one. With the system, we just type it in, search, and it's done." (N2)

This ease of information access further demonstrates the system's compatibility with operational requirements that demand timely and accurate

decision-making. In addition, the system strengthens operational control by enabling business owners to monitor inventory levels and product prices more effectively than was possible under the previous manual method. All participants agreed that the comprehensive features of the cloud accounting system adequately support the operational activities of the business.

The high level of compatibility observed in MSME X is also influenced by its relatively simple organizational structure. The company's straightforward business processes facilitate the integration of cloud accounting without requiring complex procedures. Nevertheless, not all business activities are supported by the cloud accounting system. Activities such as customer negotiations and order-related communication remain outside the system. These findings indicate that the system is more compatible with administrative functions and transaction recording than with every stage of the overall business process.

The findings of this study align with those of Chong & Olesen (2017) and Musyaffi et al. (2025), which emphasized that cloud accounting's compatibility with an organization's business processes is a key factor in successfully implementing cloud accounting. The system not only replaces manual processes but also strengthens integration between business activities, making them more efficient and coordinated. However, there is a gap between feature availability and utilization levels. While the cloud accounting system in this study offers comprehensive features, users tend to use features tailored to their operational needs. This finding suggests that system compatibility does not automatically translate to optimizing all available features.

The analysis indicates that the level of complexity associated with the use of cloud accounting in MSME X is relatively low and does not constitute a barrier to its day-to-day use. Participants perceived the system as easy to understand and operate, indicating that cloud accounting is user-friendly and not confusing. This perception was consistently expressed by N2 and N3, who explained that the system provides a clear and well-structured interface and workflow, making it easy to use even for individuals without a technical background.

This ease of use is further reflected in the absence of any features or processes that participants considered significantly difficult or complicated. All participants reported that they encountered no major technical or operational problems while using the system. These findings suggest that the system can be used effectively without requiring substantial adjustments from business users.

Nevertheless, users still required a period of time to become familiar with the system and its functions during the initial implementation stage. This learning process indicates that users needed time to adapt before they could operate the system confidently. N2 reported requiring approximately one month to become proficient, whereas N3 needed only about one week. This difference in adaptation time reflects variations in individual capabilities as well as differences in the intensity of system use based on each participant's responsibilities.

"It only took me about a week to learn the application because I use it every day, so I got used to it quickly." (N3)

These findings suggest that the adaptation process is strongly influenced by the frequency with which the system is used in daily business operations. Routine use promotes practical understanding of the system, allowing users to

become familiar with it more quickly. Therefore, the relatively short adaptation period indicates that system complexity does not hinder business operations. However, N2, as the finance staff member, required a longer adaptation period because the tasks performed in Accurate Online were more complex than those of N3, whose responsibilities were primarily limited to entering purchasing and inventory data.

The low level of perceived complexity also suggests that cloud accounting can be successfully implemented in organizations with limited human resources. The characteristics of MSME X, which does not employ dedicated IT personnel, did not prevent successful system implementation. This can be attributed to the user-friendly interface and straightforward workflow provided by Accurate Online, which can be readily understood by non-technical users.

"...We still have a lot to learn and explore. We've subscribed to Accurate, but we're only using the same few features, even though Accurate actually has so many features available..." (N1)

Although the system is relatively easy to use, the findings indicate that many of its available features have not yet been fully utilized, as reflected in N1's statement. This suggests that the main challenge lies not in operating the system but in understanding the wide range of features it offers. Although Accurate Online provides numerous functionalities, users do not perceive the abundance of features as a source of operational difficulty. Rather, the complexity lies in users' ability to understand the purpose and potential application of each feature to support business needs. Therefore, further efforts are required to improve users' understanding and optimize the utilization of the system's features.

This study indicates that the cloud accounting system is easy to understand, and the learning time required is relatively short. These findings align with those of Alshamaila et al. (2013) and Sastararuji et al. (2022) stated that the high complexity of cloud accounting is an obstacle in the process of using it.

The organizational aspect reflects the internal conditions of an organization that influence technology use (Tornatzky & Fleischer, 1990). In this study, the organizational aspect was analyzed based on two indicators: top management support and organizational readiness. The analysis showed that top management support plays a significant role in supporting the effectiveness and sustainability of cloud accounting. This support is not limited to the initial decision-making stage but is also involved in the implementation process and use of the system in daily operational activities.

In the decision-making process, the owner of MSME X played the primary role in deciding to implement the cloud accounting system, Accurate Online. This finding is supported by the statements of N2 and N3, who confirmed that the decision originated from the business owner. The findings indicate that the implementation of cloud accounting followed a top-down approach, in which strategic decisions were centralized at the top management level. However, the decision was also influenced by both internal and external recommendations from individuals who were familiar with the system. This suggests that the owner was open to technological innovation as a means of supporting business development. Furthermore, the owner's strong involvement in the digital transformation process reflects the relatively simple organizational structure of MSME X, where most

strategic and operational decisions are concentrated in the hands of the owner. As a result, decisions regarding the use of cloud accounting could be made more quickly than in organizations with more complex organizational structures.

During the implementation of cloud accounting, the owner's commitment played an important role in ensuring that the system was utilized to improve operational efficiency. This commitment was demonstrated by providing the necessary facilities and creating a work environment that supported the use of technology. Moreover, the owner's role extended beyond providing support to actively supervising and monitoring daily operations. This oversight was intended to promote discipline in system use, particularly regarding the accuracy and timeliness of data entry, as reflected in the following statement by N1:

"...We need to be more careful and keep everything updated. For example, today's expenses should be entered today, not tomorrow..." (N1)

These findings indicate that top management played an active role in ensuring that the system was not only adopted but also utilized effectively in daily business operations. In addition, the owner provided both direct guidance and practical learning opportunities by inviting the cloud accounting service provider to conduct training sessions. These initiatives helped employees understand the system's functions and promoted consistent use of cloud accounting in their daily operational activities.

The owner's supervision was aimed not only at ensuring that employees used the system but also at maintaining the quality of the information generated. Because financial reports are automatically generated from transaction data entered into the system, delayed or inaccurate data entry directly affects the accuracy of information used for business decision-making. Therefore, the owner's active supervision of system use was essential to ensuring that cloud accounting produced accurate, reliable, and data-driven information for managing the business.

These findings align with research by Alshamaila et al. (2013) and Rawashdeh & Salem (2023), which states that top management support is a factor contributing to the success and consistency of cloud accounting use. This finding is also supported by the relatively simple structure of MSMEs, which requires the approval of leaders to make decisions regarding cloud accounting implementation. Furthermore, leaders are directly involved in fostering discipline in the use of the system in business operations.

The findings indicate that organizational readiness in MSME X is sufficient to support the use of cloud accounting in terms of financial resources, infrastructure, and human resources. This readiness is a critical factor in ensuring that the system can be implemented effectively in daily business operations.

From an infrastructure perspective, the organization provides adequate computer equipment and a stable internet connection to support the implementation of cloud accounting. These resources are essential because cloud accounting systems rely on computer devices and internet connectivity to function effectively. The findings suggest that MSME X possesses the basic technological infrastructure required to support the continuous use of cloud accounting.

From a financial perspective, the organization allocates a dedicated budget to maintain its cloud accounting subscription, enabling access to the system's full

range of features that support business operations. This reflects the organization's long-term commitment to digitalizing its business processes. By allocating financial resources on an ongoing basis, the organization views cloud accounting as an operational investment rather than merely a system usage expense. Consequently, financial readiness plays an important role in ensuring the long-term sustainability of system use.

Regarding human resources, the findings show that employees possess sufficient capabilities to operate the system according to their respective roles and responsibilities. To support system implementation, the organization provides training for employees on how to use the system. However, employees have not yet fully utilized all of the features available in the system. This is because the initial training focused primarily on the core features required for daily business operations, while users' knowledge and skills related to more advanced features remain limited.

Overall, the findings indicate that organizational readiness is determined not only by the availability of individual resources but also by the integration of infrastructure readiness, financial readiness, and human resource capability. These three dimensions complement one another, enabling the sustainable use of cloud accounting in business operations. However, if one of these dimensions is lacking, the effectiveness of system utilization may decline even when the other dimensions are adequately supported.

Although the organization demonstrates sufficient readiness in all three aspects, operational challenges still occur. One of the primary challenges arises when the cloud accounting service provider performs system maintenance, as explained by N1. During these maintenance periods, business operations are temporarily disrupted because certain operational processes must be postponed. These findings suggest that although MSME X has adequate internal infrastructure to support cloud accounting, the continuity of business operations also depends on the reliability and availability of the cloud accounting service provider.

These findings align with research by Ngah et al. (2017) and Rawashdeh & Salem (2023). Both studies state that preparation of infrastructure, finances, and human resource capabilities is an essential foundation for supporting the successful implementation of cloud accounting. This readiness reflects the initial stages of system use. However, business actors need to continuously develop competencies. This action is taken to support optimal system use in the long term. This effort ensures that cloud accounting usage is not limited to basic system use but evolves to include optimal and advanced system utilization. Therefore, organizational readiness requires continuous development to support system optimization.

The environmental aspect reflects the external conditions of the organization that influence technology use (Tornatzky & Fleischer, 1990). In this study, the environmental aspect was analyzed based on two indicators: competitive pressure and vendor support. The results indicate that competitive pressure is not a dominant factor influencing the decision to use cloud accounting or its sustainability.

The findings reveal differing perceptions among participants regarding the influence of competitive pressure on the use of cloud accounting. N1 stated that

business competition encouraged the adoption of cloud accounting to improve operational efficiency. According to the owner, greater operational efficiency contributes to a more professional and well-organized business image in the eyes of customers and business partners. In contrast, N2 and N3 indicated that the use of the system was not directly influenced by competitive pressure.

The limited influence of competitive pressure can be explained by the characteristics of MSME X, which does not view digitalization as its primary strategy for gaining a competitive advantage. Instead, the decision to implement cloud accounting was mainly driven by internal organizational needs, particularly the need to improve financial management and enhance operational efficiency. This finding is consistent with the nature of the business, which distributes perishable food products with short shelf lives. In this context, cloud accounting supports smoother operational processes, helping ensure that products are delivered to customers in fresh and high-quality condition. Therefore, the motivation for using cloud accounting in this study is primarily related to internal improvement rather than external competitive pressure.

Overall, the differing views among participants indicate that competitive pressure is not the primary factor influencing the use of cloud accounting. Nevertheless, the system indirectly contributes to enhancing the firm's competitiveness by improving operational efficiency and strengthening managerial control.

These improvements are reflected in the system's ability to provide faster, more accurate, and integrated financial information compared with the previous manual method. In addition, cloud accounting supports operational control through more structured monitoring and consolidation of inventory, customer orders, and retail sales transactions. Another important benefit identified by participants is the ability to access business information flexibly and in real time without being physically present at the business location.

Given the characteristics of MSME X as a distributor of culinary ingredients, its competitive advantage depends primarily on maintaining strong customer relationships through service quality, timely order fulfillment, and reliable business relationships rather than on the use of technology alone. Therefore, cloud accounting serves as a supporting tool for improving business operations rather than as the primary factor in responding to market competition. However, the system provides operational advantages that have the potential to strengthen the firm's competitive position relative to other businesses. Accordingly, competitive pressure plays an indirect role in this study by reinforcing the strategic value of cloud accounting, even though it is not the primary driver of its use.

This finding differs from the research of Alshamaila et al. (2013) and Sastararuji et al. (2022), which emphasized the importance of competitive pressure in cloud accounting adoption. This difference indicates that the role of competitive pressure is contextual, depending on the characteristics of the business environment, the level of competition, and technological awareness among business actors. However, although competitive pressure did not play a role in supporting cloud accounting adoption in this study, this factor is relevant in strengthening business actors' strategic value in facing competitive dynamics. This

is because operational activities gradually become more structured and faster, thus building a positive image among customers.

The analysis indicates that vendor support is available for the use of cloud accounting; however, it has not yet been fully utilized by MSME X. The support provided includes technical assistance, user training, system maintenance, and data security, all of which contribute to the continuity of business operations.

The service provider offers several support facilities, including email support, customer service, and user manuals to assist users in operating the system and resolving technical issues. In addition, initial training was provided when cloud accounting was first implemented. However, this training was attended only by N2, the finance staff member, resulting in different levels of system knowledge among employees. N3 learned to operate the system through knowledge shared by N2 after the training, as well as guidance from N1, the business owner.

The findings also show that system maintenance conducted by the service provider affects the continuity of business operations during maintenance periods, even though users receive advance notification. Furthermore, when technical problems occur, the business tends to adopt a passive approach by waiting for the system to return to normal rather than contacting the service provider for assistance to minimize operational delays. This suggests that vendor support has not been fully utilized, as reflected in the following statements:

"...Accurate rarely has any problems. Usually, it's only when the system is being updated..." (N2)

"...When the system has an error, it delays both our time and workflow." (N3)

These findings indicate that system stability is a critical factor in maintaining smooth business operations. Even minor technical disruptions can affect operational continuity because daily business activities depend heavily on the cloud accounting system. Nevertheless, when such disruptions occur, users generally choose to wait until the system becomes stable again, largely because the service provider informs them in advance about scheduled maintenance and system updates. This notification reflects the vendor's transparency and enables users to anticipate potential service interruptions.

The occurrence of maintenance-related disruptions also highlights users' dependence on the cloud service provider. Unlike desktop-based accounting systems, which can be managed internally, cloud accounting depends on the vendor's maintenance schedule and system availability. Therefore, MSME X could adopt preventive measures to minimize the impact of maintenance on business operations. For example, the business could prepare backups of essential operational data before scheduled maintenance periods based on the advance notifications provided by the vendor. This finding suggests that the continuity of business operations depends not only on the cloud accounting system itself but also on the organization's ability to anticipate and manage potential operational disruptions.

The service provider also offers technical support through email, customer service, and user manuals, in addition to initial training for new users. However, because formal training was provided only to N2, differences in users' knowledge

and system proficiency emerged. N3 acquired the necessary skills through informal learning from N2 and guidance from N1.

This finding suggests that knowledge transfer within the organization occurs primarily through informal interactions among colleagues. Consequently, the successful use of cloud accounting depends not only on vendor support but also on the organization's ability to disseminate knowledge effectively among all system users. As a result, differences in users' understanding may limit the optimal utilization of available system features. Moreover, training focused only on the core features required for daily operations does not necessarily enable users to maximize the system's advanced functionalities. Therefore, periodic training provided by the service provider could further improve users' understanding and promote more effective utilization of cloud accounting.

With regard to data security, participants perceived the system to be sufficiently secure because the business had never experienced a data breach. However, the primary concern expressed by the participants was the potential misuse of system access by former employees. To mitigate this risk, the business implemented internal security measures, particularly by regularly changing the passwords used to access the cloud accounting system.

The findings indicate that vendor support is available in the form of technical assistance, initial training, and user manuals provided by the service provider. According to Lacity & Willcocks (1998), the successful use of an information system is influenced by the relationship with the vendor, as it determines the quality of system usage, maintenance, and technical problem resolution. This finding is consistent with the study by Sastararuji et al. (2022), which highlights the important role of vendor support in the use of cloud accounting.

CONCLUSION

This study evaluates the use of cloud accounting using the *Technology, Organization, and Environmental* (TOE) framework by Tornatzky & Fleischer (1990). The results indicate that cloud accounting at MSME X is performing well in supporting business operations, with support from both internal and external parties. However, several areas still require optimization by business owners. Technology and organizational aspects are key factors in supporting cloud accounting adoption, particularly relative advantage, suitability to business needs, and ease of use. Furthermore, leadership support and organizational readiness play a significant role in ensuring the system's smooth operation in business operations. However, challenges arise in optimizing available features, necessitating the development of competencies and discipline in cloud accounting use. On the other hand, environmental factors such as competitive pressure do not significantly influence system adoption. Nevertheless, cloud accounting usage indirectly contributes to increased competitiveness through operational efficiency, improved business control, and real-time access to information. Furthermore, the vendor supports system adoption by providing technical support, initial training, and system maintenance, although its utilization is not yet optimal.

This research was conducted on a single MSME using a single case study approach, so the results cannot be generalized to all MSME characteristics in

Indonesia. Furthermore, the cloud accounting used by MSME X is Accurate Online, while the available cloud accounting services are diverse, so the study cannot provide a uniform understanding of the benefits, challenges, and support in using cloud accounting. Therefore, further research is recommended to use more than one object with different business characteristics by examining other cloud accounting services to gain a more comprehensive understanding of cloud accounting use in MSMEs.

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