E-ISSN : 2549-3280 P-ISSN : 2549-5933
INTEGRATED JOURNAL OF BUSINESS AND ECONOMICS
Email: ijbe.feubb@gmail.com
http://ojs.ijbe-research.com/index.php/IJBE/index

CLOUD-BASED ACCOUNTING AND DIGITAL TRANSFORMATION IN INDONESIAN MSMES: EMERGING TRENDS AND STRATEGIC IMPLICATIONS

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Abstract

This systematic literature review (SLR) examines cloud-based accounting (CBA) adoption among Indonesian micro, small, and medium enterprises (MSMEs), focusing on its drivers, patterns, and implications. Despite its growing role in MSME digitalization, adoption remains uneven. Many enterprises continue to rely on fragmented bookkeeping systems while facing rising regulatory compliance requirements and persistent disparities in digital infrastructure. The review follows the PRISMA protocol and analyzes 25 sources, including peer-reviewed studies and institutional reports, through thematic coding informed by the Technology Acceptance Model (TAM) and the Technology–Organization–Environment (TOE) framework. The analysis identifies adoption drivers across individual, organizational, and environmental levels. At the individual level, perceived usefulness, perceived ease of use, and digital trust shape adoption readiness. Organizationally, managerial support, digital literacy, and internal system preparedness determine implementation capacity. Externally, regulatory mandates, particularly electronic invoicing requirements, alongside infrastructure inequality and national digitalization initiatives, create both pressure and institutional support for adoption. In practice, CBA platforms extend beyond basic bookkeeping functions by enabling automated financial reporting, audit documentation, tax compliance integration, and financial data visibility, all of which are increasingly linked to credit access and fintech financing opportunities. CBA adoption therefore, extends beyond technical modernization, reflecting a broader process of enterprise formalization and institutional alignment within Indonesia's evolving digital economy. This review contributes to the accounting and SME digitalization literature by positioning cloud accounting as a compliance-driven system that also builds organizational capability, shaped by the interplay of cognitive perceptions, organizational readiness, and regulatory environments. The findings offer consolidated evidence for platform developers, MSME practitioners, and policymakers seeking to advance inclusive and operationally sustainable digital transformation.

Article Info
- ***Received*** *: 22th August 2025*
- ***Revised*** *: 06th January 2026*
- ***Published*** *: 18th February 2026*

• ***Pages*** *: 112-138*
• ***DOI*** *:* http://dx.doi.org/10.33019/ijbe.v10i1.1342
• ***JEL*** *:* M15, O33, L26
• ***Keywords*** *: Cloud Accounting; Digital Transformation; Indonesian MSMEs; Technology Adoption; Tax Compliance*

1. Introduction

Indonesia is home to approximately 64.2 million micro, small, and medium enterprises (MSMEs), which collectively contribute around 61 percent of the national gross domestic product (GDP) and employ nearly 97 percent of the country's workforce (Coordinating Ministry for Economic Affairs, 2024; United Nations Development Programme, 2022). Given this scale of economic contribution, MSMEs play a central role in Indonesia's business activity and enterprise development. The Indonesian government has therefore positioned MSME digitalization asa core component of its economic transformation agenda, framing it as both a mechanism for economic resilience in the post-pandemic recovery period and a critical enabler of participation in global value chains.

This policy imperative is further underscored by the accelerating growth of Indonesia's digital economy, which is projected to exceed USD 130 billion by 2025 and may reach USD 315 billion by 2030, making it the most significant digital market in Southeast Asia (Google, Temasek, & Bain, 2024; Cabinet Secretariat of the Republic of Indonesia, 2023). However, the expansion of digital market activity also intensifies the need for MSMEs to strengthen their financial management and reporting systems. Realizing this potential requires MSMEs to transition from manual and fragmented accounting practices to cloud-based, integrated financial systems capable of supporting e-commerce, fintech lending, and data-informed decision-making at scale.

Flagship initiatives such as UMKM Go Digital and the National Digital Literacy Movement have been launched to bridge foundational gaps in infrastructure and digital skills across Indonesia. Independent assessments note persistent disparities in broadband quality, cybersecurity literacy, and digital trust, particularly outside Java and Bali (AsiaBizToday, 2024). According to APJII, national internet penetration reached approximately 79.5% in early 2024, with rural penetration lagging at around 74% compared to about 82% in urban areas (Asosiasi Penyelenggara Jasa Internet Indonesia, 2024). These structural digital inequalities not only limit technological readiness but also hinder MSMEs' ability to implement integrated financial and accounting systems required in an increasingly digitalized market environment. These digital asymmetries likely contribute to the finding that fewer than one in five MSMEs have adopted cloud-based accounting, indicating a substantial gap between national digitalization ambitions and firm-level financial technology adoption, with implementation heavily concentrated in urban centers that enjoy better connectivity and access to advisory support (Musyaffi et al., 2024).

Simultaneously, regulatory changes have shifted CBA from a discretionary efficiency tool to a compliance requirement. Indonesia's mandatory electronic invoicing system, e-Faktur, has been compulsory for all VAT-registered entities since July 2016. Now, it operates on its 3.x platform with enhanced real-time validation and enforces automated tax reporting (EDICOM Global, 2024). This regulatory shift effectively transforms digital accounting adoption from a voluntary managerial choice into an institutional obligation with direct implications for firms' reporting systems and compliance processes. Current-generation CBA platforms align with this mandate by integrating invoicing, automated audit trails, and links to financing services, , positioning cloud-based accounting not only as an efficiency-enhancing tool but also as a compliance and financial governance infrastructure, enabling MSMEs to reduce administrative burden, enhance market access, and improve financial compliance. Against this regulatory and technological context, exploring CBA adoption drivers, constraints, and strategic implications becomes critical for understanding how MSMEs respond to compliance pressures, technological requirements, and evolving financial reporting standards in Indonesia's MSME landscape.

Recent empirical research has underscored the growing significance of cloud-based accounting (CBA) solutions for Indonesian micro, small, and medium enterprises (MSMEs), particularly in light of the nation's broader digital transformation agenda. Putri, Bandi, Widarjo, and Arifin (2025), applying the Technology–Organization–Environment (TOE) framework, identified three principal factors influencing CBA adoption among MSMEs: technological readiness, external institutional pressure (regulatory mandates), and managerial support. Their study, published in Cogent Business & Management, demonstrates that MSMEs are more likely to adopt cloud-based platforms when internal capabilities align with external digital policy environments and leadership commitment is present.

Similarly, Oktaviani, Hidayatullah, Wahyuningsih, and Mahadianto (2024) employed the Technology Acceptance Model (TAM) to assess behavioral intentions toward the adoption of mobile accounting applications, with a particular focus on SIAPIK, a digital financial reporting tool endorsed by Indonesia's Ministry of Cooperatives and SMEs. Their findings confirm that perceived usefulness and ease of use are the most significant predictors of adoption intention. Utilizing PLS-SEM analysis of SME respondents in Cirebon, the study reinforces TAM's explanatory power in the Indonesian context. It highlights the role of government-supported applications in driving digitalization at the grassroots level.

Despite the growing body of literature on cloud-based accounting (CBA) adoption, most studies remain narrowly centered on pre-adoption variables, particularly behavioral intention, while offering limited insight into the strategic, organizational, and institutional implications of actual implementation. Moreover, the geographic scope of existing empirical research tends to be concentrated in Java and other urban economic hubs, with insufficient attention to regional disparities, infrastructural limitations, and post-adoption integration challenges that characterize MSMEs in peripheral or underserved areas.

Hamzah, Suhendar, and Arifin (2023), drawing on the Technology–Organization–Environment (TOE) framework, found that regulatory pressure, vendor support, and

organizational readiness were significant predictors of CBA adoption among Indonesian MSMEs. However, like many others, their study did not explore post-adoption outcomes such as improvements in financial transparency, internal controls, or long-term digital resilience. This pattern underscores a persistent gap in the literature: the absence of longitudinal and context-sensitive analyses examining how CBA platforms are integrated, adapted, and sustained across varying institutional and geographic environments.

This gap in scholarly attention becomes more concerning against national policy initiatives aimed at mainstreaming digital accounting practices. Despite strong institutional support, including the mandatory e-Faktur electronic invoicing system, now operating on its 3.x platform with real-time validation (EDICOM, 2024), and the expansion of embedded fintech tools such as QRIS and open API infrastructures (Bank Indonesia, 2023), cloud-based accounting (CBA) adoption remains highly uneven and geographically fragmented. Empirical evidence consistently shows higher uptake among urban MSMEs in Java and Bali, particularly those operating in service, retail, and digital trade sectors. In contrast, MSMEs in outer-island regions continue to face structural barriers stemming from underdeveloped broadband infrastructure (~74% rural penetration vs. ~82% urban) (Asosiasi Penyelenggara Jasa Internet Indonesia, 2024), lower cybersecurity awareness, and diminished institutional trust in cloud platforms (AsiaBizToday, 2024).

Furthermore, while regulatory mandates such as real-time e-invoicing have pushed MSMEs toward digital compliance, many government-led programs lack mechanisms for post-adoption support, sector-specific onboarding, or capacity-building that targets strategic integration. Without robust follow-up measures to assess how CBA adoption affects financial resilience, credit access, or tax compliance, these initiatives risk becoming performative rather than transformative. The lack of disaggregated data by region and sector further hinders the formulation of evidence-based strategies for inclusive digital transformation.

Therefore, understanding the structural, institutional, and technological constraints that inhibit widespread CBA adoption is critical for enhancing MSME competitiveness and informing targeted policies that bridge the digital divide and maximize the benefits of Indonesia's growing digital economy.

Research examining cloud-based accounting (CBA) adoption among Indonesian micro, small, and medium enterprises (MSMEs) has expanded markedly over the past five years, spurred by the national digitalization agenda and a series of regulatory reforms. A critical survey of this literature shows that most empirical work is still rooted in pre-adoption behavioural models, chiefly the Technology Acceptance Model (TAM) and the Technology–Organization–Environment (TOE) framework. These studies highlight perceived usefulness, ease of use, digital literacy, and external pressure as the principal determinants of adoption intention (Hamzah et al., 2023; Musyaffi et al., 2024; Oktaviani et al., 2024).

Recent empirical studies have increasingly examined the factors influencing the adoption of cloud-based accounting (CBA) platforms among Indonesian micro, small, and medium

enterprises (MSMEs), primarily through behavioral intention models such as the Technology Acceptance Model (TAM). Musyaffi, Johari, and Hendrayati (2024), in a survey involving 307 MSMEs in Java, found that digital literacy and system compatibility significantly influenced perceived ease of use and perceived usefulness, two core determinants of adoption intention in TAM. However, their study did not extend to analyzing actual system use or the organizational implications of CBA implementation.

Similarly, Oktaviani, Hidayatullah, Wahyuningsih, and Mahadianto (2024) explored user perceptions of SIAPIK, a mobile-based accounting system supported by the Ministry of Cooperatives and SMEs. Their findings emphasized the importance of perceived usefulness and ease of use as key enablers of adoption intention. Yet, the study remained limited to pre-adoption constructs without addressing post-adoption integration or the strategic role of cloud accounting in enhancing business performance.

Despite these contributions, the literature remains fragmented and lacks a multidimensional perspective. Few studies critically examine how cloud-based accounting (CBA) adoption contributes to broader objectives such as financial governance, regulatory compliance, credit scoring readiness, or organizational resilience. The intersection between cloud technologies and government-mandated systems, particularly e-Faktur 3.2, Indonesia's latest real-time electronic invoicing regulation, has received limited scholarly attention. This represents a significant gap, as VAT-registered MSMEs are now obligated to generate standardized digital invoices using XML formats embedded with digital signatures, in alignment with tax authority platforms. EDICOM (2024) noted that this compliance requirement elevates CBA from an optional innovation to a structural necessity. Furthermore, Mordor Intelligence (2025) highlights that modern CBA platforms increasingly integrate e-invoicing modules, audit trails, and financing gateways, positioning them as critical infrastructures for MSME formalization, credit access, and market competitiveness.

As digital financial records become central to automated credit scoring by banks and fintech lenders, cloud-based accounting (CBA) is no longer merely a back-office tool. It is increasingly recognized as a strategic infrastructure that shapes MSMEs' access to formal finance and their legitimacy in the eyes of regulators and investors. Evidence from other Indonesian digital service contexts suggests that digital capability generates value not simply through technical adoption but through strategic integration that enhances trust, performance, and user outcomes (Juhari, 2023). Despite this evolving role, the academic literature has not yet fully accounted for the shift. Most studies remain siloed within behavioral models, offering limited insight into how digital accounting systems influence broader institutional outcomes such as auditability, tax compliance, or creditworthiness.

Methodological limitations further exacerbate these gaps. Empirical investigations into CBA adoption in Indonesia tend to be geographically narrow, often confined to Java or major cities, and rely heavily on self-reported user perceptions. Few studies extend their analysis to post-adoption integration, performance outcomes, or the long-term organizational capacity to sustain cloud-based systems. Equally underexplored are how structural asymmetries, such

as uneven digital infrastructure and cybersecurity awareness, condition the success of CBA adoption outside metropolitan contexts.

This article addresses these limitations by offering a thematically structured review of CBA adoption in Indonesian MSMEs. It integrates insights from the Technology Acceptance Model (TAM), the Technology–Organization–Environment (TOE) framework, and institutional policy analysis to illuminate the drivers and barriers of adoption and the strategic implications of CBA integration within Indonesia's evolving digital economy.

The central aim of this study is to investigate how technological, organizational, and institutional factors influence the adoption and implementation of cloud-based accounting among micro, small, and medium enterprises (MSMEs) in Indonesia. Although CBA platforms are increasingly considered foundational to the digitalization of enterprise systems, empirical evidence suggests their uptake remains fragmented and highly uneven across regions and sectors. This study, therefore, seeks to identify the key enablers and constraints that shape CBA diffusion, with specific attention to how these systems contribute to financial transparency, regulatory alignment, and enterprise resilience in a digitizing economy.

Three guiding questions inform the analysis: (1) What are the current trends in CBA adoption among Indonesian MSMEs? (2) What technological, organizational, and policy-related factors influence adoption patterns across varied institutional settings? (3) What strategic and regulatory implications emerge from these patterns, particularly concerning financial access, digital readiness, and national development goals?

This article synthesizes findings from peer-reviewed literature, government policy documents, and market data published between 2020 and 2025 to answer these questions. Unlike prior studies that focus narrowly on adoption intention or user interface experiences, this review takes a multidimensional perspective that situates cloud accounting within broader digital governance frameworks and examines its potential to facilitate institutional modernization and inclusive economic growth.

This research is relevant to multiple stakeholder groups. It presents an integrative conceptual framework for scholars that connects micro-level adoption behavior with macro-level policy environments. For policymakers, it offers evidence-based recommendations for supporting MSME digitalization through regulatory incentives, capacity-building programs, and equitable infrastructure development. For developers and platform providers, the study highlights the importance of understanding MSME heterogeneity, particularly the challenges of post-adoption engagement, digital trust-building, and platform sustainability in underserved regions. Ultimately, this article contributes to a deeper, more contextually grounded understanding of how CBA adoption can support enterprise financial management, regulatory compliance, and access to formal financing, while advancing Indonesia's broader digital transformation ambitions.

1. Literature Review

Understanding the adoption of cloud-based accounting (CBA) technologies by micro, small, and medium enterprises (MSMEs) requires a theoretical foundation that accounts for both individual decision-making processes and broader institutional contexts. The literature on digital accounting adoption has predominantly drawn on the Technology Acceptance Model (TAM) and the Technology–Organization–Environment (TOE) framework, which together offer complementary perspectives for analysing how MSMEs respond to digital transformation pressures in developing economies.

The Technology Acceptance Model (TAM), developed by Davis (1989), explains technology adoption primarily through individual cognitive perceptions, particularly perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness refers to the extent to which a user believes that a technology enhances job or business performance, while perceived ease of use captures the degree to which the system is perceived as effortless to operate. These perceptions shape attitudes toward technology and influence behavioural intention, which precedes actual adoption. In the context of Indonesian MSMEs, TAM has been widely applied to explain early-stage digital adoption, especially among owner-managers who typically dominate strategic and operational decision-making.

Empirical studies consistently confirm the relevance of TAM in explaining adoption intentions related to cloud-based accounting in Indonesia. Musyaffi, Johari, and Hendrayati (2024), based on a survey of 307 MSMEs in Java, found that digital literacy, system compatibility, and technological complexity significantly influenced perceived usefulness and perceived ease of use, which in turn positively shaped intentions to adopt CBA applications. Their findings highlight the importance of aligning cloud accounting systems with MSMEs' cognitive readiness and operational routines. Similar conclusions were reported by Oktaviani, Hidayatullah, Wahyuningsih, and Mahadianto (2024) in their study of SIAPIK, a mobile accounting application promoted by the Ministry of Cooperatives and SMEs, where perceived usefulness and ease of use emerged as the dominant predictors of adoption intention.

Despite its explanatory strength, TAM-oriented research exhibits notable limitations. Most studies focus on pre-adoption behavioural intention rather than post-adoption integration, organisational transformation, or long-term strategic outcomes. Moreover, TAM's emphasis on individual perceptions tends to underrepresent organisational capacity, regulatory constraints, and industry-level pressures that are particularly salient for MSMEs operating under resource limitations and compliance obligations. These limitations have encouraged the use of broader institutional frameworks, most notably the Technology–Organization–Environment (TOE) framework, to complement cognitive-based explanations.

The TOE framework, introduced by Tornatzky and Fleischer (1990), conceptualises technology adoption as a function of three interrelated contexts: technological, organisational, and environmental. The technological context includes perceived advantages, compatibility, and system complexity; the organisational context encompasses firm size, managerial capability, financial and human resources, and internal digital culture; while the environmental context refers to regulatory policies, market competition, industry norms, and external support from technology providers. This framework offers a systems-level

perspective that is particularly suitable for analysing MSME technology adoption in heterogeneous and institutionally uneven environments such as Indonesia.

In the Indonesian MSME context, TOE-based studies reveal that cloud-based accounting adoption is shaped not only by technological awareness but also by organisational readiness and institutional pressure. Putri, Bandi, Widarjo, and Arifin (2025), using a national MSME survey, identified organisational readiness, top management support, and regulatory enforcement—particularly the e-Faktur 3.2 mandate—as significant predictors of CBA adoption. Their findings suggest that adoption decisions are embedded within broader processes of institutional alignment and resource mobilisation. Similarly, Hamzah, Suhendar, and Arifin (2023), drawing on a TOE–TAM hybrid model and a sample of 276 MSMEs in Greater Jakarta, found that coercive and normative pressures, including regulatory mandates and competitive expectations, often outweighed internal factors such as perceived ease of use or digital literacy.

These findings underscore the conceptual distinction between TAM and TOE while also highlighting their complementarity. TAM captures how MSME actors cognitively evaluate cloud accounting systems, whereas TOE explains how organisational capacity and environmental constraints condition those evaluations and translate them into adoption outcomes. Recent literature increasingly advocates for an integrative TAM–TOE approach to address the limitations of each model when used in isolation (Putri et al., 2025; Hamzah et al., 2023). This hybrid perspective enables a more comprehensive understanding of adoption dynamics by linking individual-level perceptions with organisational readiness and regulatory enforcement mechanisms. Beyond behavioural and institutional explanations, recent scholarship also situates digital accounting adoption within broader economic and organisational performance considerations. From a transaction cost perspective, cloud-based accounting systems reduce record-keeping frictions, automate compliance processes, and lower coordination costs associated with financial reporting. At the same time, enhanced financial data visibility contributes to mitigating information asymmetry between MSMEs and external stakeholders, including lenders, investors, and tax authorities. These economic functions position CBA adoption not only as a technological decision but also as a mechanism shaping financial transparency, monitoring capacity, and firm-level governance outcomes.

The relevance of this integrative framework is particularly evident in Indonesia's policy environment. Since July 2016, Indonesia has mandated the use of e-Faktur, a real-time electronic invoicing system, for all VAT-registered businesses. This policy has effectively transformed cloud-compatible accounting systems from optional efficiency tools into compliance infrastructures (Sovos, 2024; EDICOM, 2024). Many domestic accounting platforms, including Mekari Jurnal, Zahir, and OnlinePajak, have been certified to integrate directly with e-Faktur, reinforcing institutional pressure for MSMEs to adopt cloud-based accounting solutions (EDICOM, 2024). At the same time, government initiatives such as UMKM Go Digital and the National Digital Literacy Movement seek to enhance MSME readiness through training, platform access, and subsidies (International Trade Administration, 2024).

However, the effectiveness of these initiatives remains uneven due to persistent infrastructure disparities. According to the Asosiasi Penyelenggara Jasa Internet Indonesia (2024), national internet penetration reached approximately 79.5 percent in 2024, yet rural

connectivity continues to lag behind urban areas, ranging between 74 and 82 percent. These disparities constrain MSMEs' ability to comply fully with digital mandates and limit the depth of cloud accounting utilisation, particularly outside major urban centres.

Beyond compliance, cloud-based accounting has increasingly been recognised as a strategic infrastructure rather than a mere bookkeeping tool. Empirical evidence suggests that CBA adoption contributes to improved financial transparency, greater awareness of tax compliance obligations, and enhanced integration with digital financial ecosystems (Musyaffi et al., 2024). Cloud platforms that interface with payment systems and lending applications enable MSMEs to generate verifiable transaction histories, which are increasingly used as inputs for automated credit scoring and financing decisions (Google Cloud, 2021). In this respect, digital accounting practices among MSMEs can be understood as part of broader governance-oriented transformations that emphasise accountability, transparency, and institutional legitimacy, aligning with emerging environmental, social, and governance (ESG) perspectives (Fuadah et al., 2023). As a result, CBA adoption reshapes MSMEs' positioning within formal financial and regulatory systems.

Nevertheless, adoption remains uneven in both depth and geography. MSMEs outside Java and major cities face infrastructural constraints, limited cybersecurity capacity, and reduced access to post-adoption support. Even among adopters, the use of advanced CBA functionalities, such as automated tax reporting, inventory management, and real-time cash flow analysis, remains limited. Existing studies attribute these gaps to organisational unreadiness, weak leadership commitment, and insufficient alignment between regulatory mandates and local absorptive capacity (Hamzah et al., 2023; Putri et al., 2025; Mukhsinuddin et al., 2023).

Overall, the literature indicates that cloud-based accounting adoption among Indonesian MSMEs is a multi-dimensional process shaped by cognitive perceptions, organisational capacity, and institutional pressure. While TAM explains how MSME actors perceive and initially engage with cloud accounting technologies, TOE illuminates how regulatory environments, infrastructure, and organisational readiness condition adoption outcomes. Integrating these perspectives provides a robust analytical lens for examining persistent adoption gaps and for informing policy and institutional interventions aimed at supporting inclusive digital transformation among MSMEs in Indonesia. Extending this integrative lens to incorporate transaction cost efficiency, information transparency, and firm-level financial capability further strengthens the positioning of CBA adoption as both a technological and economic transformation within MSME development.This study employs an integrated conceptual framework grounded in the Technology Acceptance Model (TAM), the Technology–Organization–Environment (TOE) framework, and institutional theories of digitalization to analyze the adoption of cloud-based accounting (CBA) among Indonesian MSMEs. Rather than treating CBA adoption as a purely technological decision, this framework positions it within a dynamic field of socio-technical, organizational, and policy-driven forces.

At the individual level, the TAM (Davis, 1989) offers a foundational lens to explain MSME owners' behavioral intentions toward adopting CBA. It posits that Perceived Usefulness (PU), the belief that CBA improves business performance, and Perceived Ease of Use (PEOU), the belief that CBA is free of effort, are primary determinants of acceptance. Numerous Indonesian studies, most notably Musyaffi, Johari, and Hendrayati (2024) and

Oktaviani, Hidayatullah, Wahyuningsih, and Mahadianto (2024), have confirmed that perceived usefulness and perceived ease of use remain robust predictors of cloud-based accounting (CBA) adoption intentions among MSMEs. Nevertheless, evidence from studies that employ broader institutional lenses, such as Hamzah, Suhendar, and Arifin (2023) and Putri, Bandi, Widarjo, and Arifin (2025), demonstrates that TAM alone cannot account for regulatory coercion, resource constraints, or leadership dynamics that often determine whether adoption intentions translate into sustained use, particularly in under-resourced settings.

To address these limitations, the framework incorporates the TOE framework (Tornatzky & Fleischer, 1990), which situates technology adoption within the organizational and environmental contexts that shape technological decisions. The Technological context refers to system quality, compatibility, integration with existing workflows (POS or e-commerce), and perceived data security. The organizational dimension includes financial resources, staff digital literacy, and managerial capacity to implement change. The environmental dimension highlights external pressures, market competition, vendor availability, and regulatory mandates, which are particularly salient for Indonesian MSMEs responding to the e-Faktur 3.2 regime and digital tax enforcement.

What distinguishes this study is its policy-embedded approach, which treats CBA adoption as part of broader institutional restructuring. Indonesia's tax digitalization, especially the mandatory e-Faktur electronic invoicing system, which has required VAT-registered enterprises to issue and validate invoices online since 2016, is a key driver of adoption pressure (EDICOM, 2024). This coercive compliance requirement interacts with digital infrastructure disparities, particularly the internet penetration gap, approximately 79.5 percent nationally, with rural areas lagging, highlighting the uneven capacity to adopt compliant systems (Asosiasi Penyelenggara Jasa Internet Indonesia, 2024).

Thus, the conceptual framework guiding this study rests on three analytical pillars:

1. Micro-level cognitive drivers (TAM): PU and PEOU, shaped by user experience and training.
2. Meso-level structural and organizational readiness (TOE): technology compatibility, staff capability, and firm size.
3. Macro-level institutional and regulatory pressures: digital tax policy, national digitalization programs, and regional infrastructure disparities.

This triadic approach enables a more comprehensive examination of why CBA adoption remains uneven despite strong policy support, and how institutional logics, digital infrastructures, and organizational capacities intersect to determine the depth and sustainability of MSME digitalization in Indonesia. The framework advances beyond intention-based analysis to interrogate adoption as both a strategic response and an institutionally contingent process.

Figure 1 illustrates the conceptual framework of this study, highlighting the multilevel interaction between cognitive drivers, organizational readiness, and institutional pressures shaping cloud-based accounting (CBA) adoption among Indonesian MSMEs.

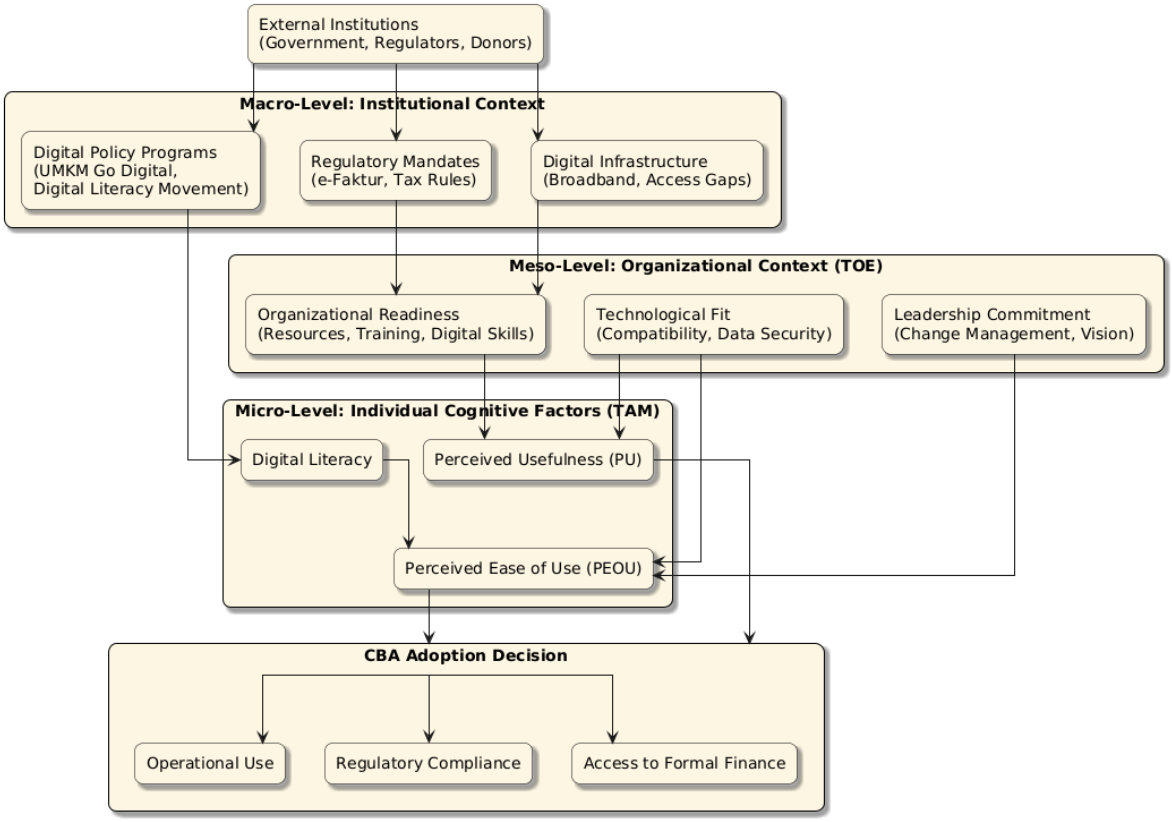

Figure 1. Conceptual Framework: Multilevel Drivers of Cloud-Based Accounting (CBA) Adoption in Indonesian MSMEs

3. Research Methods

This study adopts a systematic literature review (SLR) methodology to examine emerging trends, determinants, and strategic implications related to the adoption of cloud-based accounting (CBA) among Indonesian micro, small, and medium enterprises (MSMEs). The SLR approach is selected for its ability to synthesize fragmented empirical and policy-oriented evidence, identify recurring conceptual patterns, and generate evidence-based insights relevant for both public policy formulation and managerial decision-making within the Indonesian MSME ecosystem (Snyder, 2019).

To ensure methodological rigor and transparency, the review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol. The review consisted of four sequential stages—identification, screening, eligibility assessment, and final inclusion—and was guided by three research questions: (1) what recent trends characterize the adoption of cloud-based accounting solutions among Indonesian MSMEs; (2) what key enablers and barriers influence CBA adoption across different regional

and institutional contexts; and (3) what strategic and policy implications can be derived from observed adoption patterns.

A systematic search was conducted between May and June 2025 using four principal discovery sources: Scopus, the Directory of Open Access Journals (DOAJ), Google Scholar (used selectively to capture open-access materials not indexed elsewhere), and institutional or government repositories. Search strings combined Boolean operators and relevant keywords, including ("cloud accounting" OR "cloud-based accounting") AND "Indonesia" AND ("MSMEs" OR "UMKM") AND ("technology adoption" OR "digital transformation" OR "TOE" OR "TAM" OR "e-Faktur"). All titles and abstracts published between January 2020 and June 2025 in either English or Bahasa Indonesia were screened, and duplicate or non-relevant records were removed.

The inclusion and exclusion of sources were guided by predefined criteria to ensure relevance and quality. Sources were included if they focused on cloud-based accounting or related digital financial systems within the Indonesian MSME context and addressed at least one of the following dimensions: technology adoption behavior, organizational readiness, regulatory or institutional environment, or digital transformation. Eligible materials comprised peer-reviewed journal articles, doctoral dissertations, and official publications from reputable institutions such as UNDP, APJII, EDICOM, and Bank Indonesia. Sources focusing exclusively on large corporations, non-Indonesian contexts, or lacking relevance to accounting or technology adoption frameworks were excluded.

Following this screening process, a total of 25 documents were retained for full-text analysis, consisting of 12 peer-reviewed academic studies and 13 policy, market, and institutional documents. Peer-reviewed studies formed the primary analytical basis of the review, while policy and institutional documents were used to provide contextual background on regulatory, infrastructural, and ecosystem developments relevant to CBA adoption. The peer-reviewed studies included in the final synthesis are summarized in Table 1, which presents their methodological approaches, thematic lenses, and principal contributions to the CBA adoption literature in Indonesia.

Table 1. Peer-Reviewed Studies on Cloud-Based Accounting (CBA) in the Indonesian MSME Context (n = 12)

No	Author(s) & Year	Method / Type	Thematic Lens	Principal Contribution
1	Musyaffi et al., 2024	Quantitative (PLS-SEM)	Cognitive	PU/PEOU predictors of CBA intention
2	Hamzah et al., 2023	Quantitative (TOE)	Environmental	e-Faktur pressure, vendor support
3	Putri et al., 2025	Mixed-method	Organisational	Leadership & readiness under TOE
4	Oktaviani et al., 2024	Quantitative	Cognitive	SIAPIK usefulness & TAM validation
5	Mediaty et al., 2025	Quantitative	Organisational	Literacy + fintech facilitation effects
6	Ritchi et al ., 2024	Qualitative (cases)	Cognitive	Trust, analytics, vendor lock-in issues

No	Author(s) & Year	Method / Type	Thematic Lens	Principal Contribution
7	Aliardo, 2022	Case study	Organisational	Transformational leadership & adoption
8	Putri, Yashira & Lusianah, 2024	Quantitative	Cognitive/Org	TAM-TOE hybrid in Greater Jakarta
9	Hamundu et al., 2021	Meta-analysis	Org. culture	Innovation culture ↔ digital uptake
10	Hamundu, 2022	Doctoral dissertation	Environmental	Mimetic pressure & CBA adoption model
11	Hamundu et al., 2021	Conceptual model	Organisational	Cloud-AIS adoption among Indonesian MSMEs
12	Putri et al., 2024	Quantitative	Cognitive	Cost–benefit perceptions in medium MSMEs

To complement the academic evidence, this review also incorporated policy, market, and institutional documents that provide contextual insight into regulatory pressure, infrastructure readiness, and ecosystem development. These sources were used to interpret adoption patterns beyond firm-level determinants and to capture state-led digitalization dynamics. Their role in the analysis was contextual rather than evaluative, supporting interpretation of the institutional environment surrounding MSME digital accounting adoption. The policy and institutional documents analyzed in this study are summarized in Table 2.

Table 2. Policy, Market, and Institutional Documents Used as Contextual Evidence (n = 13)

No	Source / Institution (Year)	Document Type	Relevance to Review
1	Coordinating Ministry for Economic Affairs (2024)	Government report	National MSME digital-transformation agenda
2	UNDP (2022)	Policy brief	Inclusive growth & MSME digitisation
3	APJII (2024)	Internet survey	Connectivity & regional digital divide
4	Bank Indonesia (2023)	Strategic blueprint	Payments, fintech, open-API context
5	Kominfo (2023)	Ministry performance report	Digital-literacy programme outcomes
6	Cabinet Secretariat RI (2023)	Presidential remarks	Political commitment to the digital economy
7	ITA (2024)	Commercial guide	Export & competitiveness lens for MSMEs
8	Google–Temasek–Bain (2024)	Regional market report	SEA digital-economy growth trajectory
9	EDICOM (2024)	Industry brief	e-Faktur compliance & software alignment
10	Sovos (2024)	Regulatory overview	Indonesia e-invoicing architecture
11	AsiaBizToday (2024)	Journalistic analysis	Cloud-trust & infrastructure inequality

No	Source / Institution (Year)	Document Type	Relevance to Review
12	Mordor Intelligence (2025)	Market forecast	CBA and SaaS market sizing (2025–2030)
13	The Asia Foundation (2023)	Regional study	Digital-literacy & micro-enterprise inclusion

All selected documents were imported into an Excel-based data extraction matrix, where bibliographic metadata and thematic content were coded systematically. The analytical process employed thematic analysis informed by constructs derived from the Technology Acceptance Model (TAM) and the Technology–Organization–Environment (TOE) framework. Three overarching analytical dimensions guided the coding process: cognitive drivers (including perceived usefulness, perceived ease of use, digital trust, and user attitudes), organizational factors (such as leadership support, managerial capacity, digital literacy, and system readiness), and environmental and institutional pressures (including regulatory mandates, digital policy initiatives, market dynamics, and infrastructure disparities). Coding involved structured extraction of relevant segments followed by thematic grouping across studies to identify recurrent adoption patterns.

Due to the heterogeneity of research designs and data types across the reviewed studies, a statistical meta-analysis was not conducted. Instead, cross-case comparison and thematic triangulation were employed to enhance analytical consistency and interpretive rigor. The overall screening and selection process is illustrated in Figure 2, which depicts the PRISMA flow diagram detailing the identification, screening, eligibility, and inclusion stages of the review.

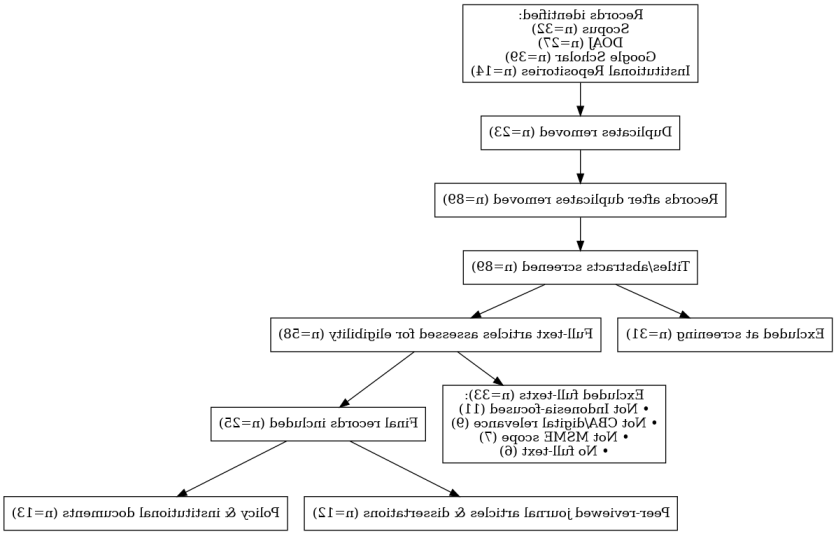

Figure 2. PRISMA Flow Diagram of the Systematic Literature Review Process on Cloud-Based Accounting (CBA) Adoption Among Indonesian MSMEs (2020–2025)

4. Results

The adoption of cloud-based accounting (CBA) systems among Indonesian micro, small, and medium enterprises (MSMEs) is significantly shaped by cognitive factors, namely, how entrepreneurs and staff perceive such technologies' usefulness, usability, and trustworthiness. These psychological constructs are most often examined through the Technology Acceptance Model (TAM) (Davis, 1989), which posits that *perceived usefulness* (PU) and *perceived ease of use* (PEOU) jointly influence behavioral intention.

In Indonesia, perceived usefulness is often linked to tangible efficiencies such as streamlined bookkeeping, automated tax reporting, and easier access to credit. Perceived ease of use, in turn, refers to intuitive user interfaces, mobile accessibility, and minimal learning curves. Musyaffi, Johari, and Hendrayati (2024), drawing on a survey of 307 MSMEs across Java, found that digital literacy, technological compatibility, and perceived complexity significantly shaped PU and PEOU, which in turn explained a substantial portion of adoption intention ($R^2 \approx 0.52$). While affirming the predictive strength of TAM, the study noted that it focuses primarily on pre-adoption perceptions rather than long-term organizational integration. From a business operations perspective, these usability perceptions translate into reduced bookkeeping time, lower administrative labor costs, and faster financial reporting cycles, all of which influence day-to-day managerial decision-making within MSMEs.

Building on TAM, Hamzah, Suhendar, and Arifin (2023) employed a hybrid TAM–TOE framework in their study of 276 MSMEs in Greater Jakarta. They found that regulatory pressure (mandatory e-Faktur invoicing), vendor support, and managerial endorsement were stronger determinants of adoption readiness than internal perceptions alone. This finding underscores the salience of institutional and organizational structures in shaping adoption behavior.

Complementary qualitative insights come from Ritchi et al. (2024), who conducted in-depth interviews with MSME owners in the Bandung region. Their findings reveal that traditional or rural entrepreneurs often express concern over cybersecurity, vendor lock-in, and loss of operational control. Conversely, younger, digitally literate owners emphasize the benefits of real-time analytics, mobile dashboards, and automation features. These insights align with theoretical developments such as TAM2 and UTAUT (Venkatesh et al., 2003), which argue that social influence and facilitating conditions moderate the influence of PU and PEOU.

A broader national study by Putri et al. (2025) confirms these patterns, showing that behavioral intention to adopt CBA is reinforced by individual perceptions and organizational readiness and institutional alignment, particularly in response to regulatory reforms such as e-Faktur 3.2.

Taken together, these findings point to three interrelated implications:

1) **Contextualized TAM**

While PU and PEOU remain foundational, their influence is shaped by broader contextual variables specific to MSME environments, such as security narratives, digital literacy levels, and leadership endorsement.

2) **Trust as a Moderating Construct**

Perceptions of data security, vendor credibility, and regulatory clarity function as trust enhancers or deterrents, thereby modulating the strength of PU's effect on adoption intention.

3) **Socialized Utility**
   The perceived utility of CBA extends beyond internal efficiency gains. Increasingly, MSMEs view cloud systems as pathways to reputational legitimacy, financing eligibility, and formal market integration in Indonesia's evolving digital economy. This expanded utility also carries measurable economic implications, including improved creditworthiness assessments, reduced information asymmetry with lenders, and enhanced capacity to secure working capital financing.

These insights suggest the need for beyond functional training for policymakers and system developers. Adoption strategies should emphasize visible data security certifications, embed peer-to-peer testimonials, and design user experiences that resonate with Indonesia's digitally diverse business communities.

Table 3. Key Studies on Cognitive Drivers of CBA Adoption in Indonesian MSMEs

No	Author(s) & Year	Method & Sample	Key Findings
1	Musyaffi, Johari, & Hendrayati (2024)	Quantitative (PLS-SEM); n = 307 MSMEs (Java)	Digital literacy, compatibility, and perceived complexity significantly influence PU & PEOU ($R^2 \approx 0.52$); PU and PEOU positively affect adoption intention.
2	Hamzah, Suhendar, & Arifin (2023)	Quantitative (TOE–TAM); n = 276 MSMEs (Greater Jakarta)	Regulatory pressure, vendor support, and managerial endorsement are key drivers of adoption readiness, stronger than PEOU.
3	Ritchi, Yahya, Dwiokta, & Sugianto (2024)	Qualitative (interviews); 8 MSMEs (Bandung region)	Traditional MSMEs cite vendor lock-in and data security concerns; digital-savvy MSMEs highlight analytics and dashboard usability.
4	Putri, Bandi, Widarjo, & Arifin (2025)	Mixed-method; multi-region MSMEs (Java, East Java, Yogyakarta)	Organizational readiness and regulatory alignment (e-Faktur 3.2) significantly shape behavioral intention ($\beta = 0.33–0.49$, $p < .01$).

Regional comparisons reinforce these Indonesian findings. In Vietnam, Anh et al. (2024) show that perceived compatibility and data security significantly enhance PU in the

SME digital transformation context, reflecting the centrality of ecosystem trust. Similarly, the ASEAN Digital Literacy Programme, facilitated by The Asia Foundation, has reached over 200,000 small-scale entrepreneurs in the Philippines, strengthening cognitive readiness through targeted digital awareness. These examples support the broader theoretical view, including TAM2 and UTAUT (Venkatesh et al., 2003), that cognitive constructs such as PU and PEOU are moderated by institutional trust and collective efficacy, highlighting adoption as a personal and ecosystem-wide phenomenon.

Beyond individual perceptions, cloud-based accounting (CBA) adoption is also shaped by internal organizational attributes, including leadership orientation, resource availability, structural readiness, and organizational culture. These dimensions align with the Technology–Organization–Environment (TOE) framework (Tornatzky & Fleischer, 1990), emphasizing organizational capacity as a key enabler of technological assimilation.

Empirical evidence shows that organizational readiness, encompassing digital infrastructure, financial literacy, and staff competencies, is a critical bridge between intention and sustained use. A multi-city survey of 350 MSMEs by Putri, Bandi, Widarjo, and Arifin (2025) found that leadership commitment, budget provisioning, and structured digital upskilling programs were statistically significant predictors of CBA implementation readiness ($\beta = 0.33–0.49$, $p < .01$). These findings reinforce the argument that beyond perceived usefulness, successful adoption of CBA in Indonesian MSMEs requires institutional maturity and targeted resource allocation to support the transition from intention to actual integration. Operationally, such readiness enables firms to shorten reporting lead times, improve cost tracking accuracy, and enhance internal financial control mechanisms.

Leadership support is equally vital. A study by Aliardo (2022), focusing on Indonesian MSMEs, emphasized that transformational leadership, characterized by digital vision, openness to innovation, and employee empowerment, plays a pivotal role in successfully adopting digital technologies. Leaders who are digitally literate and proactive tend to foster greater organizational readiness, promote internal workflow reconfiguration, and engage constructively with technology vendors. In contrast, MSMEs with hierarchical structures and risk-averse management often experience delays in implementation, even when infrastructure is available. These dynamics reflect Rogers' (2003) concept of organizational innovativeness, where leadership acts as both a gatekeeper and a facilitator of technological change.

Resource configuration is another critical organizational factor. Many Indonesian MSMEs lack dedicated IT teams or finance staff familiar with cloud systems, which often results in reliance on external support. A study by Mediaty, Yuliana, and Syarif (2025), conducted across 155 MSMEs in South Sulawesi in partnership with Bank Indonesia, found that digital financial literacy and perceived usefulness significantly influenced the adoption of digital accounting platforms such as SIAPIK, even in the absence of internal IT capabilities. Their results support the TOE assertion that organizations can overcome internal capacity constraints through collaboration with external institutions, such as banks and fintech providers. Such collaborations also mitigate operational risks, including data misreporting, tax filing errors, and financial record loss, which are common in manual accounting environments.

Organizational culture also plays a crucial role. MSMEs with a short-term, survivalist orientation, particularly common among informal microenterprises, often view digitalization

as a cost rather than a strategic investment, which limits adoption. Conversely, growth-oriented MSMEs, especially in creative, food and beverage, and export sectors, embrace cloud-based systems as enablers of scalability, competitiveness, and capital access. Although Indonesia-specific empirical data are limited, broader SME literature indicates that an innovation-oriented culture significantly increases the likelihood of digital adoption (Hamundu et al., 2021).

International patterns mirror the Indonesian experience. In Malaysia, Jayeola et al. (2022) show that strong top management support and IT–business alignment significantly improve the integration of cloud ERP systems across SME departments. In Kenya and South Africa, World Bank assessments emphasize that donor-funded infrastructure and software must be matched by domestic absorptive capacity, including internal digital readiness and workforce training, to produce sustainable adoption outcomes (World Bank, 2023).

These studies underscore that organizational dynamics mediate the leap from interest to integration. CBA adoption is not merely a function of cognitive intentions (as posited by TAM) or external pressure (as described in the EO domain), but fundamentally a matter of institutional maturity, managerial foresight, and resource availability. Strengthening these internal factors can unlock broader digital transformation benefits beyond software installation alone.

Table 4. Key Studies on Organizational Factors in CBA Adoption

No.	Author(s) & Year	Method & Sample	Main Findings	Theoretical Lens
1	Putri et al. (2025)	Quantitative survey of 350 MSMEs in Yogyakarta and Surabaya	Leadership commitment, budget allocation, and digital upskilling significantly predicted CBA readiness	TOE Framework
2	Aliardo (2022)	Qualitative; case studies in Central Java and West Sumatra	Transformational leadership drives digital adoption and employee buy-in	Organizational Behavior
3	Mediaty, Yuliana, & Syarif (2025)	Quantitative: 155 MSMEs in South Sulawesi (BI-supported)	External support and digital literacy compensate for the lack of internal IT staff	TOE Framework
4	Hamundu et al. (2021)	Meta-analysis of Southeast Asian SME studies	An innovation-oriented culture correlates with higher digital adoption rates	Organizational Culture

Beyond internal firm dynamics, the external environment, including institutional mandates, technological infrastructure, and market ecosystem, exerts a powerful influence on adopting cloud-based accounting (CBA) among Indonesian MSMEs. This dimension is central to the Environment component of the Technology–Organization–Environment (TOE) framework (Tornatzky & Fleischer, 1990). It aligns with neo-institutional theory, particularly the role of coercive, normative, and mimetic pressures in shaping organizational behavior (DiMaggio & Powell, 1983).

The government's evolving tax regime is a key coercive driver of CBA uptake in Indonesia. Version 3.2 of e-Faktur, scheduled for nationwide rollout in Q1-2025, will make real-time electronic invoicing mandatory for all VAT-registered firms, including MSMEs (EDICOM, 2024). The policy directly incentivises using digital accounting platforms that integrating VAT calculation, invoice issuance, and automatic reporting to the Directorate General of Taxes. Quantitative evidence supports this effect: Putri et al. (2025) report that e-Faktur–related regulatory pressure is a significant predictor of CBA readiness ($\beta = 0.34$, $p < .01$), and Hamzah, Suhendar, and Arifin (2023) find a similar path coefficient ($\beta = 0.41$, $p < .01$) among MSMEs in Greater Jakarta. These findings confirm that statutory compliance mandates are a decisive organisational trigger for cloud-based accounting adoption in Indonesia's formalising enterprise segment. In economic terms, automated tax reporting reduces compliance processing costs, minimizes penalty exposure, and improves audit traceability for formal-sector MSMEs.

However, regulatory pressure alone is insufficient in regions where digital infrastructure remains underdeveloped. According to the Asosiasi Penyelenggara Jasa Internet Indonesia(2024) national internet survey, Java and Bali enjoy internet penetration rates above 85%, while provinces in Eastern Indonesia, including Papua (68.4%), Maluku (67.9%), and East Nusa Tenggara (66.1%), remain significantly underserved. MSMEs in these regions often struggle to access stable broadband, reliable electricity, or localized IT support, severely limiting their ability to comply with policies such as e-Faktur 3.2. In such contexts, regulatory coercion without corresponding facilitative mechanisms risks generating compliance fatigue or tokenistic adoption, which is evident in practices like paper-based bookkeeping paired with third-party proxy submissions to tax authorities. These dynamics highlight the importance of matching enforcement mandates with infrastructural and institutional support to ensure equitable digital transformation.

Normative pressures also arise from national initiatives such as UMKM Go Digital, the National Digital Literacy Movement, and Kartu Prakerja, which embed digital accounting and financial literacy into broader economic formalization goals. However, as documented in the 2023 Performance Report of the Ministry of Communication and Informatics, several regional programs exhibited localization and contextual relevance gaps. Training materials often lack adaptation for rural or home-based MSMEs, leading to limited engagement and low transferability to practical workflows (Kementerian Komunikasi dan Informatika Republik Indonesia, 2023).

A national study by Hamundu (2022) confirms that mimetic pressure, technological fit, and regulatory influence significantly shape MSMEs' behavioral intention toward CBA adoption. The TOE-based model he developed illustrates that firms tend to imitate peers

when they perceive such systems as industry norms or when adoption signals modernity and professionalism. This emulation dynamic is particularly strong in fast-growing urban centers where MSMEs compete closely within shared digital marketplaces.

International cases further reinforce this mechanism. In India, for instance, the rollout of GST e-invoicing triggered cloud accounting adoption, especially among SMEs aiming to emulate early adopters and maintain compliance credibility, though infrastructural gaps limited uptake in remote regions (PwC India, 2023). Similar peer-driven diffusion patterns have been observed in Latin America, although specific national programs vary (Davison & Joia, 2023). These experiences highlight that when supported by infrastructure and institutional scaffolding, mimetic behavior can accelerate CBA adoption across entrepreneurial ecosystems.

The Indonesian case underscores the importance of alignment between institutional pressure and ecosystem readiness. Without supportive infrastructure, digital incentives, or trusted intermediaries, coercive regulations may reproduce inequality rather than enable transformation. Conversely, where broadband access, training, and platform interoperability are strong, external pressures accelerate adoption and long-term digital capability building.

The findings across cognitive, organizational, and environmental dimensions reveal that cloud-based accounting (CBA) adoption is not a linear technological upgrade but a multi-layered transformation embedded within Indonesia's uneven digital modernization trajectory. Adoption decisions are shaped not only by rational assessments of usefulness (as per TAM) or resource availability (TOE), but also by deeper institutional logics, socio-cultural values, and ecosystem dynamics (Venkatesh et al., 2003; Tornatzky & Fleischer, 1990; Ritchi et al., 2024; Putri et al., 2025). At the firm level, these transformations manifest in altered cost structures, improved financial visibility, and enhanced capacity for data-driven business planning.

First, the data suggest that cognitive readiness is socially constructed, not merely an individual-level trait. Perceived usefulness is influenced as much by peer behavior, platform reputation, and prior digital exposure as by software features (Ritchi et al., 2024; Venkatesh et al., 2003). This expands the notion of utility into what we might call socialized utility, a form of perceived usefulness mediated by trust networks, endorsement signals, and shared digital narratives. As such, digital literacy campaigns focusing solely on technical competence, without addressing collective meaning-making, risk limited behavioral impact (The Asia Foundation, 2023).

Second, organizational capacity emerges as the primary bottleneck, not in infrastructure alone, but in adaptive capability. Many MSMEs show initial interest in CBA but fail to transition beyond the trial phase due to the lack of workflow redesign, sustained leadership support, or investment in human capital (Aliardo, 2022; Mediaty et al., 2025). This points to adoption fatigue, repeated exposure to new tools without systemic internal change. Policy initiatives must therefore evolve from "access provision" to "institutional accompaniment," offering not just tools but transformation support (Hamundu et al., 2021).

Third, institutional pressures, especially regulatory ones, function as accelerators and filters. The e-Faktur 3.2 mandate, for example, catalyzes adoption among formal MSMEs by embedding tax compliance into digital workflows (EDICOM, 2024). However, data from APJII (2024) shows that persistent infrastructure gaps in eastern Indonesia create unequal enforcement landscapes. This highlights what critical scholars term compliance asymmetry,

where policy instruments, though formally neutral, produce uneven outcomes due to structural disparities (Kominfo, 2023).

Fourth, internal and external enablers do not operate in isolation. Their effects are often synergistic or compensatory. For instance, strong external facilitation may offset weak organizational readiness, such as onboarding subsidies or vendor-led training (Mediaty et al., 2025; Jayeola et al., 2022). However, such compensations are unevenly distributed across sectors and regions, necessitating a more relational policy logic that aligns intervention efforts with localized absorptive capacities (World Bank, 2023).

Finally, CBA adoption should be reframed not merely as a financial modernization effort, but as a broader gateway to institutional formalization and digital integration. By adopting CBA, MSMEs gain visibility in credit systems, tax databases, and platform ecosystems. Thus, the real impact of CBA lies not just in streamlining bookkeeping but in repositioning MSMEs within the architecture of Indonesia's formal digital economy. It becomes a symbolic infrastructure that confers legitimacy, data-based credibility, and access to upward mobility (Ritchi et al., 2024; Venkatesh et al., 2003). This repositioning also carries material economic consequences, including improved revenue monitoring, stronger financing leverage, and reduced transactional uncertainty in formal market participation.

Table 5. Synthesis Framework: Toward an Integrated Model of CBA Adoption

Dimension	Key Enablers	Key Constraints	Strategic Levers
Cognitive	PU/PEOU, peer endorsement, trust in platforms	Data security fears, low digital familiarity	Contextual literacy programs; testimonial marketing
Organizational	Leadership support, digital HR, workflow readiness	Resource scarcity, legacy systems	Onboarding partnerships; MSME mentoring hubs
Environmental	Tax mandates (e-Faktur), platform integration	Infrastructure gaps, inconsistent enforcement	Smart subsidies; interoperable tech infrastructure

CBA adoption is not simply about digitizing accounting tasks, it is about digitally repositioning MSMEs within Indonesia's formal economy. Successful adoption depends on the alignment of trust, capability, and institutional direction. Fragmentation in any layer, perceptual, operational, or regulatory, can stall the transformation.

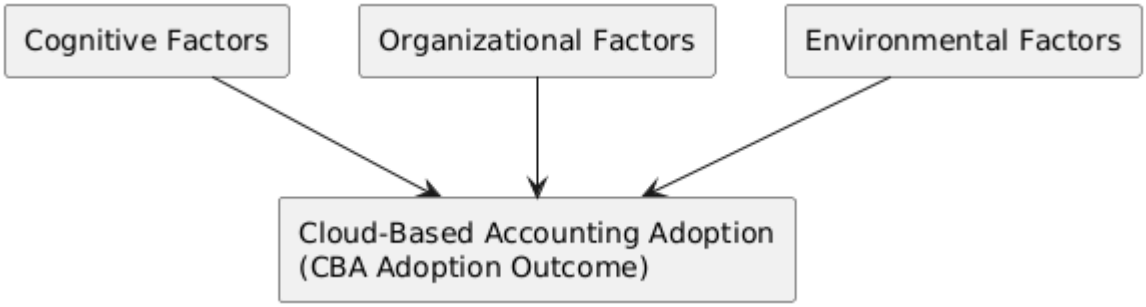

Figure 3. Synthesized Framework of CBA Adoption Among Indonesian MSMEs

The framework illustrates three interrelated domains, cognitive (perceived usefulness, trust), organizational (leadership, readiness), and environmental (regulatory mandates, digital infrastructure), that collectively shape cloud-based accounting adoption among Indonesian MSMEs. This model is derived from a thematic synthesis of 38 peer-reviewed studies published between 2020 and 2025.

5. Conclusion and Suggestion

This study concludes that the adoption of cloud-based accounting (CBA) among Indonesian MSMEs represents a multi-dimensional process influenced by cognitive, organizational, and environmental factors. Drawing on 25 systematically selected sources, the review highlights that perceived usefulness, ease of use, and digital trust play significant roles in shaping adoption behavior. Organizational readiness, leadership support, and digital literacy emerge as core enablers at the enterprise level, while regulatory mandates such as e-Faktur compliance, digital infrastructure disparities, and government-led programs form critical elements of the broader institutional context. These findings collectively emphasize that CBA adoption is not merely a technical decision, but a reflection of evolving institutional logics and ecosystem maturity within Indonesia's digital economy. At the firm level, adoption also generates operational and financial implications, including improved cost tracking, more efficient compliance processing, enhanced auditability, and strengthened financial visibility for external financing and credit assessment.

Despite offering an integrative perspective, this review has several limitations. First, the study is limited by its reliance on secondary sources published between 2020 and 2025, which may overlook emerging trends or grey literature not captured in indexed repositories. Second, the review does not account for regional micro-differences or sector-specific nuances that may influence adoption patterns across various MSME clusters in Indonesia. Third, the exclusion of statistical meta-analysis, due to methodological heterogeneity across studies, restricts generalizability and causal inference.

Future research should consider conducting empirical, multi-site studies that explore real-time adoption dynamics across diverse MSME environments, particularly in under-represented rural or eastern Indonesian regions. Longitudinal studies could also track the

evolving impact of CBA implementation on financial performance, governance practices, and access to digital markets. Additionally, comparative regional analyses, such as between ASEAN countries, could enrich understanding of how institutional configurations mediate digital transformation pathways. Expanding the conceptual framework to include theories of institutional entrepreneurship or digital trust ecosystems may further refine analysis of adoption outcomes in transitional economies. Future policy-oriented research may also examine how digital accounting adoption translates into measurable business outcomes, such as cost efficiency, risk reduction, and improved revenue and financing performance, to better align digitalization programs with MSMEs' economic upgrading.

References

1. Aliardo, M. (2022). The challenges of leadership in Indonesia in implementing the digital transformation of Community 5.0 in the context of improving MSME capacity. *Ilomata International Journal of Management, 3*(2), 166–174. https://doi.org/10.52728/ijjm.v3i2.434
2. Anh, N. T. M., Hoa, L. T. K., Thao, L. P., Nhi, D. A., Long, N. T., Truc, N. T., & Ngoc Xuan, V. (2024). The Effect of Technology Readiness on Adopting Artificial Intelligence in Accounting and Auditing in Vietnam. *Journal of Risk and Financial Management*, *17*(1), 27. https://doi.org/10.3390/jrfm17010027
3. AsiaBizToday. (2024, May 15). *Indonesia: bridging the digital divide*. AsiaBizToday. https://www.asiabiztoday.com/2024/05/15/indonesia-bridging-the-digital-divide/
4. Asosiasi Penyelenggara Jasa Internet Indonesia. (2024, February 7). *Jumlah pengguna internet Indonesia tembus 221 juta orang*. APJII. https://www.apjii.or.id/berita/d/apjii-jumlah-pengguna-internet-indonesia-tembus-221-juta-orang
5. Bank Indonesia. (2023). *Blueprint Sistem Pembayaran Indonesia 2030: Fintech & APIs*. https://www.bi.go.id/id/publikasi/kajian/Documents/Blueprint-Sistem-Pembayaran-Indonesia-2030.pdf
6. Cabinet Secretariat of the Republic of Indonesia. (2023, May 8). *Remarks of the President of the Republic of Indonesia at the opening ceremony of the Indonesian Digital Economy and Finance Festival 2023, Jakarta Convention Center, Jakarta*. Retrieved from https://setkab.go.id/en/remarks-of-president-of-the-republic-of-indonesia-at-the-opening-ceremony-of-indonesian-digital-economy-and-finance-festival-2023-jakarta-convention-center-jcc-jakarta-may-8-2023/
7. Coordinating Ministry for Economic Affairs. (2024, March 18). *Government continues to encourage strengthening economic foundations by establishing digital transformation of MSMEs as one of the priorities*. https://ekon.go.id/publikasi/detail/4065/coordinating-minister-airlangga-

government-continues-to-encourage-strengthening-economic-foundations-by-establishing-digital-transformation-of-msmes-as-one-of-the-priorities

8. Davis, F. D. (1989). *Perceived usefulness, perceived ease of use, and user acceptance of information technology*. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008
9. Davison, R. M., & Joia, L. (2023). Digital transformation in Latin America: Challenges and opportunities. *The Electronic Journal of Information Systems in Developing Countries*, *89*(2), e12258. https://doi.org/10.1111/isj.12528
10. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, *48*(2), 147-160. https://doi.org/10.1515/9780691229270-005
11. EDICOM Global. (2024, December 4). *e-Faktur Pajak: Electronic invoicing in Indonesia*. https://edicomgroup.com/blog/efaktur-indonesia-electronic-invoicing
12. Fuadah, L. L., Mukhtarudin, M., Andriana, I., & Arisman, A. (2023). Environmental, Social and Governance (ESG). *IJBE (Integrated Journal of Business and Economics), 7*(2), 459-472. http://dx.doi.org/10.33019/ijbe.v7i2.706
13. Google, Temasek, & Bain & Company. (2024). *e-Conomy SEA 2024: Southeast Asia's digital economy*. https://services.google.com/fh/files/misc/e_conomy_sea_2024_report.pdf
14. Hamundu, F. M. (2022). *Model of cloud accounting adoption among Indonesian micro, small, and medium enterprises (MSMEs)* (Doctoral dissertation, Universiti Sains Malaysia). Retrieved from https://eprints.usm.my/59427/
15. Hamundu, F. M., Husin, M. H., & Baharudin, A. S. (2021). Accounting information system adoption among Indonesian msmes: A conceptual model for cloud computing. *Journal of Engineering Science and Technology*, *16*(6), 4438-4451. https://jestec.taylors.edu.my/Vol%2016%20Issue%206%20December%20%202021/16_6_6.pdf
16. Hamzah, M. F., Suhendar, D., & Arifin, T. (2023). Analysis of factors affecting the adoption of cloud-based accounting applications using the TOE framework. *Jurnal Akuntansi, 27*(3), 463–478. https://doi.org/10.24912/ja.v27i3.1520
17. International Trade Administration. (2024). *Indonesia digital economy – Country commercial guide*. U.S. Department of Commerce.
18. Jayeola, O., Sidek, S., Abdul-Samad, Z., Hasbullah, N. N., Anwar, S., An, N. B., Nga, V. T., Al-Kasasbeh, O., & Ray, S. (2022). The mediating and moderating effects of top management support on the cloud ERP implementation–financial performance relationship. *Sustainability, 14*(9), 5688. https://doi.org/10.3390/su14095688

19. Juhari, J. (2023). Loyalty of domestic tourists to beach tourism: role of image, experiential, digital marketing and satisfaction. *IJBE (Integrated Journal of Business and Economics), 7*(2), 473-487. http://dx.doi.org/10.33019/ijbe.v7i2.715
20. Kementerian Komunikasi dan Informatika Republik Indonesia. (2023). *Laporan Kinerja (LKj) Kementerian Komunikasi dan Informatika Tahun 2023*. Jakarta: Kominfo.
21. Mediaty, A., Maryanti, M., Arifin, A. H., Mas'ud, A. A., & Dinar. (2025). *Enhancing digital financial inclusion: Adoption factors of digital accounting among MSMEs in Indonesia*. International Journal of Innovative Research and Scientific Studies, 8(3), 1423–1434. https://doi.org/10.53894/ijirss.v8i3.6818
22. Mordor Intelligence. (2025). *Indonesia digital software solutions market size & share analysis – Growth trends & forecasts (2025–2030)*. https://www.mordorintelligence.com/industry-reports/indonesia-digital-software-solutions-market
23. Mukhsinuddin, M., Rinaldi, M., Yanto, Y., & Aprilian, R. I. (2023). Development of Strategic Human Resource Management towards Improvement Work Culture at Baitul Mal in Aceh. *IJBE (Integrated Journal of Business and Economics), 7*(2), 418-432. http://dx.doi.org/10.33019/ijbe.v7i2.625
24. Musyaffi, A. M., Johari, R. J., Hendrayati, H., Wolor, C. W., Armeliza, D., Mukhibad, H., & Izwandi, H. S. C. (2024). Exploring Technological Factors and Cloud Accounting Adoption in MSMEs: A Comprehensive TAM Framework. *International Review of Management and Marketing*, *15*(1), 283–292. https://doi.org/10.32479/irmm.17451
25. Oktaviani, A., Hidayatullah, M. W., Wahyuningsih, S., & Mahadianto, M. Y. (2024). The Impact of Digitalization in Financial Statements on the Perspective SME's Interest in Industry 4.0. *International Journal of Finance, Insurance and Risk Management*, *14*(2), 3-16. https://journalfirm.com/journal/385
26. PricewaterhouseCoopers India. (2023). *E-invoicing: A major step towards digital tax administration*. PwC India. Retrieved from https://www.pwc.in/tax-knowledge-hub/navigate-tax/navigate-e-invoicing/blogs/e-invoicing-a-major-step-towards-digital-tax-administration.html
27. **Putri, E., Bandi, B., Widarjo, W., & Arifin, T. (2025).** *The value of cloud accounting for MSMEs: A Technology–Organization–Environment framework perspective. Cogent Business & Management, 12*(1), Article 2494712. https://doi.org/10.1080/23311975.2025.2494712
28. Putri, L. F. K., Yashira, Z., & Lusianah (2024). *Assessing the intentions to adopt cloud accounting in medium MSMEs in Greater Jakarta. Pakistan Journal of Life and Social Sciences, 22*(2), 1087–1103. https://doi.org/10.57239/PJLSS-2024-22.2.0076

29. Ritchi, H., Yahya, B., Dwiokta, R., & Sugianto, L. P. (2024). Driving Factors Of Cloud Accounting Implementation In Small And Medium Enterprises (Smes): Evidence From Indonesia. *Indonesian Journal Of Information Systems*, *6*(2), 140-155. https://doi.org/10.24002/ijis.v6i2.6827
30. Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
31. Snyder, H. (2019). Literature reviews as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
32. Sovos. (2024). *Indonesia e-invoicing system overview*. Sovos.
33. The Asia Foundation. (2023). *Digital literacy and inclusion in Southeast Asia*. Retrieved from https://asiafoundation.org
34. Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.
35. United Nations Development Programme. (2022). *Digital transformation policy brief: Supporting inclusive growth through MSMEs in Indonesia*. UNDP Indonesia. https://www.undp.org/sites/g/files/zskgke326/files/2024-11/20241110_undp_indonesia_policy_volume.pdf
36. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478. https://doi.org/10.2307/30036540
37. World Bank. (2023). *Digitalising Eastern and Southern Africa: Overview of the AFE Digital Initiative*. https://www.worldbank.org/en/region/afr/brief/afe-digital/overview
38. World Bank. (2023, April 5). *Kenya Digital Economy Acceleration Project (P170941): Project information and press release*. https://www.worldbank.org/en/news/press-release/2023/04/05/kenya-afe-and-the-world-bank-group-provide-a-390-million-boost-the-digital-economy