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Self-Efficacy and Digital Vision as Antecedents of the Adoption of Cloud Accounting and MSMEs' Sustainability Performance

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ABSTRACT

This study examines digital vision and computer self-efficacy (CSE) as antecedents of cloud accounting adoption and investigates how that adoption, in turn, affects digital transformation and sustainability performance among micro, small, and medium-sized enterprises (MSMEs) in Magelang Regency and Magelang City, Indonesia. Using a quantitative design, survey data were collected from 146 MSMEs had implemented cloud technologies in their operations. Partial Least Squares–Structural Equation Modeling (PLS-SEM) was employed to test the hypothesized relationships. The results indicate that digital vision and CSE have a significant positive effect on the adoption of cloud accounting. Furthermore, the adoption of cloud accounting has been proven to significantly drive the digital transformation of SMEs, which ultimately contributes positively to improving sustainability performance, both economic, social, and environmental aspects. These findings underscore the importance of strengthening CSE and cultivating a clear digital vision among MSME owners and managers to enhance technology adoption and sustain competitive advantage. Policy-wise, government-backed training in CSE and targeted digital mentoring emerge as pivotal levers for accelerating digital transformation and achieving triple bottom line–based sustainability outcomes.

Keywords: digital vision; computer self-efficacy; cloud accounting; sustainability performance; MSME

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INTRODUCTION

Sustainability performance has become a core indicator of long-term success for organizations in the modern era, including Micro, Small, and Medium-sized Enterprises (MSMEs). It underscores the need for firms to adapt to external change while maintaining strategic direction and established goals. Against the backdrop of globalization and rapid technological advances associated with the Fourth Industrial Revolution (Industry 4.0), sustainability has moved from a discretionary choice to an organizational imperative for remaining relevant amid volatile markets and evolving regulations. Empirical evidence indicates that environmental factors influence firm profitability reinforces the view that effective environmental management builds stakeholder trust and support, thereby improving financial performance (Prasetiyo, 2025).

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MSMEs are pivotal to Indonesia's economy, contributing over 60% to Gross Domestic Product (GDP) and employing more than 97% of the national workforce; they also account for approximately 99% of all business units (~64.2 million)(Limanseto, 2025). Given this systemic weight, ensuring the sector's sustainability is critical. Technology adoption is a primary driver of MSME digitalization and a foundation for strengthening sustainability performance (Purwantini et al., 2024).

In Magelang City, the number of MSMEs rose from 3.356 (2020) to 3.942 (2021), 4.060 (2022), and 4.252 (2023), with a projected 4.526 in 2024. Similar expansion across the Regency signal's substantial potential but also implementation challenges for technology. To ensure that numerical growth translates into higher business quality, targeted digitalization—particularly the adoption of cloud accounting—can bolster competitiveness and sustainability. MSME development should be aligned with the **triple bottom line (TBL)**, balancing economic, social, and environmental outcomes; digitalization is a key enabler of sustainable value creation that is financially viable, environmentally responsible, and socially beneficial (Malesios et al., 2021).

Cloud accounting and digital transformation are associated with stronger MSME sustainability performance across the triple bottom line (TBL)—economic value creation, social well-being, and environmental stewardship (Purwantini et al., 2025; Sabino et al., 2024). However, implementation in Magelang faces nontrivial barriers, including limited digital literacy, uneven internet infrastructure, resistance to change and organizational culture, financing constraints, and concerns over cloud data security (Hamundu et al., 2020; Valdez-Juárez et al., 2024). Perceived cost and complexity further deter adoption (Khayer et al., 2020). Even so, the productivity potential is substantial; when effectively deployed, cloud accounting can yield large efficiency gains—reported at up to 140% in some contexts (Wahyudi et al., 2024).

Functionally, cloud accounting enables real-time responsiveness, tighter customer relationships, and higher decision quality through more accurate, timely accounting information (Khayer et al., 2020). It also streamlines financial reporting, accelerating and simplifying core processes that underpin digitalization (Purwantini et al., 2025).

While opportunities to adopt cloud accounting are substantial, successful uptake depends on internal antecedents beyond technical capacity, namely **digital vision** and

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computer self-efficacy (CSE). Digital vision reflects owner–managers' long-term strategic orientation toward the role of digital technologies (Niemand et al., 2021), positioning cloud accounting as integral to transformation rather than a merely operational tool. Prior studies report a positive association between digital vision and cloud accounting adoption (Rawashdeh & Rawashdeh, 2023; Wahyudi et al., 2024). However, the effect may weaken—or even reverse—when adaptive planning and human capital are insufficient (Dewi & Purwantini, 2023).

CSE denotes individuals' confidence in using computers to accomplish technology-related tasks (Permana & Dwiyanti, 2023). Higher CSE increases MSME readiness to implement cloud systems, facilitates adaptation to new technologies, and reduces anxiety about change and errors, thereby smoothing the adoption process (Khayer et al., 2020). Prior evidence on computer self-efficacy (CSE) and technology adoption is mixed. Permana & Dwiyanti (2023) report that CSE positively influences behavioral intention to adopt cloud-based accounting, and Khayer et al., (2020) similarly find a positive effect of CSE on cloud computing adoption. By contrast, Dissanayake & Gamage (2022) document a negative association between CSE and cloud accounting adoption, suggesting potential boundary conditions and contextual moderators.

This study extends Purwantini et al. (2025) in both scope and model specification. Unlike the prior work, which examined food-and-beverage MSMEs at the national level, we analyze MSMEs across all sectors in the Magelang regional context selected for its strategic potential (e.g., proximity to the world-class Borobudur Temple), strong MSME growth, and comparatively low rates of digital technology adoption. This setting enables a cross-sector assessment of how cloud accounting and digital transformation jointly shape sustainability performance.

We also enrich the model by introducing two antecedents of technology adoption: **digital vision**—owner/manager that foresight regarding cloud and broader digital transformation (Niemand et al., 2021; Rawashdeh & Rawashdeh, 2023) and **computer self-efficacy (CSE)** that reflect confidence in computer-related skills that condition adoption readiness (Khayer et al., 2020; (Permana & Dwiyanti, 2023). A stronger digital vision increases

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the propensity to adopt and accelerate transformation, while higher CSE enhances implementation speed and effectiveness, with downstream effects on sustainability performance.

Accordingly, we conceptualize cloud accounting not merely as a technical tool but as a strategic foundation for MSME growth and sustainability. The study's aim is to investigate comprehensively the effects of cloud accounting adoption and digital transformation on MSME sustainability performance in Magelang, while explicitly accounting for digital vision and CSE as antecedent drivers of successful technology adoption.

LITERATURE REVIEW

Dynamic Capabilities Theory

Dynamic Capabilities (DC) theory Teece et al. (1997) posits that firms sustain advantage by sensing opportunities and threats, seizing them, and transforming resources in response to rapid environmental change. This framework is especially salient for MSMEs undergoing digital transformation. In this research, digital vision and computer self-efficacy (CSE) operationalize the **sensing** dimension: leaders with a strong digital vision anticipate technology-enabled opportunities, while higher CSE accelerates the exploration and adoption of new digital tools, thereby strengthening organizational sensing of digital potential. The **seizing** dimension concerns an organization's strategic allocation and orchestration of resources to capture opportunities and address identified threats (Teece et al., 1997). In this study, seizing is operationalized as cloud accounting adoption, which enables real-time financial visibility, cross-functional integration, and greater efficiency in reporting and decision-making. The **transforming** dimension entails continuous reconfiguration of structures and processes, adding, separating, transferring, merging, or divesting units while preserving core principles (Soeparto, 2021). We conceptualize digital transformation as the transforming mechanism in MSMEs, encompassing technology deployment, cultural change, process innovation, and migration from traditional to digital business models. Accordingly, Dynamic Capabilities provides the theoretical foundation linking cloud accounting adoption and digital transformation to

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sustainability performance, with digital vision and computer self-efficacy among owner-managers activating the sensing–seizing–transforming cycle.

Digital Vision and Cloud Accounting Adoption

Digital vision articulates an organization's strategic intent to leverage new technologies. In the context of cloud accounting, it operates not merely as managerial rhetoric but as a guiding frame that orients and sequences digital transformation initiatives (Wahyudi et al., 2024). Within Dynamic Capabilities theory (Teece et al., 1997) digital vision operationalizes the sensing capability by enabling MSME owner–managers to identify technology-enabled opportunities amid environmental turbulence. A strong digital vision fosters openness to innovation and increases the likelihood of adopting cloud-based accounting, given its benefits in cost efficiency, real-time data access, and timely, evidence-based decision-making. Consistent with this view, prior studies report a positive association between digital vision and cloud accounting adoption (Rawashdeh & Rawashdeh, 2023, (Wahyudi et al., 2024).

H1. Digital vision has a direct positive impact on the adoption of cloud accounting.

Computer Self-Efficacy (CSE) and Cloud Accounting Adoption

Computer self-efficacy (CSE) is individuals' belief in their capability to use computers for specific tasks, shapes behavior, motivation, and success when adopting new technologies (Permana & Dwiyanti, 2023). Within Dynamic Capabilities theory Teece et al.(1997).CSE operationalizes sensing for MSME owner–managers by heightening awareness of digital opportunities and threats. Higher CSE builds confidence to explore, learn, and implement cloud-based systems, lowering perceived technical risks and uncertainty and increasing organizational readiness for cloud accounting. Prior studies report a positive association between CSE and cloud adoption (Khayer et al., 2020; Permana & Dwiyanti, 2023).

H2. Computer self-efficacy has a direct positive impact on the adoption of cloud accounting.

Cloud Accounting Adoption and Digital Transformation

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Cloud accounting adoption denotes the use of cloud-based accounting information systems that store, access, and manage financial data online with real-time availability. Beyond efficiency gains, cloud accounting catalyzes organizational **digital transformation** by automating reporting, integrating cross-functional data, and enabling timely, data-driven decisions (Purwantini et al., 2025). It also scaffolds an integrated digital business ecosystem through scalability, interoperability, and enhanced data security (Kartikasary et al., 2023). Framed by Dynamic Capabilities Theory, cloud accounting adoption operationalizes the **seizing** dimension—strategic resource orchestration to capture identified opportunities, via more accurate data capture, real-time access, collaborative workflows, and improved decision quality. Consequently, higher levels of cloud accounting adoption accelerate and broaden digital transformation among MSMEs, consistent with evidence that cloud-based AIS positively influences digital transformation (Purwantini et al., 2025).

H3. Cloud accounting adoption has a direct positive impact on digital transformation.

Digital Transformation and Sustainability Performance

Digital transformation entails organization-wide change driven by digital technologies and complementary capabilities (Melo et al., 2023). In Micro, Small, and Medium-sized Enterprises (MSMEs), it extends beyond process digitization to the creation of adaptive business models, exemplified by cloud accounting for more efficient financial management, e-commerce for market expansion, and digital marketing for promotion. Within Dynamic Capabilities theory, digital transformation corresponds to the **transforming** dimension—continuous reconfiguration of resources and processes via new systems, workforce upskilling, and sustained use of digital tools to support innovation (Teece et al., 1997). Empirically, digital transformation improves operational efficiency, information accuracy, and decision speed, while fostering sustainable practices (e.g., reduced paper use, transparent reporting, enhanced services). Accordingly, higher levels of digital transformation are associated with stronger sustainability performance across the economic, social, and environmental pillars of the triple bottom line (Purwantini et al., 2025).

H4. Digital transformation has a direct positive impact on sustainability performance.

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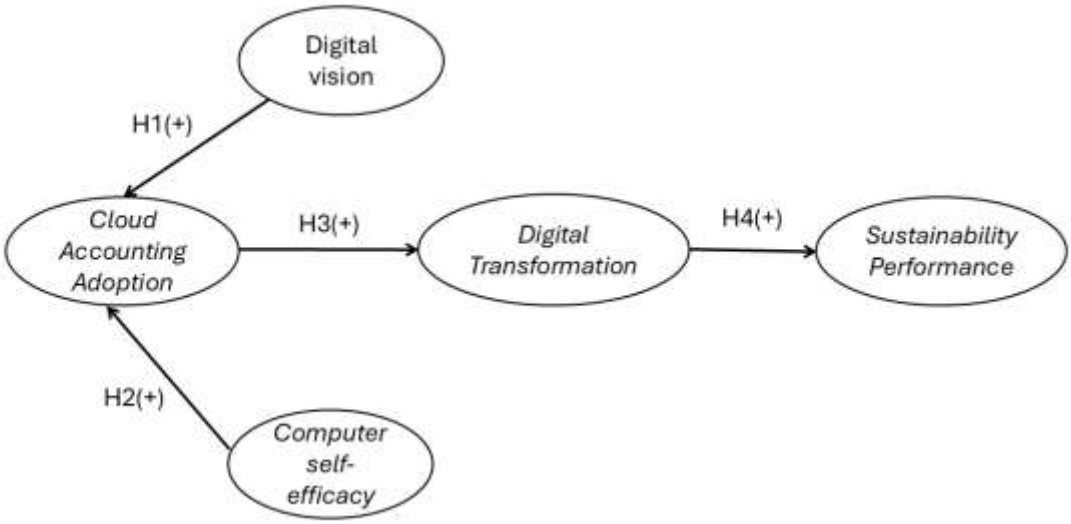

Figure 1. Proposed Model

METHOD

Data and Variables Measurements

Data were collected via a structured questionnaire administered to owners or managers of Micro, Small, and Medium-sized Enterprises (MSMEs) located in Magelang Regency and Magelang City. Respondents were selected using purposive sampling to align with the study's objectives (Sugiyono, 2018), with eligibility based on three criteria: (i) use of a cloud-based accounting information system (e.g., Majoo, QuickBooks, Moka, or similar), (ii) participation on an e-commerce platform, and (iii) provision of FinTech-enabled payment options. The research model comprises one dependent variable—MSME sustainability performance—and four independent variables: digital vision, computer self-efficacy (CSE), cloud accounting adoption, and digital transformation. All constructs were operationalized as latent variables and measured using multi-item Likert-type scales adapted from prior validated studies and contextualized to the MSME setting. Table 1 presents the operational definitions, measurement indicators, and source references for each construct.

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Table 1. Variable Measurement

Constructs	Operational Definition	Item	Adapted Sources
Economic Sustainability Performance	The level of achievement of MSMEs in economic, social, and environmental aspects in a sustainable manner.	**5 items**	(Jayashree et al., 2021)dan (Malesios et al., 2021)
Environmental Sustainability Performance		**4 items**	
Social Sustainability Performance		**4 items**	
Digital Vision	The strategic vision of MSME owners or managers in integrating digital technology to drive business transformation.	**5 items**	(Niemand et al., 2021)
Computer Self-Efficacy	The confidence of MSME owners or managers in their ability to use computers effectively	**5 items**	(Aligarh et al., 2023)
Cloud Accounting Adoption	Use of cloud-based accounting systems in business activities	**5 items**	(Aligarh et al., 2023)
Digital Transformation	Digital transformation is the process by which MSMEs strategically leverage digital technologies to reconfigure processes, capabilities, and business models.	**3 items**	(Mai et al., 2024) dan (Thuy, 2021)

Data analysis

For data analysis, we employed variance-based Structural Equation Modeling (PLS-SEM), appropriate for model development and exploratory research (Hair et al., 2014). Convergent validity was assessed via standardized factor loadings (target > 0.70) and Average Variance Extracted (AVE > 0.50). Internal consistency reliability was evaluated using composite reliability and Cronbach's alpha, with ≥ 0.70 indicating satisfactory reliability (a minimum of 0.60 is acceptable in exploratory studies). In SEM, all relationships among constructs are estimated simultaneously within a single model. Structural paths were evaluated using bootstrapped path coefficients, t-values, and p-values. Under a one-tailed test at the 5% level ($\alpha = 0.05$), a hypothesis is supported when $t > 1.64$ and $p \leq 0.05$, indicating a statistically significant relationship (Hair et al., 2014).

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RESULT AND DISCUSSION

Respondent Profile

Data were collected via self-administered questionnaires. Of the 160 distributed, 14 did not meet the eligibility criteria, yielding 146 valid responses for analysis. Respondents were predominantly aged 20–29 (73%), and most had a high school or vocational diploma (76%). The most common business sector was food and beverage (47%). A plurality reported using a cloud-based accounting information system for less than six months (33%). Moka POS was the most widely used cloud accounting platform.

Outer Model Evaluation

Sustainability performance was modeled as a higher-order construct/HOC (second order) latent construct composed of three first-order dimensions (economic, social and environmental sustainability). Validity and reliability were assessed using **the two-stage approach** (Hair et al., 2014): in stage 1, indicators of the first-order dimensions were evaluated, and items failing convergent validity were removed (EcoSus1=0.675; EcoSus4=0.622). We estimated the measurement models of the three reflective (economic, social and environmental) and obtained their latent variable scores. In stage 2, we used those latent scores as manifest indicators of the formative HOC (Sustainability Performance) and re-estimated the model at higher-order and structural levels (Becker et al., 2012). This procedure separates the evaluation of the reflective LOCs from the formative HOC, avoids the redundancy that can occur with repeated indicators in formative settings, and yields stable estimates for the higher-order relationships. In a subsequent round of testing, EcoSus 4 (0.697) was also eliminated. After removing items that failed to meet the thresholds, the convergent validity and reliability results in Table 2. show that all remaining indicators meet the specified criteria: standardized factor loadings exceed 0.70 and Average Variance Extracted (AVE) is above 0.50 for every construct. Reliability is likewise supported, with composite reliability and Cronbach's alpha greater than 0.70 across all constructs. Accordingly, all constructs demonstrate adequate convergent validity and internal consistency. Convergent validity and reliability results are reported in Table 2.

Table 2. Convergent Validity and Reliability Tests

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Construct	Item	Outer loadings	Cronbach' salpha	Composite reliability	AVE
Cloud Accounting Adoption (ADC)	ADC1	0.909	0.943	0.956	0.814
	ADC2	0.915			
	ADC3	0.906			
	ADC4	0.890			
	ADC5	0.892			
Computer Self-Efficacy (CSE)	CSE1	0.863	0.904	0.928	0.722
	CSE2	0.802			
	CSE3	0.896			
	CSE4	0.854			
	CSE5	0.831			
Digital Vision (DV)	DV1	0.847	0.919	0.939	0.756
	DV2	0.887			
	DV3	0.889			
	DV4	0.850			
	DV5	0.873			
Sustainability Performance	EcoSus	0.880	0.886	0.930	0.815
	EnvironSus	0.928			
	SocialSus	0.901			
Digital Transformation (DT)	DT1	0.870	0.876	0.923	0.801
	DT2	0.903			
	DT3	0.911			

Discriminant validity tests indicate that all constructs meet the required criteria. For each construct, the square root of its Average Variance Extracted (AVE) exceeds its correlations with other constructs, satisfying the Fornell–Larcker criterion and confirming adequate discriminant validity of the measurement model.

Table 3. Fornell-Larcker criterion testing

Construct	CAD	CSE	DT	SP	DT
Adopsi Cloud Accounting	**0.902**				
Computer Self- Efficacy	0.749	**0.850**			
Digital Vision	0.696	0.594	**0.869**		
Sustainability Performance	0.772	0.711	0.759	**0.903**	

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Construct	CAD	CSE	DT	SP	DT
Digital Transformation	0.694	0.527	0.787	0.735	**0.895**

Inner Model Evaluation

The structural model yields coefficients of determination (R^2) of 0.654 for cloud accounting adoption, 0.538 for sustainability performance, and 0.478 for digital transformation. Under common PLS-SEM benchmarks, these values indicate moderate predictive accuracy, suggesting the model explains a meaningful share of variance in the endogenous constructs.

The inner model was evaluated using bootstrapping, and all hypothesized paths met the predefined significance thresholds (t-statistic > 1.64; $p < 0.05$), thus supporting every hypothesis. Among the antecedents of cloud accounting adoption, computer self-efficacy (CSE) exerts the strongest effect (path coefficient $\beta = 0.519$; $t = 5.723$; $p < 0.001$), supporting H2. Digital vision also positively predicts adoption ($\beta = 0.387$; $t = 4.618$; $p < 0.001$), supporting H1. In turn, cloud accounting adoption strongly promotes digital transformation ($\beta = 0.694$; $t = 9.131$; $p < 0.001$), supporting H3. Finally, digital transformation has a significant positive effect on sustainability performance ($\beta = 0.735$; $t = 11.344$; $p < 0.001$), supporting H4.

Table 4. Hyphotesis Testing

Hyphothesis	Path Coeficient	t-statistics	P-values	
DV → ADC	0.387	4.618	0.000	H1 Supported
CSE → ADC	0.519	5.723	0.000	H2 Supported
ADC → TD	0.694	9.131	0.000	H3 Supported
TD → KK	0.735	11.344	0.000	H4 Supported

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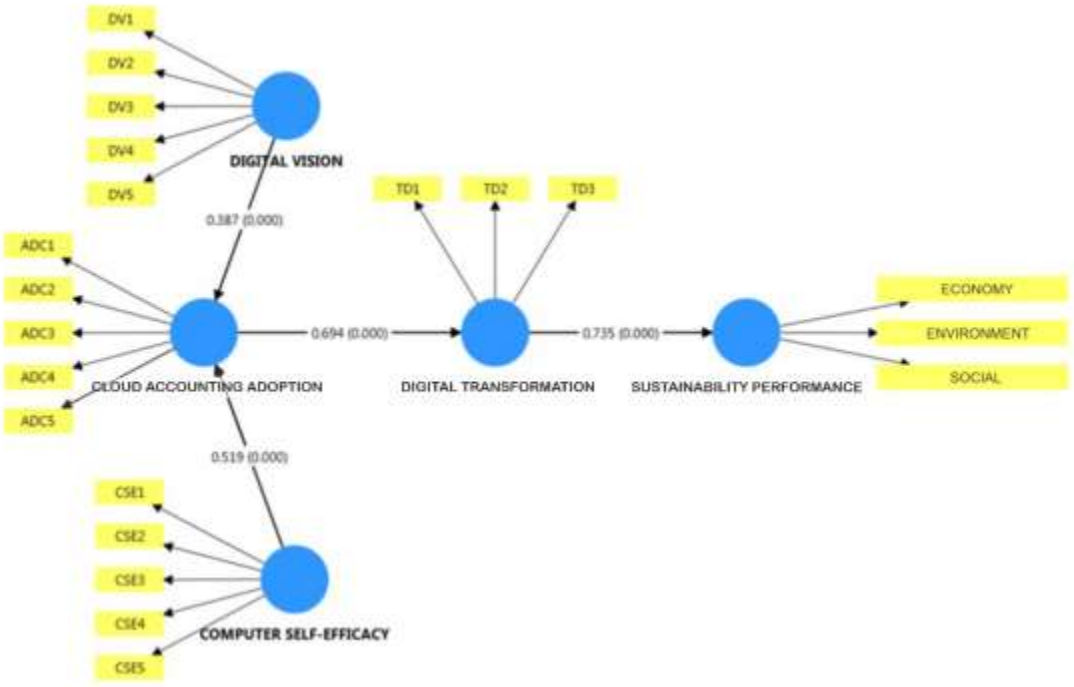

Figure 2. Inner Model Evaluation

Discussion

The Effect of Digital Vision on the Adoption of Cloud Accounting

The hypothesis testing indicates that digital vision has a positive effect on cloud accounting adoption among MSME owner–managers in the Magelang region. In practical terms, higher levels of digital vision increase the likelihood that firms will adopt cloud accounting as part of their long-term business strategy (Purwantini et al., 2025). In this study, digital vision is defined not merely as basic technological awareness but as a broader strategic orientation encompassing a long-term digital roadmap for competition, structured digital strategies, and the capability to design new technology-enabled business models (Niemand et al., 2021). MSMEs with a strong digital vision are better positioned to recognize the benefits of cloud accounting—such as cost efficiency, improved data quality, and timely, accurate financial reporting—and to act on these opportunities. These findings are consistent with Dynamic Capabilities theory, specifically the sensing dimension, which concerns recognizing opportunities and shifts in the technological environment. Empirically, our results align with

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Rawashdeh & Rawashdeh (2023) and Purwantini et al. (2025)who also report a positive association between digital vision and cloud accounting adoption, but they contrast with Wulandari et al. (2023), who find a negative relationship.

The Effect of Computer Self-Efficacy on the Adoption of Cloud Accounting

The results indicate that computer self-efficacy (CSE) positively influences cloud accounting adoption among MSMEs in Magelang. Higher CSE—encompassing not only basic technical proficiency but also readiness to overcome technological barriers, ability to complete tasks with available tools, and willingness to experiment with unfamiliar systems (Aligarh et al., 2023), increases the likelihood of adopting cloud solutions and promotes active exploration of their benefits (e.g., automation of financial records, time efficiency, and more accurate reporting). In line with Dynamic Capabilities theory, CSE strengthens the sensing capability of decision makers to recognize and respond to technology-enabled opportunities. These findings are consistent withKhayer et al.,(2021) and Permana & Dwiyanti (2023), who report a positive CSE–adoption relationship, but contrast with Dissanayake & Gamage, (2022) who find a negative effect.

The Effect of Cloud Accounting Adoption on Digital Transformation

The results show that cloud accounting adoption positively influences digital transformation among MSMEs. Greater use of cloud systems increases the likelihood that firms will undertake comprehensive, organization-wide digital change, positioning cloud accounting not merely as a bookkeeping tool but as a catalyst for process digitization (Purwantini et al., 2025). In this study, adoption encompasses improved service, operational efficiency, higher-quality sales data, prevention of invalid transactions, and better daily/monthly reporting—all of which strengthen the digital information infrastructure supporting financial management and decision-making (Aligarh et al., 2023),. Interpreted through Dynamic Capabilities theory, cloud adoption reflects the seizing dimension by orchestrating resources to capture recognized technological opportunities, enabling more efficient, flexible operations and accelerating transformation toward modern, adaptive business models. These findings align with evidence that cloud-based accounting systems facilitate digitalization (Purwantini et al., 2025) but contrast with Sui & Yao, (2023), who report a negative effect.

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The Effect of Digital Transformation on Sustainability Performance

The results show that digital transformation positively affects MSME sustainability performance across the economic, social, and environmental pillars. In this study, digital transformation is measured by the creation of new technology-based processes, integration of digital tools (e.g., accounting and e-commerce applications), and migration of operations to digital platforms (Mai et al., 2024; Thuy, 2021). Mechanistically, digitalization improves operational efficiency, expands market reach, and accelerates data-driven decision-making; associated cost savings can be reallocated to employee welfare, community programs, and environmentally responsible practices, thereby extending benefits beyond the economic domain (Purwantini et al., 2025). Interpreted through Dynamic Capabilities theory, digital transformation reflects the transforming dimension—strategic reconfiguration of resources and processes in response to environmental change, fostering greater innovation, transparency, and adaptability, and thus more sustainable competitive advantage. These findings align with (Purwantini et al., 2025) and Su et al. (2023), though they contrast with Robertsone & Lapiņa (2023), who report possible negative environmental effects.

CONCLUSSION

This study investigates the effects of cloud accounting adoption and digital transformation on MSME sustainability performance in the Magelang region, incorporating digital vision and computer self-efficacy (CSE) as antecedents. Using PLS-SEM on survey data from 146 MSMEs that had implemented cloud technologies, we find that digital vision positively influences cloud accounting adoption, underscoring the role of strategic direction and digital readiness in technology decisions. CSE emerges as the most influential antecedent, highlighting the centrality of individual technological capability and adaptability in the digitalization process. In turn, cloud accounting adoption accelerates digital transformation, notably via service improvements, efficiency gains, automation, and higher information quality which subsequently enhances sustainability performance.

Managerially, the results point to the importance of strengthening CSE and cultivating a robust digital vision among MSME owner–managers to spur adoption and transformation.

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Policy-wise, government-supported training to raise CSE and digital mentoring to build strategic vision can expedite transformation and, ultimately, triple-bottom-line performance.

This study is limited to MSMEs in Magelang Regency and City, which constrains generalizability. The model also focuses on direct effects, without explicitly testing mediating or moderating mechanisms. Future research should examine digital transformation as a mediator and explore boundary conditions, following emerging work (Valdez-Juárez et al., 2024; Melo et al., 2023; Hung et al., 2023).

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