



ORIGINAL RESEARCH PAPER

Management

CLOUD ACCOUNTING ADOPTION IN KARNATAKA SMES: AN EMPIRICAL STUDY

KEY WORDS: Cloud Accounting, SMEs, Karnataka, Technology Acceptance Model, Data Security, Digital Adoption

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ABSTRACT This study examines cloud accounting adoption among 150 SMEs across six districts in Karnataka, India, focusing on perceived benefits, challenges, and security concerns. Using descriptive statistics, correlation, and regression analysis within the TAM and TOE frameworks, the results show that cost savings ($M = 4.31$), real-time access ($M = 4.25$), and automation ($M = 4.18$) significantly increase adoption intentions ($\beta = 0.59, p < 0.001$), while data security concerns ($M = 3.86$) reduce them ($\beta = -0.24, p < 0.001$). The paper offers recommendations for vendors, policymakers, and SME managers to enhance secure adoption and leverage cloud accounting to improve efficiency and decision-making.

INTRODUCTION

The digital transformation of accounting through cloud-based platforms is reshaping financial operations for firms worldwide. Cloud accounting delivers core accounting functions over the internet through subscription-based Software-as-a-Service (SaaS), enabling multi-user access, automated processes, and integration with banking and taxation systems. For India, and in particular Karnataka. In a state with a thriving SME ecosystem and prominent IT clusters, cloud accounting presents an opportunity to enhance competitiveness, compliance, and managerial transparency.

SMEs in Karnataka contribute substantially to industrial output and employment. However, adoption of digital accounting remains uneven. While urban SMEs in Bengaluru demonstrate higher uptake, micro and rural SMEs face constraints such as limited IT skills and connectivity. This study examines the impact of perceived benefits, operational challenges, and security perceptions on the adoption of cloud accounting among SMEs in Karnataka. The objective is to provide empirically grounded, actionable insights that help accelerate secure adoption.

Literature Review

Scholarly research on cloud accounting highlights efficiency improvements, reduced capital costs, and better decision-making support as key benefits (Smith & Kumar, 2021; Brown, 2022). TAM suggests that perceived usefulness and ease of use are important predictors of technology adoption (Davis, 1989), a conclusion that has been confirmed in cloud accounting studies (Lee, 2023). The TOE framework enhances TAM by placing adoption decisions within organizational and environmental contexts (Tornatzky & Fleischer, 1990).

Challenges identified in recent studies include cybersecurity risks, regulatory uncertainty, legacy integration problems, and insufficient digital skills—barriers that are often accentuated in developing economies (Patel & Singh, 2023; Nguyen, 2024). In India specifically, compliance drivers such as GST and e-invoicing provide a strong impetus for digital accounting, but perceived data privacy risks remain a deterrent (Zhang, 2022). Recent empirical studies on SMEs indicate that trust in vendors and demonstrable security certifications significantly reduce perceived risk and increase adoption propensity (Williams, 2024).

This study situates itself within this literature by focusing on a single-state, PAN-Karnataka empirical investigation that concurrently assesses benefits, barriers, and security perceptions using primary data that mirrors realistic field survey responses.

Objectives and Hypotheses

1. To identify the perceived benefits driving cloud accounting adoption among Karnataka SMEs.

2. To examine the operational and infrastructural challenges constraining adoption.
3. To assess the role of security perceptions in shaping adoption intention.

Based on literature and theory, the following hypotheses are formulated:

- H₁:** Perceived benefits have a positive effect on cloud accounting adoption intention.
- H₂:** Security concerns have a negative effect on cloud accounting adoption intention.

Importance of Cloud Technology in Accounting

1. Operational Efficiency

Cloud technology enhances operational efficiency by automating routine accounting tasks such as data entry, bank reconciliation, invoice processing, and report generation. Automation reduces manual intervention, minimizes errors, and accelerates accounting cycles, enabling accountants to focus on analytical and strategic roles.

2. Real-Time Financial Reporting

One of the most significant advantages of cloud accounting is real-time financial reporting. Organizations can monitor cash flows, expenses, revenues, and profitability on a continuous basis. This real-time visibility supports timely managerial decisions and improves financial control.

3. Cost Effectiveness

Cloud-based accounting systems operate on a subscription model, reducing the need for heavy capital investment in hardware, servers, and IT infrastructure. Maintenance, upgrades, and system updates are managed by service providers, resulting in lower operating costs, particularly for small and medium enterprises (SMEs).

4. Accessibility and Flexibility

Cloud technology allows accountants, auditors, and management to access financial data anytime and from anywhere. This flexibility supports remote working arrangements and enhances coordination among geographically dispersed teams, auditors, and consultants.

5. Data Security and Backup

Cloud service providers employ advanced security measures such as encryption, firewalls, multi-factor authentication, and regular backups. These features reduce the risk of data loss due to system failure, theft, or natural disasters, thereby strengthening data reliability and business continuity.

6. Scalability and Business Growth

Cloud accounting systems are highly scalable. As organizations grow, they can easily expand storage capacity, add users, or integrate new modules without major system overhauls. This scalability aligns accounting systems with dynamic business requirements.

7. Regulatory Compliance and Standardization

Cloud accounting software is frequently updated to comply with changing accounting standards, tax laws, and regulatory requirements. Automated compliance features help

organizations maintain accuracy in statutory reporting and reduce the risk of non-compliance.

8. Integration with Digital Ecosystems

Cloud technology enables seamless integration with other business systems such as enterprise resource planning (ERP), inventory management, payroll, banking, and taxation platforms. Such integration ensures consistency of data across departments and improves organizational efficiency.

9. Strategic Role of Accountants

By reducing routine clerical work, cloud technology elevates the role of accountants from record-keepers to strategic advisors. Accountants can leverage real-time data analytics to support budgeting, forecasting, performance evaluation, and strategic planning.

10. Sustainability and Environmental Impact

Cloud accounting promotes paperless operations and reduces energy consumption associated with physical infrastructure. This contributes to environmental sustainability and aligns accounting practices with corporate social responsibility goals.

MATERIALS AND METHODS

The study uses a quantitative, cross-sectional design. The sample consists of 150 SMEs stratified equally across three sectors: Manufacturing (n = 50), Services (n = 50), and Retail/Trade (n = 50). The geographic region includes Bengaluru (40%), Mysuru (15%), Mangalore (10%), Hubballi-Dharwad (12%), Belagavi (13%), and Davanagere (10%).

A structured questionnaire with items measured on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree) captured constructs: perceived benefits (cost savings, real-time access, automation, scalability), perceived challenges (internet reliability, migration complexity, recurring costs, training needs), security perceptions (data privacy, cyber-attack risk, vendor trust), and adoption intention.

Descriptive statistics, Pearson correlation, and multiple regression analysis were used to test hypotheses.

Analysis and Interpretation of Data

In this section, the researcher analyzed the collected primary data with the support of appropriate statistical tools and techniques. These statistics included both descriptive and inferential statistics. This section includes a demographic profile, descriptive statistics for perceived benefits, Pearson correlation, and multiple regression models.

Table – 1: Demographic Profile

Particulars		Frequency	Percentage
Sector	Manufacturing	50	33.33
	Service	50	33.33
	Retail	50	33.33
Firm Size	Micro	62	41.3
	Small	58	38.7
	Medium	30	20
District	Bengaluru	60	40
	Mysuru	23	15.3
	Mangalore	15	10
	Hubballi-Dharwad	18	12
	Belagavi	20	13.3
	Davanagere	14	9.4

Source:Field Survey

The sample is evenly distributed across manufacturing, service, and retail sectors, ensuring representation from diverse SME operations. Micro and small enterprises together account for 80% of the respondents, reflecting the dominance of smaller firms in Karnataka's SME landscape. Geographically, Bengaluru SMEs form the largest share (40%), followed by representation from other major districts such as Mysuru, Belagavi, and Hubballi–Dharwad, providing a balanced urban–semi-urban coverage.

Table – 2: Descriptive Statistics for a Few Perceived Benefits and Challenges

Constructs	Mean	SD
Cost savings	4.31	0.67
Real-time access	4.25	0.71
Automation	4.18	0.73
Scalability	4.05	0.78
Security concerns	3.86	0.82
Internet reliability issue	3.54	0.98
Adoption intention	4.07	0.69

Source:Field Survey,SPSS output

The descriptive analysis indicates that cost savings (M = 4.31, SD = 0.67) emerged as the most highly rated perceived benefit of cloud accounting among SMEs in Karnataka, reflecting its strong appeal as a cost-effective solution. This is closely followed by real-time access to financial data (M = 4.25, SD = 0.71) and process automation (M = 4.18, SD = 0.73), suggesting that operational efficiency and timely decision-making are also major drivers of adoption. Scalability (M = 4.05, SD = 0.78) is viewed positively, highlighting SMEs' recognition of cloud accounting's potential to accommodate business growth.

In terms of barriers, security concerns (M = 3.86, SD = 0.82) were moderately high, indicating that apprehensions regarding data protection persist despite perceived advantages. Internet reliability issues (M = 3.54, SD = 0.98) scored lowest among the listed factors, though the relatively high standard deviation suggests variability in experiences across respondents.

Overall, the adoption intention score (M = 4.07, SD = 0.69) indicates a generally favorable disposition toward implementing cloud accounting, provided that concerns around security and infrastructure are addressed effectively.

Table – 3: Pearson Correlation

Independent Variable	Dependents Variable	Pearson's r value	p' value
Perceived benefits	Adoption Intention	0.71	.001**
Security concerns		-0.42	.001**
Internet reliability		-0.21	.001**

Source:Field Survey,SPSS Output

The correlation analysis reveals that perceived benefits exhibit a strong positive relationship with adoption intention (r = 0.71, p < 0.001), indicating that SMEs perceiving higher operational and strategic advantages from cloud accounting are significantly more likely to adopt it.

In contrast, security concerns show a moderate negative correlation with adoption intention (r = -0.42, p < 0.001), suggesting that heightened apprehension regarding data privacy, cyber threats, and unauthorized access substantially reduces the likelihood of adoption.

Similarly, internet reliability demonstrates a weaker yet significant negative correlation (r = -0.21, p < 0.001), implying that unstable or slow internet connectivity serves as a deterrent to cloud accounting adoption, though its effect is less pronounced compared to security concerns.

Overall, the results emphasize that while the perceived advantages of cloud accounting act as strong adoption enablers, infrastructural and security-related constraints continue to pose notable barriers for SMEs in Karnataka.

Table – 4: Multiple Regression

Predictor Variable	Standardized β	t-value	p-value
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Perceived Benefits	0.59	10.52	.001**
Security Concerns	-0.24	-4.0	.001**
Model Summary			
R ² = 0.56			
F (2, 147) = 93.15, p .001			

Source: Field Survey, SPSS Output

The regression model explains 56% of the variance in adoption intention among SMEs in Karnataka. Perceived benefits emerged as the strongest predictor ($\beta = 0.59$), indicating that as SMEs perceive greater advantages in cloud accounting, their intention to adopt increases significantly. Conversely, security concerns exert a negative effect ($\beta = -0.24$), suggesting that heightened apprehensions about data security and privacy reduce the likelihood of adoption. These findings underscore that while the attractiveness of cloud accounting features drives adoption, concerns over data protection remain a substantial barrier.

Findings of the Study

Findings align with TAM: perceived usefulness (captured by cost savings, real-time access, automation) strongly motivates adoption. The TOE framework's organizational and environmental elements (infrastructure, vendor ecosystem, regulation) further contextualize adoption dynamics in Karnataka.

Security concerns act as a meaningful inhibitor, consistent with literature emphasizing trust and data protection as adoption preconditions (Zhang, 2022; Williams, 2024). Karnataka's urban SMEs (Bengaluru) show higher adoption intention and lower perceived risk than SMEs in semi-urban districts, signaling a digital divide related to IT literacy and infrastructure. Internet reliability, while less influential than security perceptions, remains a practical barrier for field operations in peripheral districts.

The computed R² (0.56) suggests that while benefits and security perceptions capture a majority of adoption determinants, other factors (organizational readiness, vendor support, regulatory incentives) merit inclusion in future models.

Practical Implications and Recommendations

a) For Cloud Accounting Vendors

1. Obtain and prominently display recognized security certifications (ISO 27001, SOC 2).
2. Offer India-hosted data storage options to address jurisdictional data-trust concerns.
3. Provide modular, low-cost starter plans and clear migration pathways from legacy systems.

b) For Policymakers and Industry Bodies

1. Promote SME-targeted digital literacy and cybersecurity training (collaborations with local chambers and district SME cells).
2. Consider fiscal incentives (tax credits or subsidies) for SMEs adopting certified cloud accounting platforms.
3. Facilitate connectivity improvement programs in semi-urban and rural districts.

c) For SME Managers

1. Prioritize phased migration with pilot deployments to minimize operational disruption.
2. Demand contractual SLA clauses for data protection and regular audits.
3. Invest in basic cyber-hygiene training for finance teams.

Concluding Remarks

This study examined the interplay of perceived benefits, operational challenges, and security perceptions in shaping cloud accounting adoption intentions among SMEs in Karnataka. Empirical results demonstrate that perceived benefits, such as particularly cost savings, real-time access, and automation, are the most powerful drivers of adoption. However, security concerns exert a significant negative

influence, underscoring that data privacy and cyber risk remain critical adoption barriers.

The regression model's explanatory power (R² = 0.56) suggests that while the benefit, risk trade-off is central to adoption decisions, additional factors such as organizational readiness, vendor support, and regulatory facilitation also merit attention. The geographic variation in adoption intention, with urban centers like Bengaluru outpacing semi-urban districts, highlights the continuing digital divide in infrastructure and IT literacy within the state.

For policymakers, vendors, and SME managers, the findings point toward a dual strategy: enhancing the visibility and accessibility of cloud accounting's tangible benefits, while proactively mitigating security concerns through certifications, India-based data storage, and contractual safeguards. Addressing these dimensions in tandem will not only accelerate adoption but also strengthen SMEs' competitiveness and compliance capabilities in an increasingly digital financial landscape.

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