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THE ROLE OF INTERNET OF THINGS (IOT) IN TRANSFORMING ACCOUNTING INFORMATION SYSTEMS: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The rapid emergence of the Internet of Things (IoT) has transformed how accounting information systems (AIS) operate in the digital era. This study presents a Systematic Literature Review (SLR) of ten international journal articles published between 2023 and 2024 to analyze IoT's influence on accounting practices, adoption models, and organizational performance. The findings reveal that IoT integration improves the timeliness, accuracy, and transparency of financial data while supporting automation and predictive analytics in accounting. When combined with other technologies such as Blockchain and XBRL, IoT enhances interoperability, auditability, and traceability across financial systems. The dominant theoretical frameworks include the Technology Acceptance Model (TAM), the Technology–Organization–Environment (TOE) model, and Socio-Technical Systems Theory, highlighting the interplay between technology and human factors. Despite these benefits, research gaps persist in empirical validation, long-term sustainability, and data governance. This review contributes to digital accounting scholarship by proposing an integrative view of IoT-based accounting and identifying future research opportunities to strengthen accountability, efficiency, and strategic decision-making in digitalized financial environments.

Keywords: Internet of Things (IoT); Accounting Information Systems (AIS); Digital Transformation; Predictive Analytics; Blockchain; XBRL; Systematic Literature Review (SLR); Technology Adoption.

INTRODUCTION

The digital era, characterized by Industry 4.0 technologies, has dramatically transformed business processes and accounting functions. Among these emerging technologies, the Internet of Things (IoT) has gained significant attention due to its ability to connect physical and digital systems, providing continuous data flows across business operations. In accounting, IoT integration allows real-time data acquisition, process automation, and enhanced transparency—elements that are critical for effective financial reporting and decision-making.

Accounting Information Systems (AIS) play a pivotal role in supporting business operations, financial management, and compliance. The integration of IoT within AIS enables organizations to collect and process large volumes of transactional and operational data automatically. This real-time information facilitates better decision-making, reduces human error, and ensures accountability. For instance, IoT sensors can track inventory levels,

monitor asset utilization, and record cost flows instantly—allowing accountants to produce accurate financial information without delay.

Globally, IoT adoption in accounting is still emerging. Studies indicate that less than 25% of organizations have fully integrated IoT into their AIS, despite clear evidence of its potential to enhance reporting efficiency and governance. Barriers such as cybersecurity risks, high implementation costs, and a lack of standardized frameworks hinder wider adoption. Thus, a systematic synthesis of existing studies is essential to understand how IoT transforms accounting functions, what theoretical foundations guide this transition, and where future research should focus.

This study aims to answer the following research questions:

1. How has IoT been applied in accounting and financial information systems?
2. What theoretical models and methodologies are commonly used in these studies?
3. What are the main findings, challenges, and research gaps identified in the literature?

By addressing these questions, this review contributes to the growing body of knowledge on digital accounting transformation and provides a roadmap for future empirical research

THEORITICAL BACKGROUND

Several theoretical frameworks underpin IoT adoption in accounting contexts:

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is one of the most widely used theories to explain user behavior in adopting new technologies. Originally proposed by Davis (1989), TAM emphasizes that two main perceptions—**perceived usefulness (PU)** and **perceived ease of use (PEOU)**—determine the user's intention to adopt and utilize a particular technology. In the context of accounting, these perceptions become crucial when integrating Internet of Things (IoT) technologies into Accounting Information Systems (AIS). Accountants, auditors, and financial managers are often conservative toward adopting emerging technologies due to concerns about reliability, data privacy, and operational disruption.

IoT adoption under the TAM framework is influenced by how users view its capability to simplify accounting processes and enhance efficiency. For instance, Rani et al. (2023) demonstrated that IoT-based predictive maintenance systems improved real-time operational monitoring, which indirectly enhanced accounting data accuracy. When accountants perceive IoT tools as easy to use and beneficial for improving reporting precision, the likelihood of adoption increases significantly. Furthermore, training, management support, and intuitive system design also enhance user acceptance, creating a positive behavioral intention toward IoT-based accounting practices.

Technology–Organization–Environment (TOE) Framework

The Technology–Organization–Environment (TOE) framework, developed by Tornatzky and Fleischer (1990), provides a holistic perspective to analyze factors influencing technology adoption at the organizational level. It posits that three contextual dimensions—**technological readiness**, **organizational characteristics**, and **environmental factors**—jointly determine an organization's ability to adopt and implement a new technology.

In the case of IoT adoption in accounting, technological readiness involves the availability of digital infrastructure such as sensors, cloud systems, and integrated AIS platforms. Organizational factors include management commitment, staff competence, and financial resources. Environmental dimensions encompass external pressures like regulatory requirements, competition, and industry standards. Al-Mashaqbeh et al. (2023) found that organizations with higher digital maturity and proactive management are more likely to integrate IoT within their accounting systems. Moreover, environmental forces such as government digitalization policies and the global shift toward sustainability reporting have accelerated IoT adoption in the accounting domain.

Socio-Technical Systems Theory

The Socio-Technical Systems (STS) theory originated from organizational psychology, emphasizing the interdependence between social and technical subsystems in any organization. The theory asserts that optimal performance can only be achieved when both human and technological elements are aligned. Within the context of IoT-based accounting systems, this theory provides a critical lens to evaluate how technology integration affects human roles, communication, and work culture.

IoT automation, while offering efficiency, can also cause role redefinition within accounting teams. For example, Elmaasrawy (2024) reported that accountants working with IoT-enhanced AIS transitioned from traditional data-entry tasks to more analytical and interpretive roles. Thus, IoT does not eliminate accountants but transforms their competencies toward real-time decision-making and strategic control. Effective IoT implementation requires training, collaboration, and redesign of workflows to balance technical automation with human oversight, ensuring that technology supports rather than dominates accounting processes

Resource-Based View (RBV)

The Resource-Based View (RBV) of the firm, popularized by Barney (1991), posits that sustainable competitive advantage arises from resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In the context of IoT and accounting, digital resources such as interconnected sensors, automated reporting systems, and big-data analytics become strategic assets that enhance organizational performance.

According to Huy et al. (2024), firms that adopt IoT-driven AIS gain superior capabilities in data analytics, enabling better cost control, fraud detection, and strategic planning. These technological resources not only streamline internal operations but also strengthen market competitiveness by providing real-time insights into financial health. From an RBV standpoint, IoT-based accounting systems represent unique organizational resources that are difficult for competitors to replicate due to their integration with proprietary processes, culture, and data models. Consequently, IoT becomes a core enabler of digital transformation and performance differentiation in accounting practice.

Institutional Theory

Institutional Theory explains how organizational behavior is shaped by external norms, rules, and societal expectations. In the realm of accounting, professional standards, legal frameworks,

and stakeholder demands exert coercive, mimetic, and normative pressures that influence technology adoption. Nofel (2024) argues that IoT integration in accounting systems is increasingly driven by the need to comply with international standards for transparency and traceability, such as IFRS digital reporting and sustainability disclosure requirements.

Under institutional pressures, accounting firms often adopt IoT-enabled systems to maintain legitimacy and demonstrate accountability to regulators and investors. For instance, Blockchain–IoT integration allows for immutable transaction recording, aligning with regulatory calls for verifiable audit trails. Mimetic pressures also arise as organizations imitate successful peers adopting IoT for competitive positioning. Thus, Institutional Theory helps explain the external motivations behind IoT implementation in accounting, emphasizing conformity to professional norms and market expectations rather than purely internal efficiency gains.

Table 1. Summary of Theoretical Frameworks Used in Reviewed Studies

Theory	Main Focus	Example Studies	Relevance to IoT in Accounting
TAM	User acceptance, perceived usefulness	Rani et al. (2023)	Understanding behavioral adoption
TOE	Organizational and environmental readiness	Al-Mashaqbeh et al. (2023)	Explains firm-level adoption factors
Socio-Technical	Human-technology interaction	Elmaasrawy (2024)	Ensures effective system integration
RBV	Strategic resource utilization	Huy et al. (2024)	IoT as organizational capability
Institutional	External legitimacy and compliance	Nofel (2024)	Regulatory and reporting pressures

METHOD

The present study adopts a **Systematic Literature Review (SLR)** methodology, which offers a structured and transparent process to synthesize academic knowledge and identify research trends within a specific field. This method ensures rigor, replicability, and objectivity, enabling scholars to analyze and consolidate existing evidence related to IoT implementation in accounting systems. The study follows the **PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)** framework, widely recognized for enhancing research transparency.

3.1. Identification and Search Strategy

The first stage of this review involved the identification of relevant literature across reputable academic databases. A comprehensive search was conducted in Scopus, Elsevier, Taylor & Francis, SpringerLink, and MDPI using Boolean operators and specific keywords such as:

"Internet of Things AND Accounting", "IoT-based Accounting Information System", "Digital Accounting AND IoT", "IoT in Cost Accounting", and "Blockchain AND IoT in Accounting".

The time frame was limited to 2023–2024**,** ensuring the review

captured the most recent developments and contemporary research perspectives. Over 120 initial articles were retrieved. Each paper's title, abstract, and keywords were screened to determine relevance to the scope of accounting, financial reporting, and managerial applications. Duplicate results and non-peer-reviewed materials were excluded to maintain academic credibility.

The selection process was also guided by quality indicators such as journal impact factor, indexing (Scopus, SJR, or WoS), and peer-review status. Priority was given to journals in Q1–Q3 rankings, which emphasize methodological rigor and contribution to the accounting and information systems domains.

Screening and Eligibility Criteria

After the identification process, the screening phase was performed using predefined inclusion and exclusion criteria.

Inclusion criteria:

1. Articles published between 2023–2024 in English.
2. Peer-reviewed journal publications.
3. Studies discussing IoT in relation to accounting, AIS, financial reporting, or managerial decision-making.
4. Papers presenting empirical, conceptual, or mixed-method approaches.

Exclusion criteria:

1. Non-English papers, conference proceedings, or theses.
2. Articles unrelated to accounting (e.g., IoT in agriculture or healthcare).
3. Studies focusing solely on hardware or engineering without managerial implications.

Following the screening, 10 high-quality articles remained for in-depth analysis. Each article was cross-verified for publication authenticity (DOI, journal link, or Scopus ID). These papers represent diverse geographic and industrial contexts—including manufacturing, financial services, and digital transformation sectors—providing a comprehensive overview of IoT integration in accounting.

Data Extraction and Thematic Analysis

The final stage involved **data extraction and synthesis**. A standardized extraction template was developed to summarize each article's key elements: authors, year, journal, research objectives, theoretical framework, methodology, findings, and research gaps. This process ensured consistency and minimized researcher bias.

Subsequently, a **thematic analysis** approach was applied, as suggested by Braun and Clarke (2006), to identify recurring themes and conceptual patterns. Through iterative coding, five dominant themes emerged:

1. IoT integration with Accounting Information Systems (AIS).
2. IoT applications in cost and performance management.
3. Synergy between IoT, Blockchain, and XBRL.
4. Adoption frameworks and organizational barriers.
5. Predictive analytics and real-time accounting.

This multi-layered synthesis enabled the researcher to connect technological developments with managerial and theoretical implications, providing a comprehensive understanding of IoT's transformative role in accounting.

Data Extraction and Analysis (Expanded)

After the screening and eligibility phases, a structured data extraction process was performed to

ensure analytical consistency across all selected studies. Each paper was systematically examined using a data extraction matrix designed to capture essential information such as:

1. Author(s) and year of publication,
2. Country or context of study,
3. Research objectives,
4. Theoretical framework employed,
5. Research methodology and data collection approach,
6. Major findings, and
7. Identified research gaps or limitations.

This systematic approach ensured that no critical details were overlooked and allowed for comparison across diverse studies. For example, while some papers emphasized technological integration frameworks (e.g., Elmaasrawy, 2024; Nofel, 2024), others focused on organizational adoption behavior and managerial implications (e.g., Al-Mashaqbeh et al., 2023; Westergren et al., 2024).

The extracted data were compiled in a comprehensive table summarizing key dimensions of IoT implementation in accounting systems (see Table 2). This table helped reveal recurring research trends and gaps, providing a solid empirical foundation for thematic synthesis.

Following data compilation, the analysis process employed a hybrid approach combining content analysis and thematic coding**.**

- Content analysis was used to quantify the frequency of recurring themes, theories, and methodological patterns.
- Thematic coding**,** on the other hand, allowed deeper qualitative interpretation of the underlying meanings and relationships among studies.

Initially, open coding identified specific keywords such as “real-time reporting,” “data accuracy,” “IoT adoption,” and “traceability.” These were then clustered into broader categories representing conceptual themes:

1. Integration of IoT and AIS,
2. Cost management and sustainability,
3. Technological convergence (IoT-Blockchain-XBRL),
4. Adoption frameworks and organizational readiness,
5. Predictive analytics and performance optimization.

Through iterative comparison, each category was analyzed to uncover how different studies addressed similar problems, what results were consistent, and where contradictions occurred. This process enhanced both internal validity and conceptual depth of the review.

The use of a thematic synthesis approach also aligns with prior SLR studies in accounting information systems (AIS), as it allows the integration of quantitative and qualitative evidence. The end result is a multi-dimensional perspective on how IoT technology is reshaping accounting theory and practice. Overall, this analytical phase provided the empirical backbone for the discussion section, ensuring that interpretations were not anecdotal but grounded in systematic evidence from peer-reviewed literature.

Table 2. Summary of Reviewed Journal Articles

No	Year	Authors	Title	Theory	Method	Key Findings	Gap

1	2023	Zadoroz hnyi et al.	IoT and 6G Communication in Accounting	Real-time framework	Conceptual	Improved reporting automation	Lack of empirical validation
2	2023	Rani et al.	IoT-based Predictive Maintenance	Predictive analytics	Experimen tal	Enhances operational accuracy	Closed-system limitation
3	2023	Al-Mashaq beh et al.	IoT Adoption in Smart Manufacturing	TAM	Survey	Positive adoption factors	Regional limitation
4	2024	Sharma et al.	IoT in Food Supply Chains	GTMA	Survey	Performance index model	Limited industry testing
5	2024	Nofel	Blockchain, IoT, and XBRL Integration	Socio-technical	SLR	Improved interoperability	Lack of field implementatio n
6	2024	Sodkom kham et al.	MFCA and IoT Sensors	Lean/MFC A	Case study	Real-time cost visibility	ROI not assessed
7	2024	Elmaasr awy	IoT in AIS	Socio-technical	Case study	Improved accuracy and timeliness	Privacy concerns
8	2024	Huy et al.	Digitalization of AIS	RBV	Mixed	Improved traceability	Sector limitation
9	2024	Westerg ren et al.	Organizational Mechanisms of IoT	TOE	Survey	Facilitates transformation	Long-term causality not tested
10	2024	Westerg ren et al.	IoT and Management Accounting	MAS	Empirical	Improved sustainability KPIs	Context limitation

RESULT AND DISCUSSION

The findings section synthesizes the evidence from the ten selected studies, categorizing them into five major thematic clusters that represent the evolution of IoT in accounting systems. Each theme is discussed below in detail, supported by empirical insights and theoretical reflections.

IoT Integration with Accounting Information Systems (AIS)

The integration of IoT within Accounting Information Systems (AIS) represents one of the most fundamental transformations in digital accounting. IoT enables continuous data collection from sensors, machines, and operational devices, directly feeding into accounting databases in real-time. This automation drastically reduces manual data entry errors and accelerates reporting cycles.

Elmaasrawy (2024) highlighted that IoT-AIS integration improves data accuracy, timeliness, and transparency, allowing organizations to transition from periodic to real-time accounting. For instance, IoT sensors embedded in inventory management systems can automatically record material consumption, depreciation of assets, and production costs without human intervention. Such integration not only strengthens internal control but also supports real-time decision-making, ensuring that financial data always reflects the company's actual operational state.

However, the integration also presents technical and ethical challenges.

Data security, interoperability among heterogeneous IoT devices, and privacy issues remain major obstacles. Effective IoT-AIS integration requires strong governance structures and regulatory frameworks to safeguard data integrity.

IoT for Cost and Performance Management

IoT plays a crucial role in advancing cost management practices and performance measurement systems. Through real-time data acquisition, organizations can track operational efficiency and identify cost deviations instantly. Sodkomkham et al. (2024) demonstrated that combining Material Flow Cost Accounting (MFCA) with IoT sensors provides managers with continuous visibility into energy consumption, material usage, and process efficiency. This integration enables the detection of waste sources and promotes sustainability-oriented decision-making.

IoT-driven cost management aligns with the emerging trend of Green Accounting and Sustainable Performance Measurement, providing quantifiable insights into environmental impact. Real-time cost visibility supports strategic budgeting, improves production control, and facilitates compliance with sustainability standards such as the Global Reporting Initiative (GRI).

In summary, IoT not only enhances cost tracking accuracy but also transforms managerial accounting into a more dynamic and data-driven discipline that supports environmental and financial sustainability goals.

IoT and Emerging Technologies (Blockchain and XBRL)

A major evolution in the field of digital accounting is the convergence of IoT with other emerging technologies such as Blockchain and eXtensible Business Reporting Language (XBRL). Nofel (2024) explored this intersection and found that when integrated, these technologies significantly improve traceability, auditability, and interoperability across accounting systems.

IoT captures real-time data, Blockchain secures it through immutable ledgers, and XBRL facilitates standardized reporting to regulatory bodies. This triad creates a powerful digital ecosystem that ensures transparency and trust. For example, in supply chain accounting, IoT sensors record every transaction, Blockchain validates and stores the record, while XBRL enables seamless reporting to auditors or financial authorities.

Such integration also supports the concept of Continuous Auditing, where financial statements are verified dynamically rather than annually. However, interoperability and governance challenges persist. Future research should develop hybrid models combining these technologies under unified standards to optimize financial reporting integrity.

Adoption Frameworks and Organizational Barriers

The adoption of IoT in accounting is not merely a technical challenge but also an organizational and behavioral one. Studies adopting the Technology Acceptance Model (TAM) and Technology–Organization–Environment (TOE) frameworks highlight that factors such as perceived usefulness, top management support, and organizational readiness strongly influence adoption success.

Al-Mashaqbeh et al. (2023) found that firms with a strong culture of innovation and digital literacy are more likely to integrate IoT into their

accounting systems. However, resistance to change among accountants, fear of job displacement, and inadequate training remain persistent barriers. Moreover, financial constraints and cybersecurity concerns often hinder implementation, especially among small and medium-sized enterprises (SMEs).

To overcome these barriers, organizations must invest in change management programs, upskilling accountants in data analytics, and ensuring ethical governance of IoT-based systems. Policymakers should also provide regulatory clarity to foster trust and standardization in IoT-enabled accounting environments.

Predictive and Real-Time Analytics in Accounting

One of the most promising contributions of IoT to accounting is the enablement of predictive and real-time analytics. By connecting physical assets to digital dashboards, IoT provides accountants with access to up-to-date financial and operational data that can be analyzed using advanced algorithms.

Rani et al. (2023) demonstrated that IoT-based predictive maintenance systems allow accountants to anticipate cost fluctuations and forecast asset depreciation with higher precision. Similarly, Sharma et al. (2024) introduced IoT-based monitoring frameworks for performance evaluation, enhancing the accuracy of management control systems. These advancements shift accounting from a reactive to a proactive discipline—transforming accountants into strategic advisors rather than record-keepers.

The integration of IoT with Artificial Intelligence (AI) further amplifies this potential by supporting predictive auditing, anomaly detection, and performance forecasting. However, ensuring data quality, managing information overload, and maintaining ethical use of predictive data remain crucial areas for further research.

Research Gaps

The review of ten contemporary studies (2023–2024) reveals significant progress in the application of IoT within accounting information systems. However, despite the emerging adoption, several critical research gaps remain unresolved, limiting the generalizability and maturity of IoT-driven accounting frameworks. These gaps can be categorized into five main dimensions: empirical, methodological, contextual, ethical, and integrative**.**

Lack of Empirical Validation

Most studies in the review are conceptual or exploratory, focusing on theoretical models rather than field applications. While frameworks such as TAM, TOE, and Socio-Technical Systems Theory provide conceptual clarity, there is still limited quantitative or longitudinal evidence showing IoT's measurable effect on financial performance, audit quality, or reporting reliability. Future researchers should employ mixed-method or longitudinal designs to validate these relationships empirically.

Methodological Limitations

Another gap concerns methodological diversity. Nearly half of the reviewed papers rely on survey-based perception studies. Experimental designs, simulations, or big-data analytics approaches are rarely used in accounting research. Future studies should incorporate data analytics, process mining, and AI-driven simulations to capture the dynamic nature of IoT transactions and their impact on decision-making.

Contextual Diversity

Most existing studies are concentrated in emerging economies such as India, Thailand, and Jordan. There is limited cross-national comparison or analysis of regulatory contexts. Future research should explore regional variations in IoT adoption, examining how institutional environments, legal frameworks, and cultural values influence digital transformation in accounting.

Ethical, Privacy, and Governance Concerns

The integration of IoT into accounting systems raises significant ethical challenges related to data ownership, confidentiality, and algorithmic bias. Very few studies explicitly discuss data governance frameworks or cybersecurity protocols to protect financial information collected through IoT devices. Future work must address these risks by developing ethical guidelines and standardized governance models for IoT-based financial data.

Need for Integrative Frameworks

Finally, there is a pressing need to develop integrated multi-technology frameworks combining IoT, Artificial Intelligence (AI), Blockchain, and Big Data analytics. Such convergence can create intelligent accounting systems capable of real-time anomaly detection, continuous auditing, and predictive decision support. Future scholars should focus on building holistic models that connect technological innovation with organizational performance and societal sustainability.

Table 3. Summary of Identified Research Gaps and Opportunities

Theme	Gap Identified	Future Research Opportunity
Empirical	Limited real-world testing of IoT in accounting	Conduct longitudinal and experimental studies
Methodological	Narrow reliance on survey data	Use simulations and AI-based analytics
Contextual	Few cross-country comparisons	Explore cultural and regulatory influences
Ethical	Lack of privacy & governance focus	Develop IoT ethics and data protection models
Integrative	Fragmented digital ecosystems	Propose IoT-AI-Blockchain unified frameworks

CONCLUSION

This systematic literature review demonstrates that the Internet of Things (IoT) has evolved from an experimental technology into a transformative driver of accounting digitalization. IoT bridges the gap between physical processes and financial information by enabling real-time data capture, automation, and predictive insights. It empowers accountants and managers to make faster, evidence-based decisions while improving transparency and accountability in financial reporting.

The findings of this study underscore several major contributions. First, IoT integration substantially enhances automation and data reliability within Accounting Information Systems (AIS), leading to reduced human error and improved operational efficiency. Second, IoT contributes to sustainability and performance management, especially when combined with

frameworks such as Material Flow Cost Accounting (MFCA) and Environmental Accounting. Third, IoT's convergence with Blockchain and XBRL creates digital ecosystems that support continuous auditing, real-time financial disclosure, and enhanced traceability. Collectively, these advancements redefine how accounting functions operate in the context of Industry 4.0.

From a theoretical perspective, models such as TAM, TOE, and Socio-Technical Systems Theory remain central to understanding IoT adoption behavior. However, as accounting systems become increasingly data-driven, there is an urgent need to extend these frameworks to integrate ethical, governance, and AI-based analytical dimensions.

While the literature highlights strong potential, significant barriers remain—particularly concerning data privacy, cybersecurity, interoperability, and limited digital readiness among professionals. Overcoming these challenges requires coordinated efforts between academia, industry, and regulators.

Recommendations

Based on the synthesis of findings, several recommendations can be proposed for different stakeholders:

1. For Researchers:
   Future studies should expand empirical validation of IoT in accounting through mixed-method and longitudinal research designs. Scholars should also explore the intersection of IoT with Artificial Intelligence (AI) and Blockchain to create predictive and adaptive accounting models. Developing frameworks for IoT ethics and data governance should be a top research priority.
2. For Practitioners and Accounting Firms:
   Organizations are encouraged to adopt a strategic roadmap for IoT integration that includes staff training, risk management, and system interoperability assessment. Accountants should be upskilled in data analytics, IoT device interpretation, and cybersecurity awareness. Firms should also pilot IoT-based audit trails to enhance real-time compliance and fraud detection.
3. For Policymakers and Professional Bodies:
   Regulatory institutions should collaborate with academic experts to establish IoT-based accounting standards that ensure security, transparency, and accountability. Governments can offer incentives and tax relief for SMEs implementing digital accounting technologies. Additionally, accounting education should be updated to include courses on IoT, analytics, and sustainability reporting.
4. For Technology Developers:
   Vendors and developers of accounting software should prioritize interoperability, modularity, and security in IoT-enabled solutions. Developing open APIs and standardized data formats can foster integration across platforms and reduce the cost of adoption for smaller firms.

In conclusion, IoT is not merely a technological enhancement—it represents a paradigm shift in accounting philosophy. As financial systems become increasingly interconnected, the profession must evolve toward a proactive, data-driven, and ethically responsible practice. By integrating IoT into accounting, organizations can achieve not only operational excellence

but also greater societal accountability and sustainable economic growth.

Managerial Implications and Limitations

Managerial Implications

For practitioners, the results highlight several actionable insights.

1. Strategic Digital Investment: Managers should prioritize IoT infrastructure investment that directly integrates with AIS modules such as general ledger, inventory, and asset management.
2. Capacity Building: Accountants must be reskilled in data analytics, sensor data interpretation, and digital auditing to fully leverage IoT capabilities.
3. Governance and Data Ethics: Organizations should establish internal IoT governance frameworks, emphasizing transparency, cybersecurity, and compliance with international data regulations (e.g., GDPR, ISO/IEC 27001).
4. Sustainability Reporting: IoT sensors can serve as instruments for tracking carbon emissions, energy use, and resource efficiency, allowing firms to enhance ESG (Environmental, Social, and Governance) disclosures.
5. Collaborative Ecosystems: Managers are encouraged to form cross-functional digital transformation teams that integrate IT specialists, accountants, and auditors to design seamless IoT-based reporting systems.

Policy Implications

For regulators and professional accounting bodies, the findings suggest a need to:

- Develop standardized IoT reporting protocols and audit guidelines.
- Update accounting education curricula to include courses on IoT, AI, and cybersecurity.
- Provide incentives for SMEs adopting IoT-based accounting solutions, ensuring equitable technological diffusion.

Limitations of the Study

Like any SLR, this review has inherent limitations.

1. The time frame (2023–2024) may exclude earlier foundational studies, which could have provided historical context.
2. The analysis relied on secondary data from published articles; hence, results depend on the accuracy and depth of those studies.
3. The scope is limited to English-language journals, potentially overlooking regional or non-English contributions.
4. Due to the rapid evolution of technology, the findings represent a snapshot of a constantly changing field.

Future research can address these limitations by conducting meta-analyses, expanding temporal scope, and incorporating field interviews with accounting professionals implementing IoT solutions.

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