DIGITAL TRANSFORMATION IN ACCOUNTING: THE ROLE OF AIS AND AUDITING IN SUPPORTING SUSTAINABLE GOVERNANCE AND THE ACHIEVEMENT OF THE SDGs

Ety Meikhati[1*], Antin Okfitasari[2], Bernadet Dinar Ayu[3]
Universitas Duta Bangsa Surakarta[1, 2, 3]
*Correspondence Email: ety_meikhati@udb.ac.id

ABSTRACT

Digital transformation has changed accounting practices through the use of artificial intelligence (AI), cloud computing, big data analytics, blockchain, and robotic process automation (RPA). This study aims to examine how digital transformation, accounting information systems (AIS), and auditing contribute to sustainable governance and the achievement of the Sustainable Development Goals (SDGs). A thematic literature review was conducted by examining studies on digital accounting, AIS, auditing, sustainability reporting, and emerging technologies. The findings show that digital technologies support the processing, integration, accessibility, and analysis of accounting information. AIS facilitates the management of financial and non-financial information for sustainability reporting, while auditing supports internal control, risk assessment, and the reliability of reported information. The literature also identifies challenges related to data security, privacy, algorithmic bias technological dependence, and professional competence. Overalll, the reviewed studies indicate that AIS and auditing have complementary roles in digital accounting transformation. Accounting Information Systems provides the infrastructure for managing information, internal control supports information reliability, and auditing provides assurance over reported information produced. Together, these functions can strengthen transparency, accountability, and information quality in support of sustainable governance and organizational contributions to the SDGs.

KEYWORDS

Digital Transformation; AIS; Auditing; Sustainability Reporting; SDGs

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INTRODUCTION

Digital technology has become increasingly embedded in accounting activities. Accounting is no longer limited to recording and reporting financial transactions after they occur. The availability of cloud computing, big data analytics, artificial intelligence (AI), blockchain, and robotic process automation (RPA) has changed how accounting information is collected, processed, stored, and used. These developments have also expanded the role of accounting information systems (AIS), particularly in providing timely information for managerial decisions and organizational control. Recent literature shows that digital technologies are being incorporated into AIS to support real-time reporting, data analysis, automation, and fraud-related procedures ((Nurani et al., 2026).

The changes in accounting are not limited to financial reporting. Organizations are increasingly required to provide information concerning environmental, social, and governance (ESG) matters. The issuance of IFRS S1 and IFRS S2 by the International Sustainability Standards Board (ISSB) has further strengthened the demand for structured and reliable sustainability-related information. IFRS S1, for example, requires information about sustainability-related risks and opportunities, including governance processes, risk management, strategy, and performance. The standards therefore place greater importance on the ability of organizations to collect, organize, control, and report both financial and sustainability-related information.

Tis development creates a direct connection between digital accounting, AIS, and sustainability reporting. Sustainability information is generated from different organizational activities and may involve financial as well as non-financial data. Without an adequate information system, the process of collecting and consolidating such information can become fragmented and difficult to verify. Research on the digitalization of sustainability accounting and reporting indicates that digital technologies can facilitate the collection, processing, analysis, and disclosure of non-financial information. At the same time, organizational capabilities, technological readiness, and professional skills remain important conditions for successful implementation (Hasibuan et al., 2026; Valentinetti & Rea, 2025).

Auditing is another important component of this transformation. The increasing volume and variety of digital data have changed the way auditors obtain and evaluate audit evidence. Data analytics and other digital tools allow auditors to examine larger datasets, identify unusual transactions, assess risks, and perform procedures that are difficult to conduct through conventional sampling alone. Similar developments are emerging in sustainability assurance, where digital technologies can assist in data collection, analysis, materiality assessment, and the verification of sustainability information. Thus, the development of AIS and digital auditing should not be viewed as separate technological changes, but as related processes within an organization's information and control environment.

Despite the growing body of literature, current research remains heavily fragmented and operates in isolated silos. Prior literature reviews predominantly treat AIS adoption, digital auditing, and sustainability reporting as independent research domains. Studies on AIS focus primarily on technological capabilities and operational efficiency, while auditing research emphasizes data analytics and assurance procedures. Meanwhile, literature on sustainability accounting examines reporting disclosures in isolation from the underlying technological and control infrastructure. Although recent studies

acknowledge the importance of digital tools in environmental accounting (Antonini, 2024), existing reviews fail to explicitly integrate AIS, internal controls, and auditing into a unified framework for sustainable governance. Crucially, prior research has not comprehensively articulated how these interconnected accounting components jointly generate the reliable financial and non-financial information necessary to drive sustainable governance and support the Sustainable Development Goals (SDGs).

To address this critical gap, this study offers a novel conceptual perspective by bridging these disconnected literature streams into an integrated thematic synthesis. Unlike prior reviews that analyze digital tools or sustainability reporting as standalone themes, the novelty of this study lies in conceptualizing digital transformation, AIS, internal control, and auditing as mutually reinforcing components within an organization's broader governance architecture. It explicitly constructs an integrative conceptual framework that maps the functional continuum from technological infrastructure and information processing to internal control safeguards, auditing assurance, sustainable governance, and ultimately organizational alignment with the SDGs.

This connection is directly relevant to the broader Sustainable Development Goals, particularly SDG 8 on decent work and economic growth, SDG 9 on industry, innovation, and infrastructure, SDG 12 on responsible consumption and production, SDG 16 on peace, justice, and strong institutions, and SDG 17 on partnerships for the goals. Reliable information, transparent reporting, effective controls, and accountability provide the organizational conditions required to support progress toward these goals. Analyzing digital accounting through this integrated lens elevates technology from a tool of operational efficiency to a strategic foundation for transparent governance and institutional accountability.

Based on this context, this study reviews the literature on digital transformation in accounting with particular attention to the integrated relationship between AIS, internal control, and auditing. The review examines how digital technologies influence accounting information processes, risk control, and sustainability assurance. By synthesizing these elements, this study contributes to the literature by providing a holistic framework that explains how digital accounting transformation yields high-quality information to foster sustainable governance and support the achievement of the SDGs.

RESEARCH METHOD

This study employs a systematic thematic literature review to synthesize research on digital transformation, accounting information systems (AIS), internal control, auditing, sustainable governance, and the Sustainable Development Goals (SDGs) (Antonini, 2024; Valentinetti & Rea, 2025). A literature search was conducted across Scopus, Web of Science, and Google Scholar for publications from 2013 to 2026 using Boolean terms: ("digital transformation" OR "AI" OR "cloud" OR "big data" OR "blockchain" OR "RPA") AND ("AIS" OR "internal control") AND ("auditing" OR "assurance") AND ("sustainability reporting" OR "ESG" OR "sustainable governance" OR "SDGs").

Articles were selected based on inclusion criteria: peer-reviewed studies, seminal frameworks (e.g., COSO, ISSB), and literature directly addressing digital technologies in accounting, auditing, or sustainability. Non-peer-reviewed sources and general IT articles lacking accounting context were excluded. Extracted data were synthesized across key themes: AIS capabilities, internal controls, digital auditing, sustainability reporting, and SDG alignment to construct an integrated conceptual framework.

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RESULT AND DISCUSSION

Digital Transformation and Accounting Information Systems

The reviewed literature shows that digital transformation is changing the role of accounting information systems (AIS). The use of cloud computing, big data analytics, artificial intelligence (AI), blockchain, and robotic process automation (RPA) has expanded AIS from a system primarily concerned with transaction processing into a broader platform for information integration, analysis, reporting, and decision support. Nurani et al., (2026) identify emerging technologies and organizational capabilities as important aspects of the continuing transformation of AIS. Similar findings are reported by Hastharita et al. (2025), whose review shows that cloud computing, big data, and AI in supporting real-time reporting, analytics, fraud detection, and decision-making.

The literature also indicates that technology adoption alone does not determine the quality of an accounting information system. The usefulness of digital systems is influenced by data quality, system integration, organizational readiness, and the ability of users to operate the technology. Valetinetti & Rea, (2025), for example, identify technological and organizational factors as important conditions affecting the digitalization of sustainability accounting and reporting. This suggests that digital transformation should be understood as a change in the accounting information process rather than simply the replacement of conventional systems with digital tools.

AIS and Internal Control

The transformation of accounting information systems (AIS) has changed the design and implementation of internal control. Digital AIS can incorporate authorization procedures, access restrictions, automated validation, transaction monitoring, and audit trails, supporting transaction traceability, data accuracy, and segregation of duties. Recent studies indicate that access-right management, audit trails, and anomaly detection can strengthen control over digital accounting processes and reduce opportunities for unauthorized transactions and fraud (Nadilah et al., 2026; Pradipta et al., 2025). However, these technological capabilities remain dependent on appropriate system configuration, data governance, and user competence.

The relationship between AIS and internal control is consistent with the COSO Internal Control-Integrated Framework, which emphasizes control activities, information and communication, and monitoring as mechanisms supporting reliable organizational processes and information (COSO, 2013). This relationship is increasingly relevant to sustainability reporting. IFRS S1 requires organizations to disclose governance processes, risk management, and the controls and procedures used to monitor and manage sustainability-related risks and opportunities (IFRS Foundationate, 2023). COSO (2023) also provides guidance on internal control over sustainability reporting (ICSR), indicating that the reliability of sustainability information requires control mechanisms comparable to those applied to financial information.

The reviewed literature therefore indicates a complementary relationship between AIS and internal control. AIS provides the technological infrastructure for collecting, processing, storing, and communicating financial and non-financial information, while internal control supports authorization, data protection, monitoring, and information reliability (COSO, 2013; Modjaningrat, 2026; Sukmana & Wijaya, 2026). Digitalization can strengthen monitoring and traceability, but it does not automatically produce effective

control. Weak access management, poor system configuration, inadequate data governance, or limited user competence may reduce control effectiveness. AIS should therefore be understood as an enabling infrastructure for internal control rather than a substitute for organizational control procedures and professional oversight.

Digital Transformation and Auditing

Digitalization has also changed the way audit procedures are performed. The increasing volume of electronic transactions provides auditors with opportunities to use data analytics, automated procedures, and AI-based tools in risk assessment and evidence analysis. Abdo-salloum & Chehade (2026) report that AI applications in accounting and auditing are associated with automation, financial reporting processes, fraud detection, and predictive analysis, while also identifying ethical, organizational, and regulatory challenges.

The Indonesian literature shows a similar direction. Renta et al., (2025) describe digital transformation and AI adoption as contributing to a shift toward more data-driven financial statement auditing, while noting that implementation and professional readiness can vary across contexts.

These findings indicate that AIS and auditing should not be considered unrelated stages. The quality, accessibility, and traceability of information generated by AIS influence the auditor's ability to obtain and evaluate evidence. At the same time, audit procedures can identify weaknesses in information processing and internal controls. The relationship between AIS and auditing is therefore based on a continuing interaction between information, controls, evidence, and risk.

Digitalization of Sustainability Reporting

Another recurring theme in the literature is the growing use of digital technologies in sustainability accounting and reporting. Sustainability reporting requires information from different organizational activities and may include environmental, social, governance, and financial information. Digital systems can assist organizations in collecting, integrating, processing, and presenting these data.

Valentinetti & Rea (2025) found increasing research interest in the digitalization of sustainability accounting, reporting, and disclosure. Their review also identifies technological compatibility, stakeholder pressure, and organizational capabilities as factors influencing digital adoption, while technical and training requirements remain important constraints.

A recent systematic literature review by Hyk et al. (2026) shows growing research interest in the digitalization of corporate sustainability reporting. Their review identifies digitalization as an expanding research area but notes that the impact of digital technologies on sustainability reporting still requires further theoretical and practical examination. The findings are relevant to AIS because sustainability reporting requires information that is consistent, traceable, and connected to organizational processes. Digitalization may simplify data processing, but it does not by itself guarantee the reliability of sustainability information. Controls over data sources, processing, access, and changes to reported information remain necessary.

Auditing, Assurance, and Sustainability Information

Sustainability information may come from operational systems that were not originally developed for financial reporting. This creates a need for processes that can maintain the completeness, consistency, and traceability of information before it is incorporated into sustainability reporting. The quality of such information is therefore

influenced not only by reporting requirements but also by the systems and controls through which the underlying data are collected and processed.

The connection between sustainability information and governance is also reflected in IFRS S1, which requires disclosures on governance, strategy, risk management, and performance in relation to sustainability related risks and opportunities. The standard also addresses the controls and procedures used by management to oversee these matters. Valentinetti & Rea (2025) highlight the growing role of digitalization in sustainability accounting, reporting, and disclosure, particularly in relation to the integration and management of sustainability related information. Complementing this perspective, Lodhia et al. (2025) discuss how digital technologies can support materiality assessment, data collection and analysis, sustainability reporting, and the development of sustainability assurance practices.

From the thematic synthesis, AIS and auditing therefore have different but connected functions. AIS supports the production and management of information, internal control provides safeguards over the information and related controls. Taken together, these studies suggest that digitalization can connect the processes of generating, processing, reporting, and assuring sustainability information, while the effectiveness of these processes remains dependent on appropriate systems and controls. This relationship becomes increasingly relevant when sustainability information is integrated with conventional accounting information.

Emerging Technologies and Their Limitations

The reviewed literature identifies several applications of emerging technologies in accounting and auditing. AI and data analytics can be used to identify patterns and unusual transactions, cloud computing facilitates data access and system integration, RPA supports repetitive procedures, and blockchain may improve transaction traceability. The recent review by Abdo-salloum & Chehade (2026) similarly identifies efficiency, automation, reporting, and fraud detection among the major areas associated with AI adoption in accounting and auditing.

However, the literature does not present digitalization as an entirely positive process. Concerns include data security, privacy, cybersecurity, algorithmic bias, technological dependence, professional competence, and regulatory uncertainty. Abdo-salloum & Chehade (2026) emphasize ethical, organizational, and regulatory issues surrounding AI adoption, while Valentinetti & Rea (2025) identify organizational capabilities and training as important conditions for digital sustainability reporting.

These findings indicate that technology should remain subject to organizational controls and professional judgment. A sophisticated system cannot compensate for poor-quality data, weak controls, or inadequate user competence. The contribution of digital technology therefore depends on the interaction between technological capability and organizational governance.

Integrated Relationship between AIS, Auditing, and Sustainable Governance

Aligning with recent calls for holistic accounting digitalization research (Antonini, 2024; Nurani et al., 2026; Valentinetti & Rea, 2025), this study integrates AIS, auditing, and sustainability into a unified framework (Figure 1).

As shown in Figure 1, digital technology enhances AIS infrastructure to process financial and ESG data. Internal controls (ICSR) and digital auditing independently safeguard data integrity, generating reliable information that drives sustainable governance and supports SDGs 8, 9, 12, 16, and 17.

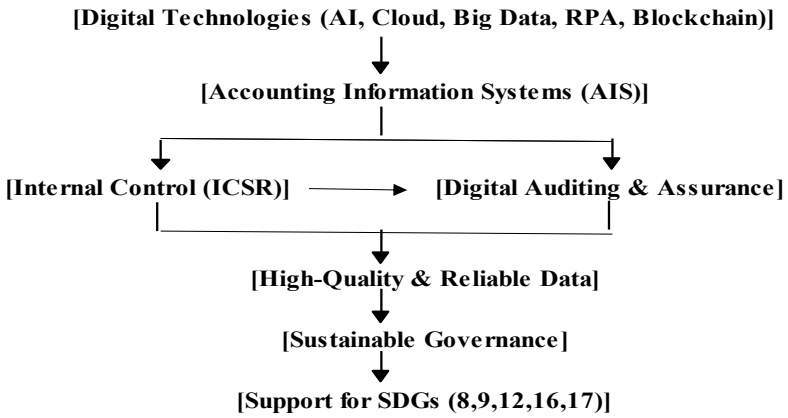


Figure 1. Integrated Conceptual Framework

Implications for the Sustainable Development Goals

The relationship identified in the literature has implications for the SDGs, particularly SDG 8, SDG 9, SDG 12, and SDG 16. Digital accounting systems can support more efficient information processes and innovation, while reliable financial and sustainability information can contribute to transparency, accountability, and responsible organizational decision-making.

The connection with the SDGs should nevertheless be interpreted carefully. Digital transformation does not directly produce sustainable development outcomes. Its contribution depends on how technology is incorporated into organizational systems, controls, reporting processes, and governance. This interpretation is consistent with the sustainability literature,

Which emphasizes the interaction between technological capabilities, organizational conditions, and sustainability reporting practices (Antonini, 2024; Valentinetti & Rea, 2025). The literature therefore supports an integrated perspective in which digital transformation provides the technological foundation, AIS organizes information, internal control safeguards the information process, and auditing strengthens confidence in reported information. Together, these elements provide organizational capabilities that can support sustainable governance and, indirectly, contribute to progress toward the SDGs.

CONCLUSION

The literature reviewed indicates that digital transformation is reshaping accounting from a primarily transaction-oriented function into an integrated information process that connects financial, operational, and sustainability-related information. Artificial intelligence, cloud computing, big data analytics, blockchain, and robotic process automation expand the capabilities of accounting information systems (AIS) in information processing, reporting, monitoring, and decision-making. However, the literature also indicates that the benefits of these technologies are not determined by technology adoption alone, but depend on data quality, system integration, organizational capabilities, and user competence.

A key finding of this review is that AIS, internal control, and auditing should be viewed as interconnected components of digital accounting transformation. AIS provides the infrastructure for producing and managing information, internal control supports the reliability, security, and integrity of information processes, while auditing and assurance provide mechanisms for evaluating information and related controls. This interconnectedness becomes increasingly important as organizations incorporate sustainability-related information into their reporting systems. The integration of reliable financial and sustainability information, supported by effective controls and assurance, can strengthen transparency, accountability, and organizational oversight.

The review further indicates that the contribution of digital accounting transformation to the Sustainable Development Goals (SDGs) is primarily indirect. Digital technologies do not automatically generate sustainable outcomes; their contribution depends on how they are embedded within effective information systems, internal controls, reliable reporting processes, and responsible governance. Thus, digital accounting transformation can provide an organizational information infrastructure that supports transparency, accountability, and sustainability-oriented decision-making, which are relevant to the broader achievement of the SDGs.

Limitations and Future Directions

As a qualitative review, this study lacks empirical field testing. Future research should quantitatively evaluate the proposed framework using Structural Equation Modeling (SEM) or conduct qualitative case studies on real-time ESG assurance across different industries and regulatory environments.

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