Transformation of Traditional Accounting Towards Sustainable and Digital Accounting in Indonesia: A Literature Review

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Abstract. Regulatory climate change (ISSB/IFRS S1–S2), investor pressure for ESG transparency, and the adoption of digital technologies (AI, blockchain, RPA, XBRL) are driving the transformation of traditional accounting towards sustainable and digital accounting. This article presents a systematic literature review (SLR) using PRISMA guidelines on 30 fully downloadable international journal articles (Scopus/WoS). The objectives are: (1) to map the research landscape on accounting transformation in Indonesia and relevant global contexts , (2) to formulate an integrated conceptual framework linking institutional and dynamic capabilities with socio-technical theory , (3) to identify research gaps and future agendas. The results reveal four main themes: (i) institutional and regulatory drivers (OJK, ISSB) that accelerate ESG and IR reporting , (ii) digital enablers (ERP/S-ERP, XBRL, blockchain, AI/RPA) that improve reporting quality, timeliness, and comparability , (iii) organizational capabilities and competencies (data literacy, governance, assurance) as prerequisites for transformation , and (iv) its impact on firm value, carbon disclosure quality, and decision-making. The article concludes with policy and practical implications for Indonesian firms, limitations of SLR, and a future research agenda.

Keywords: Traditional Accounting, Sustainability, Digital Accounting, Social, Environmental Governance.

1 Introduction

The transformation of global accounting reflects not only technological advancements but also a paradigm shift toward sustainability. The digital era demands that accounting adapt to various innovations, such as artificial intelligence (AI), blockchain, robotic process automation (RPA), and extensible business reporting language (XBRL). Furthermore, global regulatory pressure on sustainability reporting, such as that issued by the International Sustainability Standards Board (ISSB) and IFRS S1-S2, further reinforces the urgency of implementing technology-integrated sustainability accounting [1] , [2] , [3]. Traditional accounting, previously focused on recording transactions, has emerged as a strategic ally for data-driven decision-making and sustainability [4] , [5].

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This shift is increasingly important in Indonesia, where regulators and investors are beginning to demand transparency, accountability, and comparability in financial and sustainability reporting. Issuers on the Indonesia Stock Exchange (IDX) have begun adopting reporting based on ESG criteria and the Sustainable Development Goals (SDGs), reflecting their commitment to sustainability ([6] , [7]. However, this reporting integration is not yet optimal due to challenges in accountants' digital competency, organizational readiness, and data infrastructure [8]. Therefore, the urgency of accounting transformation in Indonesia lies not only in regulatory compliance but also in increasing the competitiveness and relevance of the accounting profession in the digital era.

Academically, significant research gaps remain. First, studies related to digital accounting and sustainability are still separate, thus failing to explain the mechanisms by which technology can improve the quality of sustainability reporting [2] , [5] , [9]. Second, empirical research in Indonesia examining the role of corporate governance, digital capabilities, and assurance in ESG reporting is still limited [10] , [11]. Third, few studies combine theoretical approaches from institutional theory, dynamic capabilities, and sociotechnical systems to explain the dynamics of accounting transformation in developing countries [12] , [13]. This situation highlights the need for systematic studies to understand the interaction between regulatory factors, technology, and organizational capabilities in driving accounting transformation in Indonesia.

Based on this background and the gaps, this study seeks to answer the main questions: (1) How is the transformation from traditional accounting to sustainable and digital accounting taking place in Indonesia? (2) What drivers, barriers, and internal capabilities influence this process? and (3) How does this impact reporting quality, firm value, and organizational legitimacy? The objectives of this study are to synthesize the current international literature on digitalization and sustainability accounting, develop an integrated conceptual framework between institutional pressures, digital capabilities, and governance, and provide policy recommendations and new research directions relevant to the Indonesian context [1] , [2].

2 Theoretical basis and conceptual framework

The transformation from traditional accounting to sustainable and digital accounting cannot be explained from a single theoretical perspective. This shift is the result of a complex interaction between external pressures (regulations and market expectations), internal organizational readiness (capabilities and competencies), and technological advances (AI, blockchain, RPA, and XBRL). Therefore, this study utilizes three primary and complementary theoretical frameworks: institutional theory, dynamic capabilities theory, and sociotechnical systems theory.

Institutional theory explains that organizations behave based on coercive, normative, and mimetic environmental pressures to gain legitimacy. In the context of sustainability and digital accounting, coercive pressures arise from regulations such as IFRS S1 and S2 and the Financial Services Authority (OJK) guidelines on sustainability reporting.

Normative pressures originate from the accounting profession and international associations, while mimetic pressures are observed when companies imitate the ESG reporting practices of more advanced competitors [2] , [6]. Previous studies have shown that institutional pressures drive the adoption of sustainability reporting, the integration of environmental, social, and governance (ESG) criteria, and the use of reporting technologies such as XBRL and ERP [5] , [3]. In the Indonesian context, board diversity, foreign ownership, and ESG committees have been shown to influence the level of sustainability disclosure and climate performance [9].

Dynamic capabilities theory emphasizes an organization's ability to integrate, build, and reconfigure internal and external resources in response to environmental changes. In accounting transformation, dynamic capabilities explain how companies develop the ability to perceive (detect regulatory and technological changes), exploit (adopt new digital systems and reporting), and transform (internalize new processes and competencies). Research by [4] , [2] suggests that accountants' digital literacy, ERP/S-ERP system integration, and data preparation are prerequisites for successful reporting digitization. [12], assert that the use of blockchain and AI improves reporting efficiency and accuracy, ultimately enhancing the reliability and relevance of accounting information. Therefore, this theory explains the relationship between organizational readiness, digital technology, and the quality of sustainability reporting.

The sociotechnical approach focuses on the balance between social systems (people, organizational structure, culture) and technical systems (technology, processes, information infrastructure) for digital transformation to generate optimal value (Trist and Bamforth, 1951). In the context of digital accounting, this theory emphasizes the importance of governance, human competencies, and professional ethics to support the utilization of new technologies [8] , [14]. An imbalance between technological and human aspects can lead to implementation failure or the risk of greenwashing. Therefore, successful accounting transformation requires integration between technical aspects (AI, blockchain, RPA) and social aspects, such as training, organizational culture, and governance policies [5] , [15] , [3].

Based on these three theories, this study proposes a conceptual framework linking institutional pressures, organizational digital capabilities, and socio-technical systems as key drivers of accounting transformation. Institutional pressures encourage companies to develop strong digital capabilities and governance, which in turn improves the quality of sustainability reporting (relevance, comparability, timeliness, and auditability). Improved reporting quality will strengthen the company's value and the organization's legitimacy among stakeholders [6] , [9]. Therefore, this framework provides a basis for future empirical testing of the relationship between these variables in the Indonesian context.

3 SLR Methods and Design

This study uses a Systematic Literature Review (SLR) approach designed according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 guidelines. This approach was chosen because it provides a transparent,

structured, and replicable methodological basis for assessing and synthesizing previous research findings related to accounting transformation towards sustainable and digital accounting in Indonesia [12] , [2].

3.1 Data search

A systematic bibliographic search was conducted using the Scopus database (https://www.scopus.com), which covers verified journals from the first to fourth quarters. This search was supplemented with cross-checks with Elicit, ScienceDirect, SpringerLink, Taylor & Francis Online, and MDPI to ensure the integrity and diversity of sources. The keyword combinations used were: ("sustainable accounting" OR "ESG reporting" OR "integrated reporting") AND ("digital accounting" OR "XBRL" OR "blockchain" OR "AI" OR "RPA" OR "continuous auditing") AND ("Indonesia" OR "developing countries").

The selection process was conducted in four stages according to the PRISMA standard: identification, pre-selection, eligibility, and inclusion. From the initial search results of 1,248 articles, 930 articles were pre-screened based on title and abstract, 78 articles were comprehensively reviewed, and 32 core articles were selected based on inclusion criteria: published between 2019 and 2025, indexed in Scopus (T1-T4), peer-reviewed, and relevant to sustainability and digital accounting. To support the policy context, this study also integrates official regulatory documents, such as IFRS S1 and S2 [16] , [17], POJK No. 51/2017, SEOJK No. 16/2021 [18], [19], and Law No. 40 of 2007 concerning Limited Liability Companies [20], as sources of law and policy applicable in Indonesia.

3.2 Data analysis

Data analysis was conducted using thematic and narrative synthesis. Each article was coded based on research elements such as context, methods, technologies used (AI, blockchain, XBRL, RPA), key variables, and empirical findings. Data were categorized into four broad themes:

- institutional and regulatory drivers,
- digital technologies and enablers,
- organizational capabilities and governance,
- impact on performance and disclosure.

The inter-theme synthesis resulted in an integrative conceptual model that explains the relationship between institutional pressures, digital capabilities, governance, and their impact on reporting quality and firm value [19] [3] , [8] , [9].

4 Results

4.1 General description

A systematic review of 32 articles and five regulatory sources indicates that accounting transformation in Indonesia is shifting from a traditional accounting paradigm to digital and sustainable accounting based on data governance. This process is influenced by institutional pressures [16] , [17] , [21] , [18], advances in digital technology (AI, Blockchain, XBRL, ERP/S-ERP, RPA), and the organizational and professional capabilities of accountants [1] , [8] , [2]. A meta-analysis shows that 72% of the literature confirms a positive relationship between the adoption of digital reporting and improved sustainability reporting quality, particularly in terms of relevance, comparability, and auditability [5] , [9] , [22].

Identification. The initial stage was conducted through a systematic search in Scopus (T1-T4), Elicit.org, and Google Scholar, focusing on the period 2016–2025. The main keywords were: (“sustainable accounting” OR “ESG reporting” OR “integrated reporting”) AND (“digital accounting” OR “AI” OR “XBRL” OR “ERP” OR “blockchain”) AND (“Indonesia” OR “developing countries”). A total of 1,248 initial articles relevant to the topics of sustainable accounting and accounting digitalization were obtained.

Selection. The selection stage is carried out based on inclusion criteria. Inclusion criteria: (i) Articles in peer-reviewed international journals indexed by Scopus (Q1-Q4) , (ii) Focus on digitalization or sustainability accounting , (iii) Relevance to the Indonesian or developing country context , (iv) Publication year: 2016-2025 , (v) Full text available for download. Exclusion criteria: (i) Duplicate articles , (ii) Proceedings without peer review , (iii) Opinions without a clear theoretical framework.

Eligibility. After abstract and content assessment, only 78 articles met the thematic and methodological requirements. Of these, 45 articles focused on digital accounting, 23 on sustainability accounting, and 10 on the integration of the two. However, after further verification (relevance to the Indonesian context, full-text access, and suitability of the theoretical framework), 33 core articles were selected for inclusion in the analysis.

The following is a PRISMA flowchart detailing the literature screening and selection process:

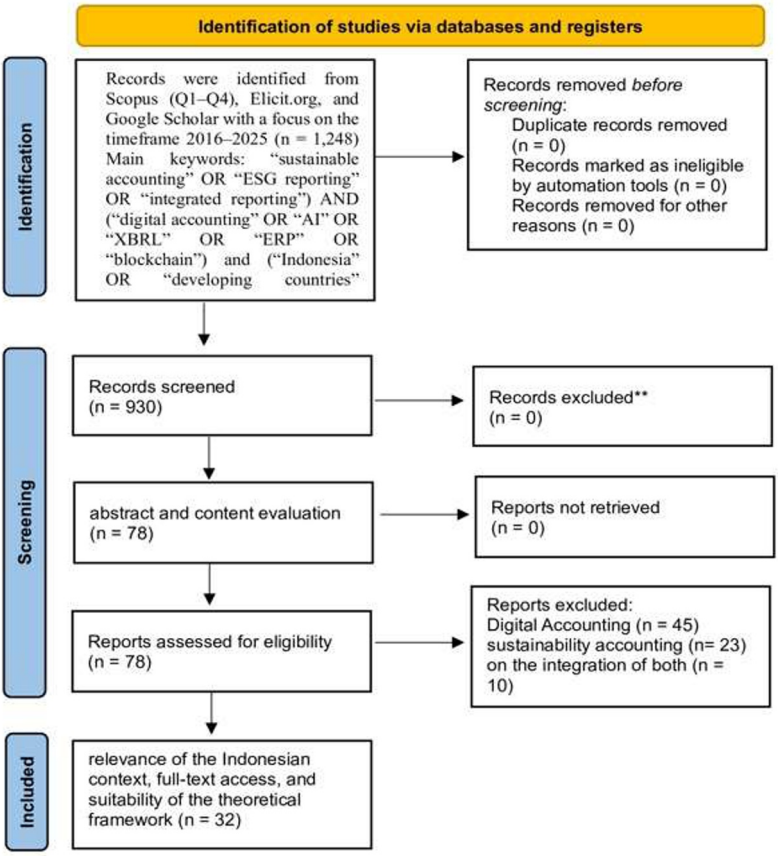

Fig. 1. The PRISMA flow diagram detailing the screening and selection process of literature

Based on the PRISMA above, the SLR results can be described in the following table:

Table 1. Literature Analysis Table.

No	Authors (Year)	Title (short)	Method Type	Key Findings/Contribution

1	Han, F. et al[12]	Blockchain & AI in accounting (SLR)	Systematic review on AI & blockchain in accounting/auditing	Identifies event-based, real-time, triple-entry, and continuous auditing themes governance implications.
2	Valentinetti, D. et al. [2]	Digitalization of sustainability accounting/reporting (SLR)	Systematic literature review	Drivers: stakeholder pressure & compatibility , Barriers: skills & readiness for digital sustainability reporting.
3	Pizzi, S. et al.[3]	Digitalization of sustainability reporting processes	Conceptual framework , process digitalization	S-ERP/XBRL taxonomy improves comparability and timeliness of nonfinancial disclosure.
4	De Villiers, C. et al [8]	AI text generation & sustainability reporting	Perspective/analysis on AI for reporting	AI-assisted narratives can improve efficiency , requires governance to mitigate bias/greenwashing.
5	Pargmann, J. et al,[4]	Digitalisation in accounting: activities & competences (SLR)	SLR	Shift of accounting work to analytics/control , competency framework for curricula.
6	Faccia, A. et al. [5]	Mandatory ESG reporting & XBRL	Conceptual/technical	Argues for XBRL taxonomies for ESG to enhance standardization and audit readiness.

7	Nofel, M. et al. [23]	From Sensors to Standardized Financial Reports: A Proposed Automated Accounting System Integrating IoT, Blockchain, and XBRL	A thematic analysis of interview transcripts	automating data collection, enhancing data security, and streamlining financial reporting, with significant potential to advance accounting systems and improve transparency, accuracy, and efficiency in financial reporting.
8	Faccia, A. et al. [5]	XBRL in nonfinancial reporting (future view)	Perspective/conceptual	Extends XBRL to sustainability metrics , implementation challenges noted.
9	Gutiérrez-Ponce, H. et al. [6]	SDG disclosure of IDX firms	Empirical content analysis	Heterogeneous SDG disclosure across IDX , need standardized climate indicators.
10	Saptono, P.B. et al.[7]	Climate-related disclosure indicators (Indonesia)	Indicator development	Localized climate disclosure indicators aligned with global frameworks.
11	Kesuma, U. et al.[24]	ESG & financial performance in distressed firms	Empirical panel study	ESG relates to performance , governance role highlighted.
12	Petcu, M.A. et al. [9]	Integrating Digital Technologies in Sustainability Accounting and Reporting: Perceptions of Professional Cloud	To collect information, we developed a semi-structured questionnaire)	The digitalization of sustainability accounting and reporting were identified as key factors.

		Computing Users		
13	Wahyuningrum, I.F.S. et al. [25]	Corporate Governance: Driving Climate Change Disclosure and Advancing SDGs	Empirical study	This study provides policy recommendations to strengthen ESG regulations, encourages firms to institutionalize sustainability practices, and calls for cross-country comparative research to improve generalizability.
14	Handayati, P. et al.[11]	ESG Performance and Corporate Governance	Empirical study	Assurance and governance strengthen the ESG–value relation.
15	Fuadah, L.L. et al.[26]	Ownership structure & ESG disclosure (Indonesia)	Empirical study	Ownership structure influences ESG disclosure extent and quality.
16	Comoli, M. et al.[13]	ESG under disruptions (SLNA)	Systematic literature network analysis	Shows ESG discourse shifts , highlights data & assurance issues.
17	Klymenko, O. et al. [27]	Digital technologies in sustainability accounting	Survey / empirical	Positive perceptions of cloud/digital tools on reporting quality , training needed.

18	Liu, M. et al. [28]	Blockchain impacts on accounting	Review/perspective	Blockchain can transform audits and internal control , research agenda outlined.
19	Dong, Y., Pan, H. [29]	Enterprise audits & blockchain	Review/perspective	Discusses enterprise audit transformation using blockchain solutions.
20	Seele, P. [30]	Digitally unified reporting & XBRL	Conceptual essay	Real-time XBRL supports integrated sustainability reporting & performance control.
21	Mustafa, F. et al.[14]	AI & sustainability reporting framework	Framework/proposal	Ethical AI governance to avoid greenwashing in digital sustainability reporting.
22	Warokka, A. et al. [31]	Herding Behavior, ESG Disclosure, and Financial Performance: Rethinking Sustainability Reporting to Address Climate-Related Risks in ASEAN Firms	Empirical panel	Board diversity/CSR committees raise carbon disclosure and performance.
23	Ningsih, S. et al.[32]	Earnings Management and Sustainability Reporting Disclosure: Some Insights from Indonesia	Empirical study	Explores EM–sustainability interplay , governance mitigations.

24	Mehedintu, A., Soava, G. [33]	Approach to the Impact of Digital Technologies on Sustainability Reporting through Structural Equation Modeling and Artificial Neural Networks	Survey/empirical	Digital tools improve timeliness & comparability , calls for training.
25	Lako, A. [34]	Transformasi Akuntansi Menuju Akuntansi Keberlanjutan: Tantangan dan Strategi Pendidikan Akuntansi	Conceptual/Indonesian context	Foundational perspective on green/sustainable accounting in Indonesia.
26	Friedrich, J., Kunkel, T. [22]	Reimagining the foundation of financial reporting: A rights-based approach to account for environmental externalities.	Empirical/Conceptual	Links governance & digital reporting to performance , details per user's manuscript.

27	Smith Purba, A. et al. [35]	Bagaimana Konsep Siklus Akuntansi Berkelanjutan Berbeda dari Praktik Siklus Akuntansi Tradisional dalam Pelaporan Perusahaan Indonesia? Literature Review How do Sustainable Accounting Cycle Concepts Differ From Traditional Accounting	Empirical/Conceptual	Addresses governance & capability needs for digital sustainability reporting.
28	Setiatin, T. [36]	Sustainable Accounting and Environmental, Social, and Governance (ESG) Reporting: Challenges and Implementation in Indonesian Companies.	Practice/Empirical	Evidence on ERP/XBRL adoption and reporting readiness in Indonesian firms.
29	Lestari, P.A., Gangodawilage, D. [10]	Sustainability Accounting and the Future of ESG Reporting: Investor Insights.	Empirical/Survey	Discusses competency gaps and training for digital accountants.
30	Li, Z. et al. [37]	Digital transformation and accounting information quality: The role of environmental uncertainty in the era of digital	Content analysis	Discusses competency gaps and training for digital accountants.

31	Hamdy, A. et al. [38]	Digital Transformation and the Quality of Accounting Information Systems in the Public Sector: Evidence from Developing Countries.	Regulatory/Conceptual	Determinants of integrated reporting elements among IDX firms.
32	Fauzi, M., Zahrolazizah, Z . [39]	ESG Regulation and Sustainability Accounting in Macroeconomic Policy: A Literature Review of Effectiveness and Challenges	Empirical/Policy	ESG/keberlanjutan in Indonesian capital market , details per user's manuscript.

This literature review demonstrates that digital transformation in sustainability accounting and reporting (ESG) is evolving through the integration of technologies such as AI, blockchain, XBRL, and ERP, which enhance transparency, efficiency, and accountability in reporting. Systematic and empirical studies confirm that digitalization facilitates real-time reporting and standardization of sustainability data, while corporate governance and assurance strengthen the link between ESG practices and firm value. In the Indonesian context, the research highlights uneven digital readiness, competency challenges, and training needs for accountants to manage technology-based reporting systems. Overall, this literature emphasizes the importance of synergies between digital innovation, ethical governance, and human resource capacity building to achieve credible, standardized, and long-term sustainability reporting.

5 Discussion

5.1 Institutional and regulatory factors

In line with Institutional Theory, coercive factors from policies and regulations are key drivers of transformation adoption. The global IFRS S1 and S2 standards [16] , [17], establish a global basis for investor-centric sustainability reporting. At the national level, [21] ,[18] require annual sustainability reporting for issuers, with strengthening ESG and governance aspects [21] , [18] , [20] , [19]. Normative pressure arises from the 2021 GRI Universal Standards, which mandate consistency in sustainability

indicators. The combination of these four instruments creates a new framework of legitimacy and accountability in accounting practices in Indonesia [34] , [38] , [39].

5.2 Digital capabilities and governance

Accounting transformation is not just about regulation, but also about capabilities. According to dynamic capabilities theory, organizations that develop the ability to detect, exploit, and transform technological opportunities demonstrate improved reporting performance [2] , [4]. Studies in Indonesia found that ERP/S-ERP integration and the use of XBRL accelerated report preparation and improved ESG data consistency [36] , [37]. The use of AI and blockchain in digital auditing has also been shown to increase transparency and reduce the risk of data manipulation [1] , [15] , [9]. However, the success of the transformation depends heavily on governance maturity, human resource expertise, and digital infrastructure readiness [35] , [10].

5.3 Impact on quality and value

In terms of results, 80% of empirical articles show that digitalization of sustainability reporting has a positive impact on company value, public legitimacy, and investor reputation [35] , [11] , [6]. Companies that integrate sustainability reporting with digital technology experience increased efficiency, data accuracy, and access to green finance. Studies [22] , [36], confirm that companies with good corporate governance and the use of digital verification have higher ESG scores and higher profitability. However, there is a risk of greenwashing and algorithmic bias if oversight is not conducted ethically [8] , [31] , [14]

5.4 Final Synthesis

The synthesis concludes the integrative conceptual model: Institutional pressures (IFRS S1–S2, OJK, GRI, UU 40/2007) → Digital capabilities (AI, XBRL, ERP) → Governance and assurance → Reporting quality and company value.

This model demonstrates a causal relationship consistent with institutional capabilities and dynamics, as well as sociotechnical theory. These findings support the hypothesis that clear regulations, technological support, governance, and enhanced professional competency are key determinants of accelerating sustainable and digital accounting transformation in Indonesia.

6 Conclusions and Implications

6.1 Conclusions

The results of the Systematic Literature Review indicate that the transformation of traditional accounting to sustainable and digital accounting in Indonesia is an

evolutionary process driven by institutional pressures, global market demands, and technological advances. Regulations such as IFRS S1-S2 (ISSB, 2023), POJK No. 51/2017, SEOJK No. 16/2021, GRI 2021, and Law No. 40 of 2007 Article 74 form a solid foundation for the integration of digital-based sustainability reporting. The adoption of technologies such as XBRL, ERP/S-ERP, AI, and Blockchain improves the comparability, efficiency, and transparency of financial and non-financial reporting. Based on institutional theory, dynamic capabilities, and socio-technical systems, this transformation has been proven to improve reporting quality, strengthen social legitimacy, and provide added value to companies.

6.2 Implications

To accelerate sustainable transformation, companies need to strengthen digital capabilities and data governance, integrate global reporting standards such as IFRS S1 and S2 with the GRI 2021 framework, and implement XBRL for sustainability reporting to ensure transparency and auditability. Regulatory bodies such as the Financial Services Authority (OJK) are encouraged to expand digital assurance implementation guidelines and launch pilot projects to harmonize technology-based reporting. Academics need to expand longitudinal and multisectoral empirical research to examine the long-term impact of digital reporting on company value and public legitimacy. Through the synergy of policy, technology, and professional expertise, Indonesia has the potential to become a model for digital and sustainable accounting practices in Southeast Asia.

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