



ERP Systems and Corporate Sustainability: The "Missing Link" of Green Accounting

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Abstract: *This study examines how enterprise resource planning (ERP) systems influence corporate sustainability via green accounting, grounded in the Resource-Based View and accounting–sustainability integration theory. A structured survey of 137 professionals measured ERP, green accounting, and corporate sustainability constructs, each with three to four indicators; the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results show that ERP adoption significantly enhances green accounting practices and corporate sustainability performance, with green accounting mediating ERP's positive impact on sustainability outcomes. Theoretically, the study explicitly models the ERP–sustainability link through an accounting lens, enriching integrative frameworks that connect information systems and environmental outcomes. Practically, the findings suggest that managers should integrate ERP systems with robust environmental accounting modules to systematically collect, measure, and report environmental performance data, thereby transforming organizational practices toward sustainability and enabling more informed sustainability decision-making. Policy implications include aligning digital transformation efforts with sustainability reporting standards and regulatory frameworks to support broader environmental and economic goals.*

Keywords: *Digital transformation; ERP; Green accounting; Sustainability.*

1. Introduction

In the current global business landscape, sustainability is no longer positioned as a complementary activity but has become the core of modern corporate strategy. Companies face increasing pressure from regulators, investors, and society to demonstrate transparent and verifiable environmental performance. Sustainability reports now serve not only as communication tools but also as signals of corporate credibility and legitimacy in the market (Barker, 2025; Khan & Gupta, 2024). However, various studies indicate that the quality and consistency of environmental disclosures remain highly uneven, primarily because many companies lack data infrastructure capable of systematically capturing environmental impacts (Heras-Saizarbitoria et al., 2020). This misalignment creates a chasm between sustainability narratives and companies' operational reality.

In the midst of these challenges, Enterprise Resource Planning (ERP) systems are increasingly viewed as the digital backbone that can unify a company's various strategic information, including environmental data. By integrating financial, production, and supply chain processes, ERP systems enable companies to track resource consumption and emissions more accurately and in real time. Empirical evidence suggests that ERP implementation has enhanced the transparency and quality of environmental reporting (Melville, 2010; Pashutan et al., 2022) and has also fostered more sustainable operational

practices throughout the value chain (Holden et al., 2025). Nevertheless, the presence of integrated data does not automatically yield meaningful sustainability information for decision-making.

This is where green accounting plays a crucial role. Green accounting translates environmental data into economically relevant information for management and stakeholders. By measuring environmental costs, green investments, and ecological impacts, green accounting allows environmental issues to enter the language of business and corporate finance (Khan & Gupta, 2024). However, the boundary between environmental and sustainability accounting is often blurred, leading to inconsistent and difficult-to-compare reporting practices (Kirchner-Krath et al., 2024). Without support from integrated information systems, green accounting also risks becoming merely administrative reporting rather than a strategic tool.

Existing literature to date tends to examine ERP and sustainability or green accounting and firm performance separately. Studies on ERP indicate that process digitization and data integration positively impact environmental performance and operational efficiency (Han & Guo, 2025; Zhang et al., 2025). Meanwhile, research on green accounting emphasizes its contribution to financial performance and corporate sustainability (D'Amore et al., 2025). However, few studies explain how ERP and green accounting are connected in shaping corporate sustainability performance. As a result, the internal mechanisms that convert technology investments into sustainability value remain largely unexplained.

Prior empirical studies have predominantly examined the relationship between ERP systems and corporate sustainability directly, emphasizing operational efficiency, transparency, and environmental reporting quality (Anaya et al., 2025; Anaya & Qutaishat, 2022; Dumitru et al., 2023). Other studies focus on green accounting as an independent determinant of sustainability performance, highlighting its role in internalizing environmental costs and improving ESG outcomes (Han & Guo, 2025; Heras-Saizarbitoria et al., 2020; Khan & Gupta, 2024). Although these studies provide valuable insights, the existing evidence remains fragmented because the internal mechanisms linking ERP-enabled environmental data to sustainability outcomes are not explicitly modeled. Consequently, it remains unclear how digital transformation through ERP systems translates into accountable, measurable corporate sustainability performance.

Unlike prior studies that treat ERP systems or green accounting as isolated drivers of sustainability performance (Anaya & Qutaishat, 2022; Dumitru et al., 2023; Khan & Gupta, 2024). This study explicitly integrates both perspectives within a single mediation framework. By positioning green accounting as an internal accounting mechanism that converts ERP-generated environmental data into economically meaningful information, this research provides a process-oriented explanation of how digital infrastructure contributes to corporate sustainability. This approach extends earlier ERP–sustainability and sustainability accounting studies by empirically demonstrating the mediating role of green accounting in translating digital transformation into sustainability outcomes.

Based on this gap, this study positions green accounting as the “missing link” bridging ERP systems and corporate sustainability. The main objective of this research is to analyze how ERP implementation affects green accounting practices and, in turn, how those practices shape corporate sustainability performance. By testing the mediating role of green

accounting, this study addresses whether and how digital transformation through ERP translates into measurable, accountable sustainability. Grounded in sustainability accounting and integrated information systems frameworks (Anaya & Qutaishat, 2022; Dumitru et al., 2023), this study offers conceptual and empirical contributions to understanding the internal architecture of corporate sustainability in the digital era.

2. Literature Review and Hypothesis Development

2.1. Resource-Based View (RBV) and Accounting–Sustainability Integration Theory

This study is grounded in two complementary theoretical perspectives: the Resource-Based View (RBV) and Accounting–Sustainability Integration Theory. The Resource-Based View argues that firms achieve sustained competitive advantage by developing and deploying valuable, rare, inimitable, and non-substitutable resources and capabilities (Barney, 1991; Kola et al., 2024; Budiarto et al., 2024). Within this framework, ERP systems represent a strategic digital infrastructure that enhances information integration and process coordination. At the same time, green accounting constitutes an organizational capability that enables firms to internalize environmental impacts into their economic decision-making processes (Melville, 2010).

Complementing the RBV, Accounting–Sustainability Integration Theory emphasizes that sustainability performance can be achieved only when environmental and social information is systematically embedded within an organization's accounting and control systems (D'Amore et al., 2025; Dumitru et al., 2023; Hahn & Kühnen, 2013). This perspective highlights that sustainability reporting, without integration into internal accounting systems, often remains symbolic and lacks relevance for decision-making. Accordingly, green accounting serves as the integrative mechanism linking operational environmental data—enabled by ERP systems—to corporate sustainability performance. By combining RBV and Accounting–Sustainability Integration Theory, this study conceptualizes corporate sustainability as an outcome of the strategic management of digital resources and accounting capabilities. ERP systems provide the foundational infrastructure for data generation, while green accounting transforms that data into accountable sustainability information, enabling firms to translate digital transformation into measurable sustainability outcomes.

2.2. Hypothesis

The integration of ERP systems has transformed how companies manage environmental data, as financial, production, and supply chain information now reside within a single, connected architecture. Through this integration, companies can more systematically trace energy consumption, raw material usage, and waste generation, which are key prerequisites for reliable green accounting practices (Han & Guo, 2025; Khan & Gupta, 2024; Zhang et al., 2025). Without ERP, environmental data are often scattered across various units and difficult to consolidate, leading to inconsistent measurement of environmental costs. This situation weakens a company's ability to assess its environmental impact economically and strategically.

Beyond data availability, ERP also reinforces standardization and transparency in environmental recording and reporting processes. Automated procedures allow companies to apply a consistent classification of environmental costs and activities across the

organization (Dumitru et al., 2023; Rodrigues et al., 2021). When environmental information is generated consistently and in a traceable manner, the quality of green accounting improves because this data can be audited and compared across periods. This makes green accounting more than just symbolic reporting; it becomes an effective control tool.

Empirical findings show that companies with higher levels of ERP integration—particularly in manufacturing and energy-intensive industries in Europe and Asia—have a greater capability to implement green accounting (Pashutan et al., 2022). El Haouat et al. (2024) find that ERP improves the traceability of environmental data, while Bisogno et al. (2025) demonstrate that a full-fledged ERP correlates with higher-quality measurement and reporting of environmental costs. These results indicate that ERP provides the structural foundation for the development of green accounting. Therefore, ERP is expected to play an important role in driving the adoption and quality of green accounting practices.

H₁: ERP systems have a positive effect on green accounting.

Green accounting enables a company to connect environmental activities to economic consequences, so that sustainability issues are integrated into the logic of business decision-making. By recognizing and measuring the costs of emissions, waste, and resource usage, a company can evaluate its environmental impact more objectively (Han & Guo, 2025; Khan & Gupta, 2024; Kirchner-Krath et al., 2024). This process makes sustainability part of the control and strategic planning system, rather than merely a reporting obligation. Green accounting encourages companies to manage environmental risks and improve resource efficiency. Environmental cost information helps managers identify areas of waste and design more targeted policies for emissions or waste reduction (Gipper et al., 2025; Heras-Saizarbitoria et al., 2020; Khan & Gupta, 2024). Furthermore, structured environmental data improves the quality of sustainability reporting and strengthens the company's relationships with stakeholders. This indicates that green accounting has a direct implication for corporate sustainability performance. Empirical evidence from manufacturing and energy companies operating in emerging economies indicates that green accounting practices enhance sustainability performance by improving environmental transparency and the quality of decision-making (Khan & Gupta, 2024; Liao et al., 2023).

From a market perspective, the quality of green accounting also contributes to a company's reputation and long-term value. Companies with reliable environmental measurement and disclosure tend to earn greater trust from investors and regulators (Antonini & Gomez-Conde, 2024; Barker, 2025; Bisogno et al., 2025). This trust reinforces the company's sustainability position and increases its resilience in the face of ESG pressures. Therefore, green accounting is expected to play an important role in shaping corporate sustainability.

H₂: Green accounting has a positive effect on corporate sustainability.

ERP influences corporate sustainability not only through reporting but also through business process improvements. System integration allows companies to coordinate production, procurement, and distribution more efficiently, thereby reducing resource waste and emissions (Anaya et al., 2025; Dumitru et al., 2023). With more controlled processes, companies have a greater chance of achieving environmental and sustainability targets. ERP enhances a company's ability to continuously monitor sustainability performance.

Integrated reports and dashboards enable management to link environmental indicators with financial and operational performance (Barker, 2025; Khan & Gupta, 2024). This information helps companies identify areas for improvement and evaluate the effectiveness of their sustainability policies. Thus, ERP serves as a strategic control tool in steering the organization toward sustainability goals.

Empirical evidence from manufacturing firms indicates that higher levels of ERP adoption are associated with superior sustainability performance. Anaya & Qutaishat (2022) and Anaya et al. (2025) find a positive relationship between ERP and environmental performance, while Dumitru et al. (2023) indicate that ERP-induced transparency enhances the quality of environmental disclosure. These findings confirm that ERP directly influences corporate sustainability by improving efficiency and information quality.

H3: ERP systems have a positive effect on corporate sustainability.

Although ERP generates rich environmental data, that data does not automatically become the basis for sustainability decisions without an accounting mechanism to process it. Green accounting provides a framework for transforming operational ERP data into economically relevant information for sustainability strategy and reporting (Han & Guo, 2025; Khan & Gupta, 2024; Mahsina et al., 2025; Zhang et al., 2025). Without this framework, the potential of ERP to support sustainability is unlikely to be fully realized. The integration of ERP and green accounting also enhances the quality and credibility of sustainability reporting. Environmental data produced by ERP, when processed through green accounting, becomes more traceable and auditable, thus increasing stakeholder trust (Dumitru et al., 2023; Fuadah et al., 2022; Soana, 2024).

Numerous studies show that companies combining digital systems with environmental accounting practices achieve better sustainability outcomes. Previous studies on manufacturing firms and publicly listed companies find that measuring environmental costs integrated with enterprise information systems significantly contributes to sustainability performance (Heras-Saizarbitoria et al., 2020; Khan & Gupta, 2024), while Dumitru et al. (2023) and Anaya & Qutaishat (2022) show that ERP strengthens this effect through improved data quality. Although these studies were conducted in different institutional and industrial contexts, they consistently highlight the role of accounting-based mechanisms in translating digital systems into sustainability outcomes, thereby supporting the relevance of the proposed mediation framework in this study. Thus, green accounting serves as the mediating mechanism that explains how ERP translates into corporate sustainability.

H4: Green accounting mediates the effect of ERP systems on corporate sustainability.

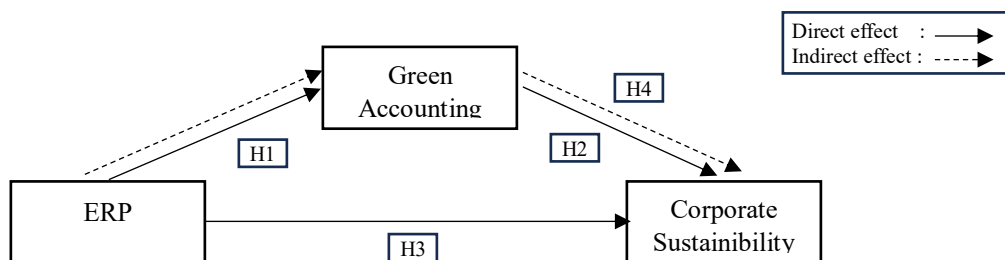


Figure 1. Green accounting mediation model (Dumitru et al., 2023; Khan & Gupta, 2024).

3. Method

This study uses an explanatory quantitative approach to examine the causal relationships among ERP Systems, Green Accounting, and Corporate Sustainability within a single mediating model framework. This design is appropriate because the relationships among digital systems, environmental accounting, and sustainability are simultaneous and cannot be fully explained by simple regression alone (Dumitru et al., 2023; Uddin et al., 2026; Zhang et al., 2025). Green accounting is positioned as the mechanism that explains how ERP capabilities are translated into measurable sustainability performance (Anaya et al., 2025; Anaya & Qutaishat, 2022; Khan & Gupta, 2024; Pashutan et al., 2022). The population of this study comprises 219 medium- and large-sized companies in Banten Province and the Special Capital Region of Jakarta that have implemented ERP systems and engage in sustainability- or ESG-related reporting practices. These firms operate mainly in manufacturing, energy, infrastructure, and service sectors, where integrated information systems and environmental accounting are more likely to be institutionalized due to regulatory and stakeholder pressures (Anaya & Qutaishat, 2022; Dumitru et al., 2023).

Purposive sampling was employed to select information-rich respondents with sufficient experience in ERP implementation and green accounting practices. The sampling criteria included: (1) a minimum of three years of ERP system usage, (2) the existence of formal environmental or sustainability accounting practices, and (3) involvement in sustainability or ESG disclosure processes. This sampling approach is consistent with prior ERP and sustainability accounting studies that emphasize contextual relevance and respondent expertise over random selection (Abdelhalim et al., 2023; Akrong et al., 2021; Cao et al., 2025). Based on these criteria, 137 valid responses were obtained from finance, IT, and sustainability managers. This sample size satisfies the recommended requirements for PLS-SEM analysis and provides adequate statistical power for mediation testing (Guenther et al., 2023; Hair et al., 2019).

ERP Systems are measured by the level of data integration, process automation, and built-in environmental reporting capabilities of the company's system (Anaya et al., 2025; Anaya & Qutaishat, 2022; Dumitru et al., 2023). Green Accounting reflects the extent to which environmental costs, risks, and impacts are internalized in the accounting system, including environmental cost accounting and carbon accounting (Ahlvik & Bijgaart, 2024; Han & Guo, 2025; Khan & Gupta, 2024). Corporate Sustainability is measured by environmental performance, resource efficiency, and the quality of ESG disclosures as proxies (Barker, 2025; Hahn & Kühnen, 2013; Holden et al., 2025; Mahsina et al., 2025). The research instrument was designed to capture the three main constructs — ERP Systems, Green Accounting, and Corporate Sustainability — as reflective latent variables. Each indicator represents a manifestation of the same underlying conceptual construct, such that changes in the construct are reflected across all its indicators. This reflective approach is consistent with measurement practices in information systems and in sustainability accounting research, as reflected in SEM-PLS (Guenther et al., 2023; Hair et al., 2019; Sarstedt et al., 2020).

These indicators reflect ERP's role as both an integrated data infrastructure and a sustainability control instrument, as emphasized in the ERP and sustainability reporting literature (Anaya et al., 2025; Anaya & Qutaishat, 2022; Dumitru et al., 2023). Green

accounting functions as a mechanism for internalizing environmental impacts into the firm’s economic system, in line with contemporary approaches to environmental accounting (Ahlvik & Bijgaart, 2024; Han & Guo, 2025; Khan & Gupta, 2024). Corporate sustainability is conceptualized through ESG-based performance and environmental outcomes, as commonly adopted in the sustainability reporting and strategic management literature (Barker, 2025; Hahn & Kühnen, 2013; Holden et al., 2025; Mahsina et al., 2025)

Table 1. Research instrument

| Construct | Indicator | Instrument |
|---|---------------------------------------|---|
| ERP Systems (Anaya et al., 2025; Anaya & Qutaishat, 2022; Dumitru et al., 2023). | Data Integration | 1. Our ERP system integrates financial, operational, and environmental data into a single platform. |
| | Process Automation | 2. Recording of environmental activities and transactions is automated through the ERP. |
| | Accuracy and Traceability | 3. ERP provides accurate and traceable environmental data. |
| | Reporting Support | 4. The ERP system facilitates the preparation of environmental and sustainability reports. |
| Green Accounting (Ahlvik & van den Bijgaart, 2024; Gipper et al., 2025; Han & Guo, 2025; Khan & Gupta, 2024). | Environmental Cost Measurement | 1. Our company systematically measures the costs arising from environmental impacts. |
| | Carbon Accounting | 2. Carbon emissions are recorded and monitored within the company's accounting system. |
| | Integration with Financial Accounting | 3. Environmental information is integrated with internal financial reports. |
| Corporate Sustainability (Barker, 2025; Hahn & Kühnen, 2013; Holden et al., 2025; Mahsina et al., 2025). | Resource Efficiency | 1. Our company systematically measures the costs arising from environmental impacts. |
| | Reduction of Environmental Impact | 2. Carbon emissions are recorded and monitored within the company's accounting system. |
| | Sustainability Transparency | 3. Environmental information is integrated with internal financial reports. |
| | Long-term Orientation | 4. Our company systematically measures the costs arising from environmental impacts. |

Data were collected using a 5-point Likert questionnaire addressed to finance, IT, and sustainability managers. The items were developed based on constructs validated in ERP and sustainability accounting research (Anaya et al., 2025; Dumitru et al., 2023; Hahn & Kühnen, 2013). The survey approach enables standardized measurement across organizations and is well-suited to ERP–sustainability studies grounded in managerial perceptions and practices (Bisogno et al., 2025; D’Amore et al., 2025; Khan & Gupta, 2024). The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) because the model is predictive, involves latent constructs, and tests mediation relationships (Dash & Paul, 2021; Guenther et al., 2023; Hair et al., 2019). PLS-SEM is more appropriate than covariance-based SEM (CB-SEM) for information systems and sustainability research that involves complex structural models and non-normal data distributions (Henseler et al., 2015; Sarstedt et al., 2020).

The measurement model was evaluated through factor loadings, average variance extracted (AVE), composite reliability, and discriminant validity. In contrast, the structural model was evaluated using path coefficients, R², and Q² to assess the strength and predictive relevance of relationships among variables (Guenther et al., 2023; Hair et al., 2019; Sarstedt et al., 2020). The mediating effect of Green Accounting was tested using bootstrapped indirect effects in PLS-SEM, which is methodologically consistent with the mediation approach developed by Hayes (2018) and Hayes & Rockwood (2017). This method allows

identification of whether ERP influences Corporate Sustainability directly or through the environmental accounting mechanism. This approach is highly relevant because the transformation of ERP data into sustainability performance depends on the quality of green accounting, which serves as the primary linking mechanism (Khan & Gupta, 2024; Sarstedt et al., 2020).

4. Results and Discussion

Data were collected from 137 respondents representing companies that have implemented ERP systems. This sample size meets the PLS-SEM minimum requirement based on the 10-times rule and power analysis for a model with one endogenous construct and one mediator (Guenther et al., 2023; Hair et al., 2019).

Table 2. Demographic Characteristics of Respondents

| Respondent | Number of participants | Percentage |
|--|-------------------------------|-------------------|
| Position | | |
| Finance/Treasury Manager | 44 | 32% |
| Accounting Manager | 51 | 37% |
| IT Manager | 29 | 21% |
| ESG Manager | 13 | 9% |
| Total | 137 | 100% |
| Industry Sector | | |
| Chemical Manufacturing | 9 | 7% |
| Furniture Manufacturing | 4 | 3% |
| Pulp and Paper Manufacturing | 2 | 1% |
| Basic Metal Manufacturing | 3 | 2% |
| Food and Beverage Manufacturing | 37 | 27% |
| Textile Manufacturing | 6 | 4% |
| Printing and Reproduction Industry | 3 | 2% |
| Rubber and Plastics Manufacturing | 11 | 8% |
| Electrical and Electronics Manufacturing | 5 | 4% |
| Animal Feed Manufacturing | 6 | 4% |
| Electric Power Generation and Distribution | 2 | 1% |
| Industrial Estate | 4 | 3% |
| Construction and Property Development | 26 | 19% |
| Healthcare Services | 4 | 3% |
| Financial Services | 15 | 11% |
| Total | 137 | 100% |

Table 3. Summarizes the descriptive statistics

| Construct | Mean | Std. Dev. | Minimum | Maximum |
|--------------------------|-------------|------------------|----------------|----------------|
| ERP Systems | 4.021 | 0.613 | 2.400 | 5.000 |
| Green Accounting | 3.781 | 0.654 | 2.200 | 5.000 |
| Corporate Sustainability | 3.912 | 0.582 | 2.500 | 5.000 |

The respondent distribution reflects key managerial roles directly involved in ERP implementation, financial control, and sustainability management, particularly within environmentally intensive industries. This alignment strengthens the empirical examination of green accounting as the operational mechanism linking ERP systems to corporate sustainability performance across diverse organizational contexts.

The highest mean value is for ERP Systems, indicating that the respondent companies have achieved a relatively mature level of system digitalization. However, the lower mean value for Green Accounting compared to ERP suggests that although the digital infrastructure is in place, the internalization of environmental information into the accounting system is not yet fully optimized. This pattern is consistent with findings that many companies adopt ERP systems faster than they can convert digital data into meaningful sustainability information (Anaya & Qutaishat, 2022; Dumitru et al., 2023). The relatively high mean for Corporate Sustainability suggests that ESG pressures have driven companies, yet their internal mechanisms remain only partially integrated through environmental accounting (Bisogno et al., 2025; Cao et al., 2025; D’Amore et al., 2025).

Table 4. Presents the outer loadings

| Construct | Indicator | Loading |
|--------------------------|------------------|----------------|
| ERP Systems | ERP1 | 0.812 |
| | ERP2 | 0.845 |
| | ERP3 | 0.793 |
| | ERP4 | 0.828 |
| Green Accounting | GA1 | 0.876 |
| | GA2 | 0.843 |
| | GA3 | 0.818 |
| Corporate Sustainability | CS1 | 0.856 |
| | CS2 | 0.834 |
| | CS3 | 0.801 |
| | CS4 | 0.834 |

All indicators load strongly on their respective constructs, with values above 0.70 (Hair et al., 2019). The high loading strength on the Green Accounting construct emphasizes that the dimensions of environmental cost measurement, emission reporting, and sustainability information integration have been conceptually structured in ways consistent with the development of modern sustainability accounting frameworks (Anaya et al., 2025; Barker, 2025; Han & Guo, 2025).

Table 5. Presents construct reliability measures

| Construct | Cronbach’s Alpha | Composite Reliability | AVE |
|--------------------------|-------------------------|------------------------------|------------|
| ERP Systems | 0.861 | 0.903 | 0.692 |
| Green Accounting | 0.824 | 0.891 | 0.731 |
| Corporate Sustainability | 0.883 | 0.918 | 0.711 |

Table 6. Heterotrait-Monotrait Ratio (HTMT)

| Construct | ERP Systems | Green Accounting | Corporate Sustainability |
|------------------|--------------------|-------------------------|---------------------------------|
| ERPS | – | | |
| GA | 0.792 | – | |
| CS | 0.741 | 0.814 | – |

The highest AVE is for Green Accounting, indicating that this construct has very strong measurement quality. Overall, each construct’s AVE exceeds 0.50 (Hair et al., 2019), reinforcing its role as a key mechanism linking ERP to sustainability. This aligns with the

view that environmental accounting is a bridge between operational data and strategic sustainability performance (Anaya & Qutaishat, 2022; Khan & Gupta, 2024; Mahsina et al., 2025).

All values of the heterotrait-monotrait ratio are below 0.90 (Dash & Paul, 2021; Hair et al., 2019). Green Accounting emerges as a construct that is empirically distinct from ERP Systems and Corporate Sustainability, confirming the conceptual argument that digital systems, accounting systems, and sustainability performance are related but not identical entities (Ahlvik & Bijgaart, 2024; Anaya & Qutaishat, 2022; Hahn & Kühnen, 2013; Han & Guo, 2025).

Table 7. Presents the power and predictive relevance

| Endogen Construct | R ² | Q ² |
|--------------------------|----------------|----------------|
| Green Accounting | 0.520 | 0.381 |
| Corporate Sustainability | 0.640 | 0.462 |

The R² values show that ERP Systems explain 52.0% of the variance in Green Accounting, while the combination of ERP Systems and Green Accounting explains 64.0% of the variance in Corporate Sustainability. The high and positive Q² values indicate that the model has strong predictive power, consistent with methodological recommendations (Dash & Paul, 2021; Hair et al., 2019; Sarstedt et al., 2020).

Table 8. Direct and Mediation Hypothesis Testing

| Path | β | t-statistic | p-value | Results |
|---------------|---------|-------------|---------|------------------------------------|
| ERP → GA | 0.720 | 11.842 | 0.004** | H ₁ : Accepted |
| GA → CS | 0.531 | 7.962 | 0.011** | H ₂ : Accepted |
| ERP → CS | 0.289 | 3.742 | 0.017** | H ₃ : Accepted |
| ERP → GA → CS | 0.382 | 6.521 | 0.013** | H ₄ : Partial mediation |

** Sig. < 5%

All structural paths are significant at the 5% level ($p < 0.05$). The ERP → Green Accounting path has the highest coefficient ($\beta = 0.720$), confirming that the ERP system serves as the primary digital infrastructure for measuring and reporting environmental costs (Anaya et al., 2025; Dumitru et al., 2023; Pashutan et al., 2022). The Green Accounting → Corporate Sustainability path is also strong and significant ($\beta = 0.531$), indicating that the internalization of environmental costs and impacts in the accounting system is a key mechanism for enhancing sustainability performance (Barker, 2025; Han & Guo, 2025; Mahsina et al., 2025). The direct ERP → Corporate Sustainability path remains significant ($\beta = 0.289$), suggesting that ERP also improves sustainability through transparency and process integration, although the effect is smaller compared to the indirect effect.

The indirect effect ERP → Green Accounting → Corporate Sustainability is significant ($\beta = 0.382$; $p < 0.05$), indicating that much of ERP's impact on sustainability operates through strengthening the green accounting system. Since the direct ERP → Corporate Sustainability path is also significant, Green Accounting functions as a partial mediator. These findings confirm that ERP technology yields optimal sustainability value only when combined with an accounting system that internalizes environmental impacts into economic decision-making (Dumitru et al., 2023; Hayes, 2018; Sarstedt et al., 2020).

The empirical findings provide strong support for both the Resource-Based View (RBV) and Accounting–Sustainability Integration Theory. From an RBV perspective, the significant influence of ERP systems on green accounting and corporate sustainability indicates that ERP functions as a strategic digital resource that enhances firms' information-processing and coordination capabilities (Anaya & Qutaishat, 2022; Dumitru et al., 2023). When combined with green accounting practices, ERP evolves into a higher-order organizational capability that enables firms to internalize environmental impacts and generate sustainability-related value, consistent with RBV's emphasis on the strategic integration of complementary resources (Anaya et al., 2025; Melville, 2010).

From the perspective of the Accounting–Sustainability Integration Theory, the results demonstrate that sustainability performance improves when environmental information generated by ERP systems is systematically embedded in accounting and control processes. The significant mediating role of green accounting confirms that digital systems alone are insufficient to drive substantive sustainability outcomes unless environmental data are translated into economically relevant accounting information (D'Amore et al., 2025; Dumitru et al., 2023; Hahn & Kühnen, 2013). This integrated explanation clarifies why the direct effect of ERP on sustainability remains significant but weaker than the indirect effect through green accounting, thereby reinforcing the observed partial mediation (Hayes, 2018; Sarstedt et al., 2020).

The finding that ERP has a strong effect on Green Accounting confirms that an integrated digital system is the primary foundation for transforming modern environmental accounting. ERP enables cross-functional data collection that was previously fragmented—such as energy consumption, emissions, and waste—so that it can be monetized and recorded systematically (Anaya & Qutaishat, 2022; Dumitru et al., 2023; Han & Guo, 2025). This result is consistent with the view that information technology is not just an operational tool but a strategic infrastructure that allows organizations to build measurable sustainability capabilities. In this context, ERP serves as a strategic resource within the Resource-Based View framework, enhancing a company's capability to manage environmental impacts (Anaya & Qutaishat, 2022; Dumitru et al., 2023; Pashutan et al., 2022).

The strong relationship between ERP and Green Accounting also shows that the success of environmental accounting heavily depends on the quality of the company's digital architecture. Companies with integrated ERP modules can convert environmental data into economically relevant information for strategic decision-making, as demonstrated by Dumitru et al. (2023) across industries. This explains why many sustainability initiatives fail in companies with fragmented information systems. In other words, digitalization without accounting integration only produces symbolic reporting, not substantive managerial behavior change (Han & Guo, 2025; Khan & Gupta, 2024; Kirchner-Krath et al., 2024).

The strong effect of Green Accounting on Corporate Sustainability shows that a company's sustainability depends on the internalization of environmental costs and risks into a formal accounting system. When carbon emissions, energy consumption, and waste are recorded as actual costs, companies are driven to increase efficiency, pursue process innovation, and invest in clean technology (Ahlvik & Bijgaart, 2024; Han & Guo, 2025; Khan & Gupta, 2024). This finding aligns with the Corporate Sustainability Framework, which emphasizes that sustainability must be embedded in the performance measurement

system, not just in external reports (Barker, 2025; Hahn & Kühnen, 2013; Holden et al., 2025).

The direct relationship of ERP to Corporate Sustainability remains significant—although weaker than the mediated path—indicates that digitalization also has a direct effect on sustainability performance through improved operational efficiency and transparency. ERP helps companies reduce resource waste and increase supply chain visibility, thereby lowering environmental impact (Anaya et al., 2025; Barker, 2025; Dumitru et al., 2023). However, the smaller coefficient relative to the path through Green Accounting indicates that digital efficiency alone is insufficient without an underlying transformation of the accounting system (Dumitru et al., 2023; Khan & Gupta, 2024; Mahsina et al., 2025).

The partial mediation effect of green accounting clarifies its critical role as the “missing link” between ERP systems and corporate sustainability. Statistically, partial mediation occurs when both the direct effect of ERP on sustainability and the indirect effect through green accounting are significant, indicating that the mediator transmits part—but not all—of the causal influence (Hair et al., 2019; Hayes, 2018). This finding explains why prior ERP–sustainability studies reported weaker or inconsistent direct effects, as many of them did not incorporate environmental accounting as the mechanism that transforms digital information into sustainability value (Anaya et al., 2025; Cao et al., 2025; Dumitru et al., 2023). By explicitly modeling green accounting as a mediator, this study demonstrates that ERP-generated environmental data must be embedded within accounting and control systems to produce tangible ESG outcomes. Accordingly, sustainability performance emerges not merely from technology adoption, but from the integration of digital systems with environmental accounting practices that translate information into economically and strategically meaningful actions (Dumitru et al., 2023; Khan & Gupta, 2024; Liao et al., 2023; Uddin et al., 2026; Zhang et al., 2025).

Practically, these findings suggest that ERP investments should not be treated merely as IT projects but as sustainability transformation projects. Companies need to ensure that their ERP modules are directly linked to environmental cost measurement systems, carbon reporting, and sustainability dashboards so that operational data truly influences strategic decisions (Abdelhalim et al., 2023; Anaya et al., 2025; Dumitru et al., 2023). Without this integration, companies risk having advanced digital systems but still failing to achieve ESG targets, as has been widely criticized in the modern sustainability accounting literature (Ahlvik & van den Bijgaart, 2024; Bisogno et al., 2025; Soana, 2024).

From a policy perspective, these results support the need for regulations that encourage integration of digital systems and sustainability reporting. Sustainability accounting standards and ESG reporting will be more effective when linked to the mandatory use of integrated information systems, thereby ensuring that transparency and accountability are truly realized in companies’ internal practices (Barker, 2025; Fuadah et al., 2022; Holden et al., 2025). This also reinforces the argument that corporate sustainability must be supported by credible digital infrastructure and accounting to be trusted by capital markets and stakeholders (Hahn & Kühnen, 2013; Holden et al., 2025; Uddin et al., 2026).

Theoretically, this study makes a significant contribution by integrating the Resource-Based View and the Accounting–Sustainability Integration Theory into a single empirical model that explains the interrelationships among technology, accounting, and sustainability.

By positioning Green Accounting as a mediating mechanism, this study goes beyond the technology-driven or reporting-driven approaches that dominate the prior literature (Anaya & Qutaishat, 2022; Gipper et al., 2025; Khan & Gupta, 2024). This contribution not only enriches the theoretical understanding of sustainability accounting but also offers practical solutions for companies and regulators to address the longstanding gap between digitalization and ESG performance (Barker, 2025; Holden et al., 2025; Mahsina et al., 2025).

5. Conclusion

This study demonstrates that ERP, Green Accounting, and Corporate Sustainability exhibit a strong, integrated causal relationship. All hypotheses are supported at the 5% significance level. ERP has a positive and significant effect on Green Accounting, indicating that an integrated information system is a key prerequisite for accounting-based measurement and management of environmental performance (Anaya et al., 2025; Dumitru et al., 2023). Green Accounting also has a significant effect on Corporate Sustainability, confirming that internalizing environmental costs and impacts drives improvements in a company's economic, social, and environmental performance (Han & Guo, 2025; Khan & Gupta, 2024). The direct effect of ERP on Corporate Sustainability remains significant but smaller than the indirect effect via Green Accounting, indicating a partial mediating role for Green Accounting.

Theoretically, these findings reinforce the Resource-Based View and Accounting–Sustainability Integration Theory by showing that ERP and environmental accounting practices serve as strategic capabilities that enable companies to convert operational data into sustainability value (Anaya et al., 2025). In practice, companies need to ensure that ERP implementation is linked to environmental accounting modules so that digitalization truly yields transparency, efficiency, and sustainability performance. For regulators, the results support the need for policies that encourage integration between corporate information systems and sustainability reporting standards (Barker, 2025). The limitations of this study lie in the use of single-period, single-context data and potential respondent perception bias. Future research is recommended to use a longitudinal design, cross-industry or cross-country contexts, and to include governance and regulatory pressure variables (Dumitru et al., 2023), as strong governance enhances strategic oversight and accountability, while regulatory pressure compels compliance, and to deepen understanding of the role of ERP and Green Accounting in shaping corporate sustainability.

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