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Exploring the Impact of Digital Transformation on the Nexus between Financial Reporting Relevance and Sustainable Development Performance

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Abstract

In today's rapidly evolving digital economy, small and medium-sized enterprises (SMEs) face increasing challenges in aligning financial transparency with sustainability goals, particularly under resource constraints. While prior studies have examined financial reporting quality or digital transformation separately, the combined effect of financial reporting relevance (FRR) and digital transformation (DT) on sustainable development performance (SDP) remains underexplored, especially in emerging markets.

This study extends the Resource-Based View (RBV) by conceptualizing FRR as a strategic resource and enriches the Technology – Organization – Environment (TOE) framework by demonstrating how information quality interacts with technological and institutional conditions. Using survey data from 400 Chinese SME managers and a structural equation model with bootstrapped mediation tests, we find that FRR significantly improves SDP both directly and indirectly through DT, confirming DT's role as a partial mediator that translates decision-useful information into sustainability practices.

Empirically, the Chinese context provides a counterpoint to EU/OECD settings with mature disclosure regimes, highlighting how policy incentives and uneven digital readiness shape transformation pathways. Practically, SMEs can enhance sustainability by integrating FRR with ERP, AI, and analytics tools, while policymakers should combine financial reporting reforms with digital capacity-building programs.

Overall, this study clarifies how and under which institutional conditions FRR and DT jointly drive sustainability, advancing theory and offering actionable insights for SME competitiveness in the digital era.

Keywords: *sustainable development performance; digital transformation; financial reporting relevance; second-order structural equation model; small and medium-sized enterprises (SMEs); corporate sustainability*

JEL Classification: Q01, G32, M15, O33, L25, M41

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1 INTRODUCTION

In recent years, the global economy has undergone profound transformations, largely driven by the disruptions caused by the COVID-19 pandemic. These disruptions affected international trade and supply chains, prompting a reassessment of economic priorities and business strategies across both public and private sectors(Min, 2022). Small and medium-sized enterprises (SMEs), which constitute a critical component of many national economies, were particularly vulnerable. They confronted declining demand, operational interruptions, and the urgent need to adapt to rapidly changing conditions (Cagri Gurbuz et al., 2023). At the same

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time, the pandemic accelerated the adoption of digital technologies and remote work practices, reshaping the business environment and creating new pathways for innovation and sustainable growth.

The integration of digital technologies has played a pivotal role in ensuring business continuity, strengthening organizational resilience, and driving innovation. Empirical research highlights that SMEs derive considerable advantages from adopting digital tools, which enable them to respond more effectively to shifting market dynamics and to maintain operations amid periods of uncertainty (Belitski et al., 2022). Embracing IT solutions and agile strategic approaches has become essential for firms navigating economic turbulence, reflecting a broader movement toward sustainable digital transformation (Alam et al., 2025). However, to fully leverage the benefits of technological advancement, SMEs must also prioritize accurate and context-specific financial reporting. Comprehensive and transparent reports are indispensable not only for informed strategic decision-making but also for reinforcing accountability and aligning business performance with broader environmental and social objectives.

While Lombardi and Secundo (2021)have offered valuable insights into the link between financial reporting quality and corporate sustainability, and have also examined the benefits of digital transformation as a separate domain(Lombardi & Secundo, 2021), the combined effect of digital transformation on the relationship between financial reporting relevance and sustainable development — particularly in the context of SMEs — remains insufficiently explored (Lombardi & Secundo, 2021). Much of the existing literature tends to treat these dimensions in isolation, often overlooking the ways in which digital transformation may shape or enhance the connection between accurate financial reporting and sustainability outcomes (Seele, 2016). This oversight is especially significant given that SMEs typically operate under tighter resource constraints, which makes the strategic integration of financial data and digital technologies not only beneficial but increasingly indispensable for achieving effective sustainability management.

To bridge this research gap, the study adopts two complementary theoretical perspectives: the Resource-Based View (RBV) and the Technology–Organization–Environment (TOE) framework. From the RBV standpoint, internal resources—such as reliable and decision-useful financial reporting—can be mobilized as strategic assets that enhance competitiveness and long-term value creation(Srivastava et al., 2001). In contrast, the TOE framework provides a broader lens, highlighting how technological infrastructure, organizational readiness, and external environmental forces jointly shape SMEs' capacity to adopt and effectively implement digital innovations(Wang et al., 2025). Together, these perspectives establish a strong conceptual foundation for analyzing how financial reporting relevance interacts with digital transformation to influence sustainability outcomes.

High-quality and decision-useful financial reporting plays a critical role in supporting strategic choices, improving transparency, and ensuring that SMEs' activities are aligned with environmental and social objectives (Perera et al., 2023). Addressing the research gap, this study empirically investigates how the relevance of financial reporting contributes to sustainability performance in SMEs, with a particular focus on the mediating function of digital transformation. By examining how digital technologies convert reliable financial information into actionable sustainability practices, the study provides new insights into the dynamic interplay between these elements.

Chinese SMEs were chosen as the focal context for several reasons. First, the rapid expansion of China's digital economy positions SMEs at the forefront of digital adoption, creating a rich setting for exploring the combined effects of financial reporting and digital innovation (Guo et

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al., 2024). Second, SMEs in China encounter specific structural challenges, including scarce resources, technological limitations, and managerial capacity constraints, which make the integration of financial information and digital tools especially critical(H. Li et al., 2023). Third, the strong policy orientation of the Chinese government toward digitalization and sustainability provides a timely and relevant background for this investigation (Geng et al., 2023). Although the study is situated in China, the findings offer broader implications for SMEs in other emerging digital economies, where similar transformations are unfolding.

Chinese SMEs operate in institutional, technological, and policy settings that differ substantially from those found in more developed economies. In the European Union, for example, SMEs benefit from relatively mature digital ecosystems, strong regulatory frameworks for sustainability reporting, and well-established financial disclosure practices, which collectively facilitate the integration of digital transformation and sustainability strategies (Burtscher et al., 2025). Similarly, in high-income OECD countries, SMEs often have greater access to financing, advanced infrastructure, and industry-specific digital support programs, enabling smoother adoption of digital solutions. In contrast, SMEs in China—while supported by ambitious national digitalization and green development agendas—face more pronounced resource constraints, uneven regional digital infrastructure, and varying levels of managerial digital literacy. These differences underscore the importance of contextualized research, as findings from developed countries may not be directly transferable to emerging economies. This study therefore offers a perspective that complements the existing international literature by examining how SMEs in a developing economy can leverage financial reporting relevance to drive digital transformation and achieve sustainability goals despite these constraints.

SMEs are the focus of this study because of their unique operational and structural characteristics compared with large corporations. Unlike large firms, SMEs often face financial, technological, and human resource constraints, which limit their ability to adopt advanced digital systems or formal sustainability programs (Omrani et al., 2024). At the same time, their inherent flexibility, entrepreneurial orientation, and faster decision-making processes allow them to adapt more quickly to digital and regulatory change.

SMEs are also central to national economies, especially in emerging markets like China, where they contribute substantially to employment, innovation, and GDP(W. Li et al., 2022). Their smaller scale and resource limitations make them more exposed to external pressures such as environmental regulation and technological disruption (Leonidou et al., 2017). For this reason, strategically combining relevant financial reporting with digital transformation becomes critical for ensuring their long-term viability(Lombardi & Secundo, 2021). Understanding how SMEs can leverage financial information to drive digital adoption therefore provides important insights into how resource-constrained firms can advance sustainability goals.

Drawing on survey data from 400 Chinese SME managers and employing a second-order structural equation model, this research provides empirical support for the hypothesized relationships and delivers practical guidance for SMEs navigating the digital era. The results highlight the essential role of financial reporting in promoting digital innovation and sustainability, advancing both theoretical perspectives and managerial practice.

Beyond assessing sustainability outcomes, this study shows how the integration of financial reporting with digital transformation strengthens SMEs' competitive positioning. Aligning digital technologies with transparent financial data helps firms streamline operations, stimulate innovation, and respond effectively to market fluctuations—capabilities that are critical for maintaining competitiveness in today's volatile economy. As digital capabilities increasingly

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define business success, SMEs that align sustainability strategies with strong financial reporting and advanced technologies are better placed to achieve and sustain a competitive advantage.
In this way, the study not only addresses a research gap at the intersection of digitalization, financial transparency, and sustainable development but also offers actionable implications for strengthening SME resilience. These findings are particularly valuable for managers and policymakers seeking to enhance SME competitiveness in the context of global economic, environmental, and digital transitions.

2 THEORETICAL BACKGROUND

2.1 Sustainable Development Performance

Sustainable development, as defined by the Brundtland Commission, involves meeting the needs of the present without limiting the ability of future generations to meet their own. In the Chinese context, this principle is frequently operationalized through pilot zones, where efforts are made to integrate environmental protection, economic growth, and social welfare in a localized and coordinated manner(J. Li et al., 2021). This model reflects an effort to bridge global sustainability ideals with region-specific implementation strategies, allowing for more contextually grounded evaluations.
A widely accepted framework for assessing sustainable development is the Triple Bottom Line (TBL), which incorporates economic, environmental, and social dimensions into performance measurement. The economic component includes metrics such as profitability, financial stability, and business growth. The environmental aspect addresses responsibilities like reducing pollution and conserving natural resources. The social dimension considers how firms engage with employees and communities, often through labor practices, workplace conditions, and broader social involvement. For SMEs, applying the TBL framework presents a number of challenges. Many operate with limited financial means, a shortage of technological capability, and insufficient human capital (García-Quevedo et al., 2020). Yet, these very constraints make the framework especially useful. TBL can serve as a practical guide that helps SMEs prioritize and distribute their limited resources more strategically across multiple sustainability objectives. By doing so, SMEs can gradually improve their long-term sustainability outlook while also reinforcing their competitive positioning in the marketplace (Carayannis et al., 2025).

A range of established frameworks and tools guide sustainability evaluation, including the Global Reporting Initiative (GRI), the United Nations'Sustainable Development Goals (SDGs), the Triple Bottom Line (TBL), the Supply Chain Operations Reference (SCOR) model, and sector-specific systems such as LEED certification and the Higg Index. In this study, economic performance is assessed using approaches derived from the Value Chain and SCOR models, environmental performance is measured through practices of Green Supply Chain Management (GSCM) (Han & Huo, 2020), and social performance is evaluated with reference to TBL, GRI, and SDG indicators(de Giovanni, 2012). Within SMEs, GSCM provides a practical means of embedding sustainability into supply chain operations despite financial and technological constraints. Adoption of such practices enables SMEs to enhance efficiency, lower environmental footprints, and strengthen supply chain transparency, thereby supporting their sustainability transitions.

To strengthen the theoretical basis for evaluating SMEs' sustainability, this study draws upon Stakeholder Theory. This perspective emphasizes the necessity of balancing the interests of all major stakeholders, including employees, customers, investors, regulators, and local communities. From this viewpoint, sustainable development is not simply a business objective but also a matter of corporate accountability. When SMEs align their strategies with stakeholder

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expectations, they are more likely to pursue sustainable initiatives and to report transparently through financial disclosures and environmental, social, and governance (ESG) reporting.

2.2 Digital Transformation

The definition of digital transformation provided by C. Gong and V. Ribiere (2021) is notably comprehensive, describing it as a deep integration of digital technologies and capabilities into the strategic, operational, and cultural frameworks of companies, which fundamentally changes their business operations and value creation models (Gong & Ribiere, 2021). Further widening the term in a corporate context, M. Shehadeh, H. Alshurafat and O. Arabiat (2024) stress the general operations and performance indicators within a company with the more delicate results on the gender impact dynamics (Shehadeh et al., 2024). Viewed in summation, these definitions do provide a multilateral view of the concept of digital transformation, with its sweeping impact upon virtually all areas of human activity and the ability to change the patterns of conducting business and day-to-day life.

In particular, recent advances in artificial intelligence (AI), blockchain, big data analytics, and cloud computing have become central to promoting digital transformation in SMEs(Khan et al., 2023). AI applications support process automation, provide predictive insights for managerial decisions, and improve the efficiency of resource allocation. Blockchain enhances transaction reliability and transparency, while big data analytics allows SMEs to extract patterns from complex information flows(Khan et al., 2023). Cloud-based platforms further lower entry barriers by offering scalable and affordable digital infrastructures. Together, these technologies reshape how SMEs manage information, make strategic choices, and align digitalization with sustainability goals (Omrani et al., 2024). Big data analytics empowers SMEs to extract meaningful insights from large datasets, improving strategic decisions, forecasting capabilities, and operational efficiencies. Meanwhile, cloud computing ensures SMEs have affordable, scalable, and flexible access to advanced digital solutions, reducing barriers to digital transformation and sustainability initiatives.

2.3 Financial Reporting Relevance

Financial reporting relevance is characterized by the degree to which financial information aids users in making informed economic decisions regarding resource allocation, significantly influencing decisions significantly (Nobes & Stadler, 2015). The value relevance of financial reporting varies globally, influenced by the financial system orientation (bank-oriented vs. market-oriented), private sector participation in standard setting, and tax regulations. Countries with lower auditing spending and those following the Continental accounting model typically exhibit lower value relevance (Omran & Tahat , 2020). The adoption of IFRS has enhanced the value relevance of accounting information, particularly in countries fully implementing these standards, indicating a trend towards globally consistent and transparent financial reporting, thus improving decision-making usefulness (Nijam & Jahfer, 2018).

2.4 Previous Research on Digital Transformation and Sustainable Development Performance

New business models demand flexibility and readiness for further changes in the post-pandemic world. Xu et al. (2023) explored how digital transformation affects eco-innovation and sustainable performance, finding that digital strategies positively impact corporate environmental responsibility and sustainability(Xu et al., 2023). Sun et al. (2024) further showed that digital transformation enhances both corporate green initiatives and CSR performance(Sun et al., 2024). These studies collectively indicate that digital transformation

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significantly improves corporate sustainability performance. However, some scholars identify challenges. Marx (2022) emphasized understanding context-specific cause-and-effect relationships and overcoming adaptation barriers to align digital transformation with sustainability goals(Marx, 2022). Their research provides a balanced view of the potential and limitations of digital transformation in promoting sustainability. Following the prior discussion, this study proposes the following hypotheses:

H1: There is a positive relationship exists between digital transformation and sustainable development performance.

2.5 Previous Research on Financial Reporting Relevance and Sustainable Development Performance

Integrating financial and non-financial information through frameworks like integrated reporting enhances sustainable energy performance and stakeholder understanding of a company's environmental impact (Mantri & Mishra, 2023). Research consistently shows that sustainability reporting positively influences financial performance, particularly in sectors like mining and energy, where detailed environmental and social disclosures correlate with improved outcomes (Crous et al., 2022). In developing economies, voluntary sustainability reporting is associated with improved financial performance, demonstrating the effectiveness of transparency in sustainability practices (Liou et al., 2023). The credibility and ethical dimensions of sustainability reporting also significantly impact the perceived quality of financial reporting (Martínez-Ferrero et al., 2015). Building on the prior discussion, this study puts forward the following hypotheses:

H2: There is a positive influence of financial reporting relevance on sustainable development performance.

2.6 Previous Research on Financial Reporting Relevance and Digital Transformation

While financial reporting relevance is critical in strategic decision-making, its role in driving digital transformation within SMEs is underexplored. Research by Chanias et al. (2019) has focused on how digital transformation enhances financial operations, improving strategy implementation and data access (Chanias et al., 2019). However, the influence of financial reporting relevance on digital transformation efforts remains a significant gap(Lombardi & Secundo, 2021).

According to the Technology-Organization-Environment (TOE) framework, organizational factors such as information quality play a critical role in influencing the adoption of digital technologies. Financial reporting relevance, as a component of accounting information quality, provides decision-useful, timely, and forward-looking data that reduces uncertainty and supports innovation(Georgiou et al., 2021).

In the context of SMEs, which typically face greater constraints in resources and technical expertise, the availability of relevant and strategic financial insights can act as a driver for digital initiatives (Omrani et al., 2024). Firms with higher levels of financial reporting relevance are more likely to recognize the potential value of digital systems and justify the investment in technological upgrades(W. Chen & Srinivasan, 2024). Moreover, digital transformation requires internal alignment and justification. Reliable and decision-relevant financial data strengthen internal support for digital investment, facilitates effective communication across departments, and enables greater responsiveness to market shifts, particularly in volatile environments.

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This study proposes that comprehensive financial reporting relevance could significantly impact the adoption and effectiveness of digital technologies in SMEs. The research aims to show that precise financial reporting does more than comply with regulations; it acts as a strategic catalyst for digital innovation, enhancing operational efficiencies and adapting to rapid technological advances, so we can make the following assumption:

H3: There is a positive relationship between the financial reporting relevance and digital transformation.

2.7 The Mediating Role of Digital Transformation

This study addresses the mediating role of digital transformation in the relationship between financial reporting relevance and sustainable development performance in SMEs. Although this connection is crucial, it is not well documented in existing literature (Aghazadeh et al., 2024). This study proposes that digital transformation can convert financial reporting data into actionable insights, significantly enhancing sustainability practices. Digital transformation acts as an intermediary in this relationship through several mechanisms. First, the adoption of digital tools strengthens SMEs' ability to process and interpret financial data with greater accuracy, enabling managers to make more informed strategic choices (Garzoni et al., 2020). Second, digital platforms improve the communication of financial information both inside and outside the firm, fostering accountability and supporting higher-quality decisions. Third, when financial insights are combined with digital capabilities, SMEs can introduce innovative practices that improve resource utilization, mitigate environmental impacts, and enhance operational efficiency (Bos-Brouwers, 2010). Finally, digital transformation allows firms to track sustainability indicators in real time, adjust strategies more flexibly, and align operations with long-term sustainable development objectives (Nayal et al., 2022).

This mediating role is crucial because it converts financial information from a strategic input into measurable sustainability outcomes. Pizzi et al. (2022) suggest that digital technologies embedded in financial reporting can strengthen decision-making and advance sustainability goals, the underlying mechanisms remain insufficiently specified (Pizzi et al., 2022). This research addresses that gap by examining how digital transformation channels the relevance of financial reporting into improved sustainability performance within SMEs, leading to the following hypothesis:

H4: There is a mediating impact of digital transformation in the relationship between financial reporting relevance and sustainable development performance.

3 RESEARCH OBJECTIVE, METHODOLOGY AND DATA

3.1 Research Objectives

This study seeks to examine how the relevance of financial reporting, when combined with digital transformation, shapes the sustainability performance of SMEs. The specific objectives are as follows:

Research Objective 1 (RO1): To evaluate the extent to which the relevance of financial reporting influences the adoption and effectiveness of digital transformation in SMEs.

Research Objective 2 (RO2): To investigate the mediating role of digital transformation in the relationship between financial reporting relevance and sustainable development performance in SMEs.

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Research Objective 3 (RO3): To identify and analyze the practical implications for SMEs that leverage the relevance of financial reporting to enhance digital transformation initiatives and achieve sustainable outcomes.

3.2 Study Design

This study adopts a cross-sectional survey design to examine how the relevance of financial reporting influences digital transformation and, in turn, sustainable development performance among Chinese SMEs. A cross-sectional approach is particularly appropriate for capturing organizational practices at a specific point in time, enabling the measurement of interrelationships without interference from temporal dynamics. Bernard(1987) has highlighted that cross-sectional surveys are useful in generating timely insights and reflecting prevailing market conditions within a defined period(Bernard, 1987).

Before distributing the main questionnaire, a pre-test was conducted with 20 doctoral experts specializing in sustainability to evaluate the instrument's clarity, scope, structure, and scaling. Feedback from this pilot confirmed that 75% of participants found the questionnaire length suitable, 75% considered all items clear, and 100% agreed on the appropriateness of the scaling. Furthermore, 80% endorsed the electronic survey design, and 90% reported an average completion time of 10–15 minutes. These results suggested the survey was well-constructed and required no major revisions before full implementation.

The methodological approach is consistent with prior sustainability studies that relied on survey-based cross-sectional data to investigate organizational practices and managerial perceptions(Galli et al., 2024; Malesios et al., 2020). In particular, such surveys capture the perceptions and behaviors of managers, offering insights that archival data cannot provide. This supports the validity of using cross-sectional survey data in examining how financial reporting relevance and digital transformation interact to influence SMEs' sustainability outcomes.

3.3 Sampling and Data Collection

This study employed a convenience sampling approach to obtain data from senior executives of Chinese SMEs. The method was chosen because it allows timely access to a diverse set of perspectives on financial reporting relevance, digital transformation, and sustainability performance, thereby providing a snapshot of practices in a rapidly changing business environment.

Data collection was conducted in January 2024 through the Wenjuanxing platform (www.wjx.cn), a widely used online survey tool in China. The survey was distributed to executives across multiple industries, including CEOs, operations managers, and financial managers. A total of 510 questionnaires were issued, and 458 responses were received, representing a response rate of 89.8%. After validation, 400 responses were deemed suitable for analysis, resulting in a 95.7% usability rate.

To ensure data quality, several validation steps were applied. Only fully completed questionnaires were included, and all responses were checked for logical consistency. This approach reflects established best practices in survey research, where rigorous screening enhances reliability and minimizes potential biases. Although the study employed a convenience sampling strategy, the relatively high response and validation rates indicate strong respondent engagement and reduce the risk of non-response bias. Rather than implying statistical representativeness, these rates strengthen confidence in the internal consistency and overall quality of the dataset, which is particularly important when examining SMEs operating across diverse industries and regional contexts.

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3.4 Measurement

This study applies a quantitative research design based on a structured questionnaire, which was divided into two major sections. The first section gathered demographic information from respondents, including gender, age(Barba Navaretti et al., 2022), educational background, regional economic location, and years of professional experience. Collecting this information enabled a comprehensive profiling of respondents and allowed these variables to be included as control factors in subsequent analyses.

The second section of the questionnaire employs a 7-point Likert scale that ranges from 1 (Strongly Disagree) to 7 (Strongly Agree), excluding financial reporting relevance, to evaluate attitudes and perceptions in three key areas of study. The first area, Digital Transformation, consists of five items that assess the scope of digitalization initiatives, including the extent to which organizations aim to digitalize all operational aspects, collect large amounts of data from diverse sources, strengthen networking between business processes using digital technologies, enhance customer interfaces for better user engagement, and achieve efficient information exchange through digital means (Nasiri et al., 2020).

The second area, Sustainable Development Performance, is divided into three dimensions. Economic Performance is evaluated through three items adapted from Vickery et al. (2003), concentrating on the company's growth in profit, return on investment, and return on sales compared to major industry competitors(Vickery et al., 2003). Specifically, respondents rated the extent to which their company's profit growth, return on investment growth, and return on sales growth are better compared to key industry competitors. Environmental Performance is assessed through six items adopted from Han and Huo (2020). These items examine efforts to reduce air emissions, wastewater, solid waste, and hazardous material usage, as well as efforts to decrease energy consumption and the frequency of environmental accidents. Respondents were asked to evaluate how effectively their companies address each of these environmental concerns(Han & Huo, 2020). Social Performance includes five items based on de Giovanni (2012), aimed at evaluating company initiatives that prioritize employees' health and safety, provide incentives for local employment, contribute to community economic development, improve community health and safety, and minimize the negative impacts of company products, services, and activities on the local community (de Giovanni, 2012).

The rationale for combining these economic, environmental, and social dimensions into a single second-order construct is derived from the Triple Bottom Line (TBL) theoretical framework, emphasizing the interconnectedness and mutual reinforcement among these sustainability dimensions. A second-order construct approach was adopted to capture a comprehensive perception of sustainable performance within SMEs, consistent with the integrative perspective of this study.

Financial reporting relevance (FRR) was measured using four items adapted from established financial reporting research (Opferkuch et al., 2021). First, respondents evaluated the extent to which forward-looking statements in financial reports assist in forming accurate expectations and predictions about future performance. Second, they assessed how effectively non-financial disclosures, such as business risks and opportunities, complement financial information to support stakeholders' decision-making. Third, respondents rated the degree to which their firms adopt fair value accounting instead of relying solely on historical cost methods. Finally, they evaluated the comprehensiveness of financial reporting feedback provided to annual report users, specifically regarding how major transactions and market events affect the company.

3.5 Data Analysis

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Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SPSS 26.0 and SmartPLS 4. PLS-SEM was selected due to its suitability for studies with fewer distributional assumptions and relatively small sample sizes[1]. This method is widely recognized for its ability to combine explanatory analysis with predictive accuracy, making it a robust approach for deriving practical managerial insights (Shmueli et al., 2019).

In the structural model, financial reporting relevance (FRR) and digital transformation (DT) were modeled as first-order reflective constructs, while sustainable development performance (SDP) was specified as a second-order reflective construct in line with the Triple Bottom Line (TBL) framework. This higher-order construct, integrating economic, environmental, and social dimensions, allows for a more comprehensive evaluation of sustainability outcomes.

To ensure precise estimation of these complex relationships, the disjoint two-stage approach was employed (Sarstedt et al., 2019). This technique enhances the robustness of both measurement and structural models by improving parameter accuracy in higher-order constructs. Furthermore, the methodological validity of this second-order modeling strategy is verified in the subsequent chapter using Bayesian Information Criterion (BIC) comparisons. The BIC test demonstrates that the second-order specification provides a superior fit compared to traditional first-order models, thereby confirming the methodological rigor and theoretical alignment of this study.

3.6 Ethical Considerations

This study strictly followed the ethical standards outlined by the Ethics Committees of the institutions affiliated with the first and second authors, ensuring integrity throughout the research process. Prior to participation, all respondents were provided with clear information regarding the study's objectives and procedures, and their informed consent was obtained. Participants were also assured that their responses would remain confidential and their identities fully anonymous.

All data were stored securely on password-protected systems, with access restricted exclusively to the research team. The collected information was used solely for academic purposes within this project and was not disclosed to any external parties. These procedures align with established international research ethics principles, thereby safeguarding participant rights and ensuring the credibility of the study's findings.

4 RESULTS AND DISCUSSION

4.1 Demographics

This section outlines the demographic characteristics of the respondents, which are crucial for understanding how managerial profiles and regional conditions may shape SMEs' approaches to digital transformation and sustainability. Appendix 1 provides a detailed summary. The sample is predominantly male (56.25%) and mature, with the majority aged between 35 and 64 years old, suggesting extensive experience and potentially conservative business practices. Educational attainment is relatively high, with most respondents holding at least a bachelor's degree and many possessing postgraduate qualifications. Such backgrounds enhance their

[1]To examine the potential influence of common-methods bias (CMB), Harman's single-factor test was performed. The analysis showed that the first unrotated factor explained less than 50% of the total variance, indicating that common-method variance is unlikely to substantially affect the results. Furthermore, several procedural remedies were implemented during questionnaire design and data collection, including assuring respondent anonymity and reducing evaluation apprehension, to mitigate potential common-method bias.

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capacity to evaluate new technologies and sustainability initiatives, supporting effective adoption of digital transformation strategies.

The regional classifications follow the official division of the National Bureau of Statistics of China (NBS), which groups provinces by economic development levels and administrative boundaries. While this framework provides clarity in geographic diversity, it is important to note that the data were collected through non-probabilistic convenience sampling. Although SMEs from manufacturing, services, and construction are included, the sample is not proportionally stratified by industry, which may limit broader representativeness. This limitation is consistent with prior SME research that has used survey-based methods to capture managerial perceptions of sustainability and digitalization.

Geographically, the sample is skewed towards the Eastern Region, including Jiangsu, Zhejiang, and Guangdong, which benefit from advanced infrastructure and stronger policy support. This may explain their more proactive stance toward sustainability, compared with SMEs in Central (25.25%) and Western (24.75%) regions, which face greater barriers in accessing digital technologies (Gaies et al., 2023).Compared to OECD and EU contexts, where institutional support and infrastructure are more evenly distributed, Chinese SMEs exhibit sharper regional disparities. Similar patterns are also noted in ASEAN, where digital readiness varies widely across member states.

Finally, many respondents reported over 15 years of industry experience, offering valuable perspectives on the evolution of financial reporting, sustainability, and digital integration. Taken together, these demographic features underscore the interplay of education, experience, and regional context in shaping SME strategies for sustainable development in an increasingly digital economy.

4.2 Descriptives

Appendix 2 summarizes the descriptive statistics of the Likert-scale items, which reveal slight deviations from normality and thereby justify the use of the PLS-SEM approach for subsequent analysis.

The measures of central tendency indicate that respondents generally hold favorable views of financial reporting relevance, digital transformation, and sustainable development performance. The mean values for these constructs—4.13 for Relevance, 4.26 for Digital Transformation, and 4.43 for Sustainable Development Performance—are all above the neutral midpoint of 3.5 on the seven-point scale. The medians (4.25, 4.20, and 4.50, respectively) are very close to the means, suggesting that the responses are symmetrically distributed around the center for each construct. This alignment reinforces the interpretation that the majority of respondents evaluate these dimensions positively.

The dispersion measures offer further insight into variability among responses. Standard deviations of 1.40, 1.45, and 1.23 for Relevance, Digital Transformation, and Sustainable Development Performance, respectively, indicate moderate variation across participants, with slightly greater inconsistency observed in the digital transformation dimension. Variance values of 1.97, 2.09, and 1.52 confirm this pattern, providing a quantitative estimate of the average squared deviation from the mean. Moreover, the ranges of 6.00, 5.60, and 5.36 highlight the spread of responses, with Relevance showing the widest distribution, reflecting notable differences in perceptions among SME executives.

The distribution patterns of financial reporting relevance, digital transformation, and sustainable development performance are reflected in their skewness and kurtosis values. Relevance, with a skewness of 0.0218, is approximately symmetric, indicating a balanced

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distribution. Digital transformation has a slight positive skewness of 0.214, indicating a longer right tail. Conversely, sustainable development performance, with a skewness of -0.341, shows a slight negative skew and a longer left tail. All three variables are platykurtic (Relevance: -0.136, digital transformation: -0.31, sustainable development performance: -0.504), suggesting relatively flat distributions with fewer extreme outliers than a normal distribution. This combination of skewness and kurtosis helps characterize the overall data structure and aids in predicting data behavior, including identifying outliers and forecasting data patterns.

To assess the normality of the data, this study employed the Shapiro – Wilk test, which evaluates how far the observed distribution deviates from a theoretical normal curve and determines significance levels for accepting or rejecting the null hypothesis of normality. Results reported in Appendix 2 indicate that none of the three variables—financial reporting relevance, digital transformation, and sustainable development performance—satisfy the normality assumption.

Given this non-normal distribution, the application of Partial Least Squares Structural Equation Modeling (PLS-SEM) is appropriate. Unlike covariance-based SEM, PLS-SEM does not require normally distributed data and is particularly suitable for exploratory research involving complex models or moderate sample sizes. As Hair et al. (2019) emphasize in A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), the method is robust to departures from normality and has been widely adopted in management and social sciences where such conditions frequently occur. This makes PLS-SEM especially valuable for analyzing multidimensional constructs in contexts such as financial reporting, digital transformation, and sustainability(Hair et al., 2019).

4.3 Measurement Model

The measurement model was assessed to ensure construct validity and internal consistency, focusing on the relationships between indicators and their corresponding latent constructs(Hair et al., 2019). Appendix 3 reports the results on reliability and convergent validity.

All reflective indicators showed outer loadings above the recommended threshold of 0.708, indicating that each item captured more than 50% of its variance through the associated construct. This demonstrates adequate item reliability. Cronbach's Alpha values for all constructs exceeded 0.7, supporting internal consistency(Hair et al., 2019). Similarly, Rhô's A (ρA), which is less biased under conditions of non-tau-equivalence, was also above 0.7, and Composite Reliability (ρC) surpassed the 0.6 criterion, further confirming robustness in construct reliability. Together, these indicators provide strong evidence that the constructs are measured reliably, offering a sound basis for subsequent SEM analysis.

Convergent validity was evaluated using the Average Variance Extracted (AVE), with all constructs exceeding the 0.50 threshold, indicating that each captured sufficient variance relative to measurement error*(Hair et al., 2019)*. Discriminant validity was assessed through the Heterotrait-Monotrait (HTMT) ratio, as presented in Appendix 4. Constructs in this study—financial reporting relevance, digital transformation (DT), economic performance (SDPEC), environmental performance (SDPEN), social performance (SDPS), and the second-order construct of sustainable development performance—show HTMT values well below 0.85.

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Following Henseler et al. (2015), this confirms that the constructs are empirically distinct and represent different theoretical domains (Henseler et al., 2015).

All first-order constructs display very good discriminant validity in their comparisons with the HTMT criterion. That is, "Relevance" shows HTMT values ranging from 0.310 with Economic Performance to 0.572 with Social Performance; clearly, it is different from other constructs. Meanwhile, "Digital Transformation (DT)" records HTMT values ranging from 0.528 with Environmental Performance to 0.637 with Social Performance, confirming its distinctiveness from other dimensions in the study. "Economic Performance" has HTMT ratios of 0.614 with Environmental Performance and 0.583 with Social Performance, further highlighting its unique measurement attributes. Lastly, "Environmental Performance" and "Social Performance" report an HTMT value of 0.607, reinforcing the discriminant validity between these constructs. These values, all well below the threshold of 0.85, confirm that each first-order construct captures unique aspects of the theoretical framework without significant overlap, thereby validating the structural integrity of the model within the SEM approach.

Sustainable Development Performance, the second-order construct, demonstrates HTMT values of 0.607 with Relevance and 0.756 with Digital Transformation. Although these values are under 0.85, they are relatively higher compared to most first-order construct comparisons, indicating a closer relationship but still maintaining adequate discriminant validity.

4.4 Collinearity

Before assessing the structural relationship, it is crucial to examine collinearity to confirm that it does not affect the regression results. VIF values above 5.0 may indicate the presence of covariance between predicted components, while values close to 3.0 or below 3.0 are desirable*(Hair et al., 2019)*. After calculation using SmartPLS 4, all the outer VIF values below 5.0 and inner VIF values around 1.0, this study exhibits no issues with collinearity, affirming the integrity of the regression results.

4.5 Structural Model

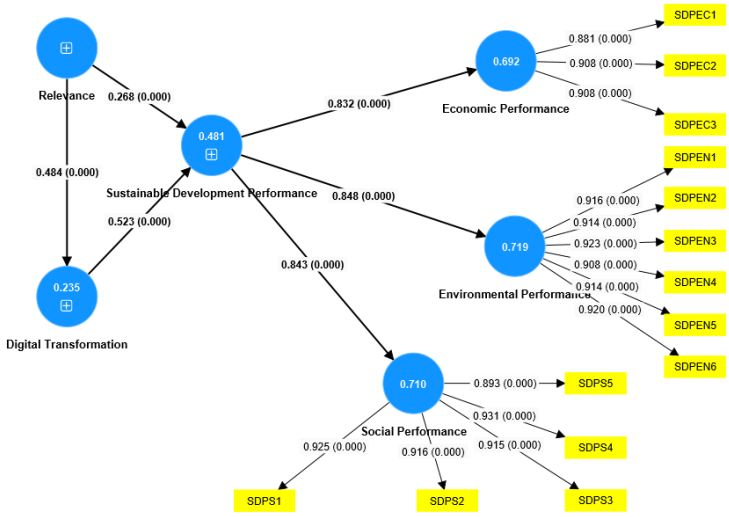

Fig. 1-Structural Model. Source: own research

The structural model delineates the causal relationships between latent variables. Sarstedt (2019) assessed the efficacy of various metrics for model comparison. Their findings indicate that both

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the Bayesian Information Criterion (BIC) and the Geweke and Meese (GM) criterion are effective in identifying models that not only fit the data well but also demonstrate strong predictive accuracy (Sarstedt et al., 2019). If the analysis shows that models incorporating higher-order constructs yield lower BIC values than those without, researchers should consider incorporating these constructs into their model specifications (Sarstedt et al., 2019). As demonstrated in Appendix 5, second-order models generally offer an optimal balance between complexity and model fit, as evidenced by the lower (more negative) BIC values.

Appendix 6 displays the R^2 and adjusted R^2 values for the endogenous constructs within a structural equation model. The model's explanatory power is typically evaluated by analyzing its variance, represented by the R^2 metric. Standards for R^2 values are established at 0.75, 0.50, and 0.25 to represent strong, moderate, and weak explanatory power, respectively*(Hair et al., 2019)*.

The R^2 value for Digital Transformation stands at 0.235, with an adjusted R^2 of 0.233, explaining approximately 23.5% of its variance through the model predictors, suggesting limited explanatory power. In contrast, Economic Performance demonstrates a robust model fit with an R^2 of 0.692 and an adjusted R^2 of 0.691, accounting for about 69.2% of its variance. Environmental Performance shows even stronger model effectiveness with both R^2 and adjusted R^2 values at 0.719, indicating that 71.9% of the variance is captured by the model. Social Performance also reflects high explanatory power with an R^2 of 0.710 and an adjusted R^2 of 0.709, explaining 71.0% of the variance. Sustainable Development Performance presents an R^2 of 0.481 and an adjusted R^2 of 0.478, thereby explaining nearly 48.1% of its variance.

The relatively low explanatory power (R^2 value of 0.235) observed for Digital Transformation within the structural equation model may indicate that the model's predictors do not fully capture the variance inherent in digital transformation efforts. Given the multidimensional nature of digital transformation, which involves technological, organizational, and environmental factors, lower explanatory power is not uncommon in empirical research examining complex organizational phenomena (Hanelt et al., 2021). Overall, the R^2 values obtained in this study indicate acceptable explanatory power for the primary outcome constructs.

Building on this understanding, we further evaluated the contribution of each predictor through F-square (f^2) effect size calculations, which measure the relative influence of independent variables within the model. According to conventional benchmarks, f^2 values above 0.02, 0.15, and 0.35 correspond to small, medium, and large effects, respectively(Fey et al., 2023). This step provides a more nuanced assessment of predictor importance, complementing the overall explanatory power reflected by R^2.

Appendix 7 outlines the F-square (f^2) values for specific pathways in a structural equation model, detailing the influence of certain variables on their corresponding endogenous constructs. The pathway from Digital Transformation to Sustainable Development Performance demonstrates a substantial effect with an f^2 value of 0.403, indicating a significant influence. The effect of Relevance on Digital Transformation is also notable, marked by an f^2 value of 0.307, suggesting a moderate influence. Meanwhile, Relevance's impact on Sustainable Development Performance, though smaller, remains noticeable with an f^2 value of 0.106. Because of dimensions, Sustainable Development Performance exerts a very strong influence on Economic, Environmental, and Social Performance, as evidenced by f^2 values of 2.246, 2.564, and 2.447 respectively.

The moderate F-square (f^2) value of 0.307 suggests that Relevance significantly influences Digital Transformation within the model's structure, indicating its crucial role as a predictor. This effect size is particularly notable despite the relatively low R-squared (R^2) value of 0.235.

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While the R^2 value suggests that Relevance does not explain most of the variance in Digital Transformation, the f^2 value highlights that changes in Relevance still have a meaningful impact. This suggests that financial reporting relevance plays a significant role in shaping Digital Transformation initiatives.

In the structural equation model, the path coefficients for the first-order constructs show strong and statistically significant relationships. Specifically, the path from Relevance to Digital Transformation is quantified with a coefficient of 0.484, demonstrating a substantial influence, as reflected by a T statistic of 12.186 and a P value of 0.000. The structural paths from Sustainable Development Performance (SDP) to its three sub-dimensions — Economic Performance, Environmental Performance, and Social Performance—are both statistically and substantively strong. The standardized path coefficients of 0.832, 0.848, and 0.843, respectively, coupled with T-values of 50.833, 59.218, and 55.906 (all at $p < 0.001$), indicate a highly significant relationship. These results suggest that the higher-order construct of SDP exerts a consistently robust influence across the economic, environmental, and social domains. This evidence reinforces the integrative validity of the Triple Bottom Line (TBL) framework, demonstrating that improvements in overall sustainability are simultaneously reflected in financial outcomes, ecological responsibility, and social contributions. In turn, the findings highlight the central role of sustainability-oriented strategies in shaping comprehensive organizational performance.

With respect to the second-order constructs, both pathways demonstrate statistical significance, though their relative strengths differ. The link between Digital Transformation (DT) and Sustainable Development Performance (SDP) yields a path coefficient of 0.523, supported by a T-value of 13.494 and $p < 0.001$, indicating a strong positive effect. By contrast, the pathway from Financial Reporting Relevance (FRR) to SDP, while also significant, is comparatively weaker, with a coefficient of 0.268, a T-value of 5.795, and $p < 0.001$. These results suggest that although both predictors contribute to sustainability outcomes, the effect of DT is more substantial.

This divergence in influence can be explained by their underlying mechanisms. Digital transformation directly shapes operational efficiency, resource allocation, and innovation in business models, making it an immediate driver of sustainability outcomes. Firms adopting digital tools benefit from advanced analytics, automation, and real-time monitoring, enabling them to implement sustainability strategies more effectively. Conversely, the role of financial reporting relevance is more indirect. While reliable reporting improves transparency and supports informed decision-making, its contribution to sustainability depends on complementary mechanisms such as policy implementation, regulatory compliance, and governance practices, which mediate the translation of financial insights into tangible performance improvements.

Moreover, firms that achieve higher levels of digital maturity are more likely to embed sustainability considerations into their digital strategies, which explains the comparatively stronger effect of digital transformation on sustainable outcomes. Prior research confirms that digitalization enhances organizational agility, adaptability, and evidence-based decision-making, positioning it as a critical enabler of sustainability initiatives. These findings emphasize the importance of not viewing financial reporting relevance and digital transformation as substitutes but as complementary drivers. Only when transparent financial information is effectively combined with advanced digital capabilities can SMEs fully translate strategic insights into long-term sustainability performance.

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Tab. 1- Path coefficients. Source: own research

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
First-order					
Relevance -> Digital Transformation	0.484	0.485	0.040	12.186	0.000
Sustainable Development Performance -> Economic Performance	0.832	0.832	0.016	50.833	0.000
Sustainable Development Performance -> Environmental Performance	0.848	0.848	0.014	59.218	0.000
Sustainable Development Performance ->Social Performance	0.843	0.842	0.015	55.906	0.000
Second-order					
Digital Transformation -> Sustainable Development Performance	0.523	0.523	0.039	13.494	0.000
Relevance-> Sustainable Development Performance	0.268	0.268	0.046	5.795	0.000

4.6 Mediating Effect

The mediation analysis confirms a robust indirect effect, with the original sample path coefficient (O) of 0.252 closely aligning with the sample mean (M = 0.253), suggesting high stability of the estimate. The low standard deviation (STDEV = 0.029) further indicates consistency across bootstrap samples. Moreover, the T statistic of 8.555 and a P value of 0.000 provide strong evidence that the mediating pathway is statistically significant, reinforcing the reliability of digital transformation as a mediator between financial reporting relevance and sustainable development performance. This mediating effect indicates that Digital Transformation serves as a significant conduit through which Relevance impacts Sustainable Development Performance. To further validate the significance of the mediation effect, bootstrapping with 5,000 resamples was employed using a bias-corrected percentile confidence interval approach, following Hayes (2018). This method ensures the robustness of our findings by providing confidence intervals that do not rely on normality assumptions in the indirect effect distribution. The bootstrapped confidence interval did not include zero, confirming the significance of the mediating effect of Digital Transformation.

In summary, according to data analyze, all research hypotheses were supported.

5 DISCUSSION

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This study provides empirical evidence that the relevance of financial reporting significantly drives digital transformation in SMEs, which in turn enhances sustainable development performance. These results align with prior research conducted in developed economies, where high-quality sustainability and financial disclosure regimes and mature digital ecosystems facilitate technology adoption and strategy execution (e.g., the EU's CSRD/ESRS framework that standardizes sustainability reporting, and OECD evidence on SME digitalization policy support) (Sivaiah & Vinodan, 2025). In the European Union, the "twin transition" literature further documents how SMEs integrate digital and green objectives under supportive institutions and infrastructure (Burtscher et al., 2025). However, the magnitude and mechanisms observed in the Chinese context appear distinct: strong policy incentives, rapid—though regionally uneven—digital infrastructure expansion, and a more centralized regulatory environment may amplify the mediating role of digital transformation relative to more decentralized economies(Y. Chen et al., 2021).

When compared with other developing regions, such as ASEAN and parts of Latin America, Chinese SMEs may benefit from more active state-led agendas and faster infrastructure rollout; by contrast, SMEs operating where institutional capacity and digital readiness are weaker face greater hurdles in translating financial reporting relevance into actionable sustainability initiatives. Recent ASEAN benchmarking shows uneven but improving SME digitalization and sustainability policies across member states, while LAC assessments highlight progress alongside persistent digital capability gaps (Alekhina & Ganelli, 2023). These cross-regional patterns suggest that while the positive FRR–DT–SDP links are broadly consistent internationally, their strength and practical realization are context-dependent. Complementary studies also propose roadmaps and frameworks to help SMEs operationalize "sustainable digital transformation," reinforcing our interpretation that capability building is pivotal to convert decision-useful information into sustainability outcomes (Alajmi, 2026).

Consistent with prior studies that employed survey data to capture managerial perceptions in SMEs (Galli et al., 2024; Malesios et al., 2020), our findings further demonstrate that cross-sectional questionnaires remain a valid method for uncovering sustainability-related decision-making processes. By reflecting how executives perceive the value of financial reporting and digital tools, surveys provide unique insights into organizational behavior that cannot be easily derived from archival data alone. This methodological approach complements the cross-country comparisons by showing how subjective managerial assessments interact with structural conditions such as policy incentives and infrastructure quality.

From a theoretical perspective, these findings extend both the Resource-Based View (RBV) and the Technology–Organization–Environment (TOE) framework. Within the RBV, the study confirms that accurate and timely financial information constitutes a strategic resource that can be transformed into sustainability-oriented capabilities through digital means. Within the TOE framework, the results illustrate how technological capacity (digital infrastructure), organizational readiness (financial literacy and governance), and environmental pressures (regulatory and stakeholder expectations) jointly condition the effectiveness of this transformation. The Chinese case thereby offers a useful counterpoint to evidence from EU/OECD settings—where mandatory disclosure regimes and stable access to finance are more established—and to developing-country landscapes where policy and capability gaps persist, underscoring the need for comparative research across diverse institutional environments (Burtscher et al., 2025).

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6 CONCLUSION

This study empirically demonstrates that financial reporting relevance significantly drives digital transformation, which in turn enhances sustainable development performance (SDP) in SMEs. The mediating role of digital transformation is confirmed, highlighting its pivotal function in converting accurate and decision-useful financial information into concrete sustainability outcomes. Drawing on the Resource-Based View (RBV) and Technology–Organization–Environment (TOE) framework, our findings underscore that financial reporting relevance serves as a strategic asset that, when coupled with digital capabilities, strengthens SME competitiveness and resilience in dynamic markets.

Our findings resonate with international evidence. In the European Union, SMEs that advance in both digital and green transitions benefit from harmonized regulatory frameworks and institutional support, enabling more seamless integration of sustainability objectives into digital adoption (Burtscher et al., 2025). Similarly, the OECD highlights that digitalization is critical for SME resilience and sustainability, particularly in navigating supply chain disruptions and energy constraints. However, unlike in these developed economies where mature institutions and infrastructure provide stability, China's policy-driven and rapidly evolving digital ecosystem appears to amplify the speed and impact of the transformation. This suggests that while the underlying mechanisms are globally relevant, the magnitude and pace of these effects are context-specific.

Several limitations of this research deserve acknowledgment. First, Although cross-sectional surveys are widely adopted in sustainability research on SMEs (Galli et al., 2024), we acknowledge their limitations in capturing long-term dynamics. Future research could therefore employ longitudinal or mixed-method approaches to strengthen causal inferences. Second, the convenience sampling strategy, despite capturing diversity across industries, may constrain generalizability; probability-based sampling in future research could improve external validity. Third, while this study employed a second-order construct for sustainability, separate examination of these dimensions may uncover more nuanced mechanisms. Finally, the study does not differentiate sector-level effects, which could be particularly pronounced in industries like manufacturing and services, where digital readiness and sustainability pressures vary significantly.

Despite these limitations, our findings carry clear implications. Policymakers should consider designing integrated support programs that simultaneously strengthen financial reporting standards and digital capacity building to enable SMEs to align competitive strategies with sustainability goals. SME leaders should recognize that digital transformation, informed by robust financial reporting, can serve not only operations and efficiency, but also as a strategic catalyst for achieving environmental and social objectives. Whether in China or elsewhere, SMEs that effectively align financial transparency with digital innovation are better positioned to thrive in an increasingly digital and sustainability-oriented global market. Moreover, by situating the Chinese case within a broader international perspective, this study contributes to global scholarship on SME sustainability and highlights avenues for future comparative and longitudinal research that can deepen theoretical development and extend contextual generalizability.

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Appendix 1: Respondents' Demographic Profile. Source: own research

Demographics	Frequency	Percentage
Gender		
Male	225	56.25 %
Female	175	43.75 %
Age Category		
<25	3	0.75%
25-34	26	6.50%
35-44	100	25.00%
45-54	106	26.50%
55-64	110	27.50%
65-74	50	12.50%
>=75	5	1.25%
Education Classification		
College and below	28	7.00%
Undergraduate	176	44.00 %
Master's Degree	121	30.25 %
PhD	75	18.75 %
District		
Eastern Region	162	40.50 %
Central Region	101	25.25 %
Western Region	99	24.75 %
Northeast Region	38	9.50 %
Working years		
Less than 5 years (inclusive)	18	4.50%
5-10 years (including 10 years)	39	9.75%
10-15 years (inclusive)	64	16.00%
15-20 years (including 20 years)	78	19.50%
20-25 years (including 25 years)	82	20.50%
25-30 years (including 30 years)	68	17.00%
More than 30 years	51	12.75%

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Appendix 2: Descriptives. Source: own research

Descriptives	Relevance	Digital Transformation	Sustainable Development Performance
N	400	400	400
Missing	0	0	0
Mean	4.13	4.26	4.43
Std. error mean	0.0702	0.0723	0.0617
Median	4.25	4.2	4.5
Standard deviation	1.4	1.45	1.23
Variance	1.97	2.09	1.52
Range	6	5.6	5.36
Minimum	1	1.4	1.5
Maximum	7	7	6.86
Skewness	0.0218	0.214	-0.341
Std. error skewness	0.122	0.122	0.122
Kurtosis	-0.136	-0.31	-0.504
Std. error kurtosis	0.243	0.243	0.243
Shapiro-Wilk W	0.962	0.952	0.972
Shapiro-Wilk p	< .001	< .001	< .001
25th percentile	3.5	3.4	3.79
50th percentile	4.25	4.2	4.5
75th percentile	5	4.8	5.29

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Appendix 3: Evaluation of construct reliability and convergent validity. Source: own research

Reflective Constructs	Items	Outer Loadings	Cronbach's Alpha	ρA	ρC	AVE
First-order						
Financial Reporting Relevance			0.917	0.924	0.941	0.801
	R1	0.872				
	R2	0.889				
	R3	0.919				
	R4	0.898				
Digital Transformation			0.935	0.937	0.951	0.795
	DT1	0.905				
	DT2	0.896				
	DT3	0.892				
	DT4	0.909				
	DT5	0.854				
Economic Performance			0.882	0.884	0.927	0.808
	SDPEC1	0.881				
	SDPEC2	0.908				
	SDPEC3	0.908				
Environmental Performance			0.962	0.962	0.969	0.839
	SDPEN1	0.916				
	SDPEN2	0.914				
	SDPEN3	0.923				
	SDPEN4	0.908				
	SDPEN5	0.914				
	SDPEN6	0.920				
Social Performance			0.952	0.952	0.963	0.839
	SDPS1	0.925				
	SDPS2	0.916				
	SDPS3	0.915				
	SDPS4	0.931				
	SDPS5	0.893				
Second-order						
Sustainable Development Performance			0.793	0.793	0.879	0.707
Economic Performance		0.831				
Environmental Performance		0.848				
Social Performance		0.842				

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Appendix 4: Evaluation of Discriminant Validity using the HTMT Criterion. Source: own research

Constructs/Dimensions	Relevance	Digital Transfomation	Sustainable Development Performance		
			SDPEC	SDPEN	SDPS
First-order					
Relevance		0.518	0.532	0.310	0.572
Digital Transfomation			0.593	0.528	0.637
SDPEC				0.614	0.583
SDPEN					0.607
SDPS					
Second-order					
Sustainable Development Performance	0.607	0.756			

Appendix 5: Model Selection Criteria (BIC). Source: own research

First-order		Second-order	
Digital Transformation	-95.977	Digital Transformation	-95.936
Economic Performance	-460.01	Economic Performance	-126.960
Environmental Performance	-497.389	Environmental Performance	-101.720
Social Performance	-484.053	Social Performance	-214.596
Sustainable Development Performance	-245.228		

Appendix 6: The R^2 values of the Endogenous Construct. Source: own research

	R-square	R-square adjusted
Digital Transformation	0.235	0.233
Economic Performance	0.692	0.691
Environmental Performance	0.719	0.719
Social Performance	0.710	0.709
Sustainable Development Performance	0.481	0.478

Appendix 7: The f^2 values of the Endogenous construct. Source: own research

	f-square
Digital Transformation -> Sustainable Development Performance	0.403
Relevance -> Digital Transformation	0.307
Relevance -> Sustainable Development Performance	0.106
Sustainable Development Performance -> Economic Performance	2.246
Sustainable Development Performance -> Environmental Performance	2.564
Sustainable Development Performance -> Social Performance	2.447

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