

A SYSTEMATIC REVIEW OF GRC TRANSFORMATION IN SMEs: FROM COMPLIANCE BURDEN TO SUSTAINABILITY CAPABILITY

Michelle Dewi Novandi ^{1*}, Nazwa Nurul Nafiza ², Naila Sahla ³, Novita ⁴

^{1,2,3,4} Accounting/Faculty of Economics, Business and Humanities, Trilogi University, South Jakarta, DKI Jakarta, Indonesia.

michelle.novaa@trilogi.ac.id ^{1*}, nazwanurulnafiza@trilogi.ac.id ², nailasahla@trilogi.ac.id ³, novita_1210@trilogi.ac.id ⁴

ABSTRACT

Small and medium-sized enterprises (SMEs) are increasingly faced with demands for sustainability, regulatory accountability, and increased *environmental, social, and governance* (ESG) credibility. However, compliance obligations are often perceived as burdensome administrative activities. This systematic literature review aims to examine how *governance, risk management, and compliance* (GRC) mechanisms can shift compliance pressures into strategic capabilities to support SME sustainability. Following the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) process, this study synthesizes 29 key references and groups them into four main themes: regulatory compliance and environmental knowledge, ESG governance and performance, risk management and operational resilience, and capability-based digital GRC. The study findings demonstrate that compliance can provide strategic value when integrated into governance systems, supported by risk management, strengthened through environmental knowledge, and facilitated by digital systems. GRC contributes to increased accountability, legitimacy, data quality, ESG reporting, and operational resilience of SMEs. However, GRC implementation still faces several challenges, such as limited resources, high ESG reporting burdens, and a digital capability gap. This study emphasizes that GRC can be understood as an integrated capability that plays a crucial role in driving the sustainability transformation of SMEs, while also serving as a foundation for the development of ESG standards, policy formulation, and future research agendas.

Keywords: Sustainability Capabilities; Risk Management; ESG Reporting; Risk Governance and Compliance; Small and Medium Enterprises

* michelle.novaa@trilogi.ac.id ✉

INTRODUCTION

Small and medium enterprises (SMEs) play a strategic role in economic development, job creation, local innovation, supply chain sustainability, and inclusive growth. However, their collective contribution to social and environmental aspects demonstrates that the transition to a sustainable economy cannot rely solely on large corporations. Furthermore, SMEs generally still face resource limitations, such as managerial capacity, digital infrastructure, access to financing, and internal formalization. These conditions often lead to sustainability demands being perceived as a complex compliance burden. Therefore, the focus of this study is not solely on regulatory compliance, but on how compliance can be developed into a strategic capability for SME sustainability.

Literature shows that the sustainability of SMEs is influenced by the integration of *governance, risk management, and compliance* (GRC). Regulatory compliance can strengthen the relationship between environmental knowledge and sustainability practices, as knowledge needs to be translated into organizational routines to have a real impact (Sendawula et al., 2024). Governance also plays a role through accountability and oversight mechanisms, including board diversity, which can improve the environmental and financial performance of SMEs (Kim et al., 2025). Furthermore, digital capabilities and operational processes are important factors in sustainability transformation, particularly through the adoption of Lean 4.0 and digital reporting systems (Qureshi et al., 2025).

However, studies on SME sustainability remain fragmented. Compliance studies tend to emphasize regulation and reporting, governance studies focus on accountability and ESG, risk studies address operational and supply chain risks, while technology studies highlight artificial intelligence, ESG software, and the digitization of reporting. This separation limits understanding of how GRC can be integrated into sustainability capabilities. However, compliance can be understood not only as external pressure but also as a process of organizational learning, coordination, monitoring, and legitimacy.

The increasing demands for ESG, sustainability certification, supply chain audits, and mandatory reporting further reinforce the need for adaptive GRC systems for SMEs. Frameworks such as *the Corporate Sustainability Reporting Directive* (CSRD) encourage more robust and comparable reporting, but also pose challenges for SMEs due to resource constraints and regulatory complexity (Sharma, 2025). ESG software can help improve data integration, scalability, and reporting quality, although its effectiveness depends on the system's cost, functionality, and suitability (Hąbek, 2025). Furthermore, ESG assessment systems need to consider business size and sector to avoid disadvantaging SMEs through indicators biased toward larger companies (Cakir et al., 2023).

Risk management is a crucial element in supporting the resilience and sustainability of SMEs. Commercial, operational, innovation, digital, and supply chain risks can impact competitiveness and business continuity. The use of artificial intelligence, *big data*, and *machine learning* can support risk management, especially for SMEs that are not yet capable of building their own systems (Žigienė et al., 2019). Meanwhile, operational risks can be reduced through proactive mitigation strategies, while open innovation needs to be managed to avoid issues of trust, coordination costs, and limitations in technology adaptation (Farjam et al., 2023; Rukshan et al., 2025).

This study positions GRC as an integrated capability that helps SMEs transform compliance from an administrative obligation into a strategic resource. Governance provides direction and accountability, risk management strengthens anticipation and resilience, compliance translates regulations and stakeholder expectations into internal routines, and digital technology improves data quality, monitoring, and reporting. Therefore, this study aims

to synthesize evidence on the role of GRC in SME sustainability and develop an integrated framework to explain the transformation of compliance pressures into sustainability capabilities.

Theoretically, this study integrates the perspectives of stakeholder theory, legitimacy, institutionalism, *resource-based view*, dynamic capabilities, and enterprise risk management. Practically, the results can provide guidance for SME managers, regulators, and supporting institutions in reducing compliance burdens, improving the quality of ESG reporting, and strengthening SME sustainability transformation.

HYPOTHESIS DEVELOPMENT

GRC as an Integrated Organizational Capability in SMEs

This study positions *governance, risk management, and compliance* (GRC) as interconnected organizational capabilities, not merely administrative activities. From a stakeholder perspective, companies need to address the expectations of various parties, including customers, suppliers, investors, regulators, employees, and the community (Freeman, 1984). Legitimacy theory asserts that ESG compliance and reporting can help organizations gain external acceptance and strengthen stakeholder trust (Suchman, 1995). Meanwhile, *the resource-based view* argues that SME excellence can be built through valuable and difficult-to-imitate routines, knowledge, and governance practices (Barney, 1991). The dynamic capabilities perspective adds that companies need to be able to read regulatory and market changes, capitalize on sustainability opportunities, and adapt organizational routines adaptively (Teece et al., 1997). In this context, governance plays a guiding role, risk management helps anticipate, compliance translates rules into internal practices, and digital technology strengthens organizational coordination and visibility.

Shifting from Regulatory Compliance to Sustainability-Oriented SME Management

SME sustainability management demonstrates a shift from reactive compliance to proactive capabilities. Compliance is no longer solely about regulatory compliance, reporting, and sanctions avoidance, but also encompasses supply chain audits, ESG disclosure, climate reporting, certification, stakeholder engagement, environmental knowledge, and digital transparency. From an institutional theory perspective, changes in organizational behavior are influenced by coercive, normative, and mimetic pressures (DiMaggio & Powell, 1983). Compliance becomes strategically valuable when it supports *the triple bottom line*: economic sustainability, environmental responsibility, and social accountability (Elkington, 1997). Empirically, regulatory compliance can strengthen the relationship between environmental knowledge and sustainability practices (Sendawula et al., 2024). Furthermore, governance, resource availability, technology, socio-environmental responsibility, and supply chain coordination contribute to SME sustainability performance and its linkage to *the Sustainable Development Goals*. (Kim et al., 2025; Nguyen & Ngo, 2022).

The Debate on GRC-Based SME Sustainability

The literature shows that the implementation of GRC in SMEs still faces several dilemmas. First, compliance can serve as both a pressure and a source of capability. On the one hand, SMEs are burdened by reporting costs and administrative complexity, but on the other hand, compliance can strengthen legitimacy, organizational learning, and create more structured work routines. Second, formal governance often does not fully align with the

characteristics of SMEs, which tend to be informal, flexible, and dependent on owner-manager decisions. Third, ESG standardization can improve information comparability, but it has the potential to be disproportionate for small businesses due to size bias and reporting pressures. Therefore, systems tailored to business sectors and scales, such as esg2go, have been developed in response to these issues (Cakir et al., 2023). Fourth, risk management serves not only as a protection tool but also as a strategic foundation. Commercial, operational, and open innovation risks can undermine the sustainability of SMEs, but proper management can foster innovation and business resilience (Farjam et al., 2023; Žigienė et al., 2019). Fifth, GRC digitalization offers opportunities for increased transparency, but can also widen the digital capability gap. AI-based audits and green reporting will be effective if supported by organizational readiness and a digital compliance culture (Islam et al., 2026).

METHODS, DATA AND ANALYSIS

Search Strategy

This study uses a systematic literature review design to synthesize evidence in a targeted manner regarding *governance, risk management, and compliance* (GRC) mechanisms in supporting SME sustainability, rather than simply presenting a narrative review. The report adheres to the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) principles, which emphasize transparency in explaining the rationale for the study, selection procedures, and research findings (Page et al., 2021). Scopus was chosen as the primary database due to its broad coverage of business, management, sustainability, entrepreneurship, risk, and governance. The initial search yielded 169 publication records. The search strategy was developed by combining four main conceptual blocks: SMEs, GRC, sustainability, and capability transformation. The core search string used a combination of terms ((“governance” OR “corporate governance” OR “risk management” OR “enterprise risk management” OR “compliance” OR “regulatory compliance” OR “governance risk compliance” OR “GRC”) AND (“small and medium-sized enterprises” OR “small and medium enterprises” OR “SMEs” OR “small firms” OR “small businesses” OR “MSMEs”) AND (“sustainability” OR “sustainable development” OR “sustainable performance” OR “environmental sustainability” OR “ESG” OR “sustainable development goals”)). The strategy was refined iteratively to keep its scope broad, but still in line with the focus of the study .

Eligibility Criteria

Articles were included if they discussed SMEs, MSMEs, small businesses, or small enterprises and contained at least one construct related to GRC, such as governance, risk management, *enterprise risk management* , regulatory compliance, ESG reporting, sustainability reporting, or accountability mechanisms. Articles should also relate these constructs to aspects of sustainability, such as environmental practices, sustainable performance, resilience, innovation, ESG responsibility, or sustainable development. Empirical studies, conceptual frameworks, systematic reviews, and methodological articles were eligible for inclusion if they were of sufficient quality and provided sufficient metadata and abstracts for the screening process. Conversely, articles were excluded if they focused solely on large companies, mentioned SMEs only briefly, were unrelated to sustainability, were not academic publications, or had incomplete metadata. These criteria align with the study design principle,

which emphasizes consistency between the research question, eligibility criteria, extraction process, and synthesis strategy (Grant & Booth, 2009; Peters et al., 2024).

Screening, Selection, and Risk of Bias Analysis

The article selection process was conducted based on the PRISMA stages, including identification, removal of duplication, screening of titles and abstracts, assessment of eligibility, and determination of the final articles included in the synthesis (Moher et al., 2009; Page et al., 2021). Since all data were obtained from a single Scopus export, no duplicate records were removed. Of the 169 initial records, all were screened through titles and abstracts. A total of 109 records were excluded due to their lack of relevance to the focus of GRC and SME sustainability, leaving 60 records for further assessment based on metadata and abstracts. At the eligibility stage, 31 records were excluded because they did not specifically discuss SMEs, had no substantive relationship to GRC, or were less relevant to the issue of sustainability capabilities. Thus, the final synthesis included 29 core references. Quality assessment was conducted by considering the clarity of the research objectives, the appropriateness of the design, the transparency of the data and samples, the construct validity, the strength of the evidence linking GRC mechanisms to sustainability outcomes, and the transferability of the research context.

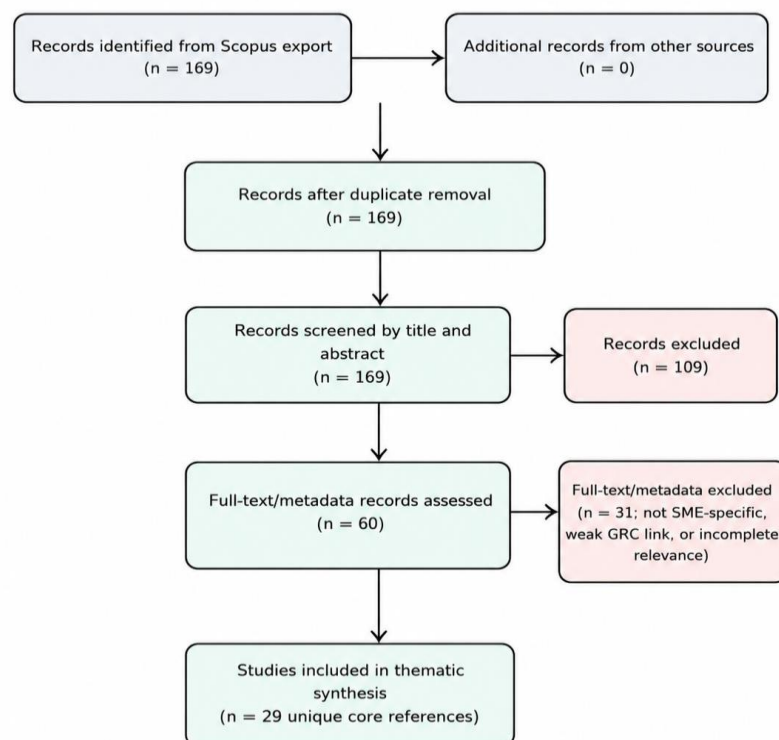


Figure 1. PRISMA Flow Diagram

RESULTS

Regulatory Compliance, Environmental Knowledge, and Sustainability Practices

The first theme asserts that regulatory compliance becomes more valuable when it translates environmental knowledge and external pressures into internal sustainability practices. Sendawula et al. (2024) showed that in 254 manufacturing SMEs, regulatory compliance partially mediated the relationship between environmental knowledge and sustainability practices. This finding is extended by Ahmadov et al. (2025), which shows that SMEs in Mexico respond to regulatory, normative, and cultural-cognitive pressures simultaneously. Meanwhile, Sharma (2025) and Hąbek (2025) explain that mandatory reporting and ESG software can increase transparency, but also potentially increase resource burdens. Other studies have shown that standards, certification, digital compliance tools, readiness assessments, and calibrated ESG systems can help transform external demands into routines for monitoring, improvement, and strengthening stakeholder credibility (Acciai et al., 2025; Cakir et al., 2023; Kakogiannis et al., 2024; Rusu & Mantulescu, 2025). Furthermore, (Nosi et al., 2026) confirms that governance, reporting, regulation, profitability, risk management, and local values shape SMEs' engagement in sustainability. Thus, Table 1 supports the capability-based view that compliance is strategically valuable when operationalized through knowledge translation, strengthening data infrastructure, certification, *benchmarking*, and legitimacy building.

Table 1. Summary of findings on regulatory compliance, environmental knowledge, and sustainability practices of SMEs

Reference	Context	GRC Mechanism	Method	Main findings
Sendawula et al. (2024)	Manufacturing SMEs in Uganda	Regulatory compliance as a mediator of environmental knowledge	Survey of 254 SMEs; mediation analysis	Compliance helps transform knowledge into environmental sustainability practices.
Ahmadov et al. (2025)	SMEs in various sectors in Mexico	Regulatory, normative, and cultural-cognitive pressures	Qualitative interviews	Regulation is more influential when it reinforces sustainability norms and culture.
Sharma (2025)	The context of CSRD reporting in Germany	CSRD reporting and assurance obligations	Expert interview	Mandatory reporting improves comparability, but adds complexity for SMEs.

Reference	Context	GRC Mechanism	Method	Main findings
Acciai et al. (2025)	Italy/global family SMEs	Standardized OS and management system certification	Evidence from case studies	Certification links compliance with differentiation, risk control, and continuous improvement.
Rusu & Mantulescu (2025)	Romania; small and medium enterprises (SMEs) in the engineering sector	Information security procedures and regulatory compliance	Application-based framework and case validation	Digital compliance tools make it easier for MSMEs to identify and monitor risks.
Hąbek (2025)	Manufacturing sector	ESG software for CSRD/ESRS compliance	Evaluation of eight ESG tools	ESG tools can improve data quality and reporting efficiency.
Kakogiannis et al. (2024)	The context of ESG readiness	ESG readiness assessment and performance comparison	Methodological framework	Readiness tools reduce uncertainty and support preparation in the area of sustainable finance.
Cakir et al. (2023)	SMEs in the supply chain	ESG rating and certification system	Calibrated benchmarking	Size- and sector-sensitive metrics reduce ESG rating bias.
Nosi et al. (2026)	Indonesia; literature on sustainability and stakeholders	Stakeholder governance and regulatory framework	Systematic bibliometric review; from 134,694 studies screened, 15 studies were selected	Governance, reporting, regulation, profitability, and risk management influence sustainability efforts.

Governance, ESG Responsibility, and Sustainable Performance

The second theme suggests that governance plays a crucial role in supporting SME sustainability through accountability, strategic direction, and strengthening stakeholder legitimacy. (Kim et al., 2025) found that gender diversity on boards can improve environmental

performance, but its effect depends on the availability of reserve resources and employee efficiency. This suggests that governance effectiveness is also influenced by the organization's internal capacity. Other studies emphasize the importance of governance structures, codes of ethics, internal controls, and legal compliance, especially when SMEs face awareness, cultural, and regulatory barriers (Kiswani & Al Bakri, 2023; Shalhoob et al., 2025). Nguyen & Ngo (2022) linked governance responsibilities to socio-environmental responsibility, technological advancement, and the achievement of the *Sustainable Development Goals* (SDGs). Furthermore, ESG scores can be a governance signal that attracts entrepreneurial financing (Zhou & Rahat, 2025). Other findings suggest that stakeholder-based governance, green financing, capital access, and disclosure practices can strengthen the relationship between governance and sustainable development accountability (Bayong et al., 2026; Dzomonda, 2022; Yu et al., 2026; Zhang et al., 2025). Thus, as summarized in Table 2, governance serves not only as an internal control mechanism but also as a means to make compliance more credible, financially viable, and aligned with sustainability strategies .

Table 2. Summary of findings on governance, ESG responsibility, and sustainable performance of SMEs

Reference	Context	Governance mechanisms	Method	Main findings
Kim et al. (2025)	European, Canadian and United States SMEs	Board gender diversity, <i>slack resources</i> , employee efficiency	Panel data 2012-2021	Diversity in governance helps reduce emissions and links environmental performance to financial performance.
Shalhoob et al. (2025)	Saudi Arabian SMEs	Board, code of ethics, internal control	Interviews with 30 participants	Adoption of governance faces resource and cultural barriers, but increases credibility.
Kiswani & Al Bakri (2023)	LLC-based SMEs in the United Arab Emirates	Corporate governance legal standards	Qualitative legal analysis	Legal governance principles can support sustainability when embedded in SME governance routines.

Reference	Context	Governance mechanisms	Method	Main findings
Nguyen & Ngo (2022)	Vietnamese SMEs	Governance, environmental and social responsibilities	Survey; SmartPLS	ESG technology and responsibility support the SDGs, especially with supply chain coordination.
Zhou & Rahat (2025)	European SMEs	ESG scores and governance subcomponents	Fixed effects panel regression	ESG dimensions, particularly environmental and governance, attract private equity financing.
Zhang et al. (2025)	Chinese SMEs	Stakeholder-oriented corporate governance	An empirical study on SME CSR	Stakeholder-oriented governance supports sustainable development by linking CSR and accountability.
Wang et al. (2023)	Chinese SMEs	Green governance and green finance	Mediation-moderation model	Governance and green finance together support sustainable performance.
Dzomonda (2022)	SMEs seeking financing	Corporate governance and financial performance	Empirical analysis	Governance and financial performance shape access to financing for environmental sustainability commitments.

Reference	Context	Governance mechanisms	Method	Main findings
Bayong et al. (2026)	West African SMEs	Corporate governance and accountability	Conceptual/empirical analysis of disclosure	Disclosure practices strengthen accountability for sustainable development in the context of SMEs.

Risk Management, Resilience, and Operational Sustainability

The third theme emphasizes that risk management is a critical capability for SME sustainability as it helps address operational disruptions, financial stress, innovation risks, and strategic uncertainty. Rukshan et al. (2025) identified 15 operational risks in service SMEs in Sri Lanka and emphasized the need for proactive mitigation strategies. Žigienė et al. (2019) proposed AI-based commercial risk management as a shared service for SMEs, while Farjam et al. (2023) showing that open innovation risks are influenced by trust, coordination costs, commitment, and learning processes. Other studies emphasize the importance of practical risk interventions and appropriate adoption frameworks for SMEs (Krüger & Meyer, 2021; Ulupui et al., 2024). Furthermore, strategic approaches and decision-making models can help manufacturing SMEs prioritize risks (Cheng et al., 2021; Jiménez et al., 2024), while owners' and managers' risk perceptions are related to sustainability planning (Dvorsky et al., 2023). Mthiyane et al. (2022) also emphasized that SMEs in developing countries require an adaptive risk management framework. Thus, Table 3 shows that sustainability capabilities require risk management routines that are formal enough to guide actions, yet flexible enough to accommodate SME resource constraints.

Table 3. Summary of findings on risk management, resilience, and operational sustainability of SMEs

Reference	Context	Types of risk	Method	Main findings
Rukshan et al. (2025)	Sri Lankan service SMEs	Operational risk	Qualitative case study	Fifteen types of operational risks affect performance and require proactive strategies.
Žigienė et al. (2019)	SME commercial processes	Commercial risks	Conceptual framework of AI, big data, and machine learning	Shared digital risk services can address SME resource constraints.
Farjam et al. (2023)	Iranian SMEs	The risks of open innovation	BWM and fuzzy MADM	Trust, coordination, commitment,

Reference	Context	Types of risk	Method	Main findings
Krüger & Meyer (2021)	SME management practices	Business risk management interventions	Tool development study	and learning determine the reduction of innovation risks. Simplified intervention tools can support risk identification and response in SMEs.
Ulupui et al. (2024)	MSMEs	Uncertainty in risk management adoption	Tri-factor evaluation	Adoption of risk management depends on contextual capabilities, awareness and readiness.
Jiménez et al. (2024)	Manufacturing SMEs in Antioquia	Strategic sustainability risks	Risk management analysis	Strategic risk management supports sustainability in manufacturing SMEs
Cheng et al. (2021)	Manufacturing SMEs	Sustainable enterprise risk management	Extended VIKOR with q-rung orthopair fuzzy sets	Decision models can help prioritize risks for sustainability.
Dvorsky et al. (2023)	The context of SME sustainability	Business risk and managerial perception	Empirical analysis of owner/manager	Risk perception influences sustainability planning, with relevant gender differences in managerial interpretation.
Mthiyane et al. (2022)	SMEs developing countries	Operational and strategic risks	Conceptual framework	Risk frameworks need to be adaptive to the limitations of developing countries.

Digital and Capability-Based GRC for SME Sustainability Transformation

The fourth theme shows that digital technology can strengthen GRC capabilities when integrated with organizational governance and learning routines. Qureshi et al. (2025) found

that the adoption of Lean 4.0 for manufacturing sustainability is influenced by process, organization, human, technology, external, and environmental factors, with process factors being the most dominant aspect. Žigienė et al. (2019) developed the concept of AI-based commercial risk management services for SMEs, while Cakir et al. (2023) and Hąbek (2025) demonstrates that calibrated ESG *benchmarking* and reporting software can improve data credibility and quality. Rusu & Mantulescu (2025) It also confirms that information security management applications can support risk monitoring and compliance. Furthermore, SDG-enabled technologies, decision-making models, ESG readiness assessments, and AI-based *net-zero pathways* can drive SME sustainability transformation (Farjam et al., 2023; Kakogiannis et al., 2024; Nguyen & Ngo, 2022; Yadav et al., 2026). However, as shown in Table 4, digital GRC does not automatically generate benefits. Its effectiveness depends on the availability of affordable tools, reliable data, governance readiness, and capacity-building support. Without these factors, GRC digitalization can widen the gap between well-resourced SMEs and those with limited resources .

Table 4. Summary of findings on digital GRC and sustainability transformation of SMEs

Reference	Digital tools/GRC	SME context	Method	Main findings
Qureshi et al. (2025)	ANN, fuzzy ISM, MICMAC, Lean 4.0	Manufacturing SMEs in developing economies	Survey of 216 SMEs; EFA, ANN, FISM, MICMAC	The most important process factor; regulatory compliance is part of sustainability adoption.
Žigienė et al. (2019)	AI, big data, machine learning	SMEs that require commercial risk support	Conceptual framework	Shared digital services can strengthen commercial risk assessments and contributions to the SDGs.
Cakir et al. (2023)	esg2go benchmarking	Supply chain SMEs	Stakeholder-based rating and reporting system	Size- and sector-based calibration improves fairness and comparability.
Hąbek (2025)	ESG software, AI, analytics	Manufacturing including SMEs	Software evaluation	AI and analytics can automate reporting, but they require affordable implementation.
Rusu & Mantulescu (2025)	GestionAVR Application	Engineering SMEs in Romania	Application framework and validation	Digital tools help with identification, prioritization, monitoring, and continuous improvement.
Nguyen & Ngo (2022)	Technological advancements and supply chain moderation	Vietnamese SMEs	Survey; Smart-PLS	Technology supports the SDGs when combined with ESG responsibilities and supply chain coordination.

Reference	Digital tools/GRC	SME context	Method	Main findings
Farjam et al. (2023)	BWM and fuzzy TODIM	Industrial SMEs in Iran	Multicriteria decision-making model	Commitment to learning and results orientation reduce the risks of open innovation.
Kakogiannis et al. (2024)	ESG readiness methodology	ESG-ready SMEs and companies	Integrated methodology	Readiness evaluations support alignment with standards and reduce greenwashing uncertainty.
Yadav et al. (2026)	AI-based net-zero pathway	SMEs in sustainable supply chains	Conceptual/empirical technology synthesis	AI can support net-zero, but requires governance capabilities and alignment.

DISCUSSION

The findings of this study indicate a shift in the view from compliance as an administrative obligation to compliance as a strategic capability in supporting the sustainability of SMEs. Compliance does not automatically result in sustainability performance, but becomes valuable when it establishes routines for translating knowledge, monitoring risks, preparing reports, engaging stakeholders, and fostering operational learning. This is in line with Sendawula et al. (2024), which shows that regulatory compliance partially mediates the relationship between environmental knowledge and sustainability practices. The findings Kim et al. (2025) also reinforce this view by demonstrating that governance requires resource support and employee efficiency to impact environmental and financial performance.

The four study themes form a complementary GRC architecture. Regulatory compliance strengthens organizational legitimacy and discipline, governance provides direction and accountability, risk management supports resilience and action prioritization, and digital systems enhance data visibility and coordination. Qureshi et al. (2025) The study showed that Lean 4.0 adoption for sustainability is most influenced by process factors, followed by organizational, human, technological, external, and environmental factors. Thus, technology cannot replace managerial routines, but it works effectively when integrated into organizational processes. Furthermore, ESG rating and reporting systems need to be tailored to the sector and size of the company to avoid biased comparisons with SMEs (Cakir et al., 2023).

The study also identified several important tensions. Mandatory reporting frameworks such as CSRD can enhance comparability, assurance, and stakeholder trust, but they can potentially burden SMEs due to limited resources, expertise, and regulatory capacity (Sharma, 2025). ESG software can enhance data integration and reporting automation, but its effectiveness depends on the appropriateness of functions, costs, and organizational needs (Hąbek, 2025). Similarly, environmental audits and AI-based risk services can support green reporting and risk management, but require reliable data, a digital culture, and institutional support (Islam et al., 2026; Žigienė et al., 2019). Therefore, digital GRC is best understood as a supporting infrastructure, not a single solution for all SMEs.

Risk management serves as a bridge between compliance and resilience. The identification of 15 operational risks in service SMEs in Sri Lanka indicates that diverse risk exposures can undermine sustainability and sustained performance (Rukshan et al., 2025). Furthermore, open innovation risks demonstrate that sustainability collaboration can pose challenges such as low trust, high coordination costs, weak internal commitment, and limited technological adaptation (Farjam et al., 2023). Therefore, risk management needs to be integrated into sustainability planning, rather than positioned as a separate, defensive function.

This study's theoretical contribution lies in the integration of several perspectives. Stakeholder theory explains external pressures for responsible behavior; legitimacy theory emphasizes the importance of compliance and reporting; institutional theory explains regulatory, normative, and mimetic pressures; *the resource-based view* views GRC routines as strategic resources; and dynamic capabilities theory explains the ability of SMEs to adapt routines in the face of sustainability pressures. However, the available evidence remains limited, as many studies are cross-sectional, highly context-dependent, use inconsistent measures, and there is little longitudinal research exploring the relationship between compliance adoption and performance outcomes.

Policy-wise, sustainability regulations need to be designed to not simply shift the reporting burden from large corporations to SMEs. More tailored support could include simple reporting templates, sectoral metrics, affordable digital tools, capacity building, and a phased compliance pathway. For SME managers, GRC should be positioned as an integrated strategic system: governance sets sustainability priorities, risk management identifies vulnerabilities and *trade-offs*, compliance institutionalizes routines, and digital systems strengthen data visibility. Support organizations, lenders, and supply chain leaders can also play a role through shared services, calibrated ESG tools, and financing linked to credible sustainability practices.

CONCLUSION, LIMITATIONS, SUGGESTIONS

This systematic review confirms that *governance, risk management, and compliance* (GRC) can be understood as a strategic capability that transforms regulatory compliance from a mere administrative obligation to a driver of SME sustainability. Based on a synthesis of 29 articles, the integration of governance, risk management, compliance, and digitalization has been shown to play a role in improving the quality of ESG reporting, operational resilience, organizational legitimacy, and SME competitiveness. Theoretically, this review offers a conceptual framework that combines various perspectives to explain the transformation of GRC in SMEs. Practically and economically, these findings demonstrate that integrated GRC can create long-term value through efficiency, risk management, and expanded access to sustainable financing opportunities. Thus, GRC success is determined not only by compliance, but also by its ability to build adaptive and sustainability-oriented organizational capabilities.

This study has several limitations. First, the literature sources were only Scopus-indexed articles, so it's possible that they don't cover all relevant scientific evidence. Second, differences in research contexts, industry sectors, methods, and indicators for GRC and sustainability limit the generalizability of the findings. Third, the predominance of *cross-sectional studies* means that causal relationships and the long-term development of GRC implementation cannot be fully explained.

Further research is recommended to expand the literature database, employ a longitudinal design, and test the causal relationship between GRC implementation and SME sustainability performance. Cross-country and cross-sector comparative studies are also needed to deepen our understanding of variations in GRC implementation. Furthermore,

developing a GRC maturity model that considers digital readiness and SME characteristics is a key agenda for future research. Practically, regulators and stakeholders need to design simpler, more proportionate GRC and ESG reporting standards, supported by capacity-building programs, to ensure effective sustainability implementation by SMEs.

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