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The Direction of SMEs' Sustainability for Indonesia Context: A Literature Review

Maria Eugenia Hastuti
Department of Accounting, University of Surabaya, Indonesia

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***Author Correspondent:**
mhastuti@staff.ubaya.ac.id

ABSTRACT
This review synthesizes literature across four interrelated themes, such as financial access, institutional and regulatory pressure, digital transformation, and owner-manager values, to build an integrated understanding of how Indonesian SMEs can advance sustainability. We adopted a systematic narrative review approach. Essentially, the study draws on peer-reviewed sources from Scopus, Web of Science, and Google Scholar, screened and synthesized through thematic coding. Findings show that these four dimensions do not operate independently. They suggest that financial capacity shapes digital adoption, institutional pressure gains force only where enforcement is consistent, and owner-manager conviction determines whether available resources are converted into sustained practice. Theoretically, the review extends resource-based, institutional, and stakeholder frameworks by treating SME sustainability as an interacting system. Practically, it points toward coordinated action, starting from accessible, low-cost steps and building outward, as the most realistic path for Indonesian SMEs, policymakers, and support institutions. So, the review concludes that sustainability is best understood as an ongoing process of alignment among resources, rules, technology, and people.

INTRODUCTION

Small and medium enterprises (SMEs) play a central role in emerging economies. They create jobs, generate income, support local supply chains, and provide goods and services to communities. Their economic role also gives them an important position in sustainable development. SME sustainability connects business growth with environmental protection, social welfare, resource efficiency, and long-term economic development. Scholars increasingly show that SMEs can support sustainability through cleaner production, responsible resource use, social engagement, and sustainable innovation (Bos-Brouwers, 2010; Jenkins, 2009; Klewitz and Hansen, 2014; Revell et al., 2010). This role becomes especially important in emerging markets, where rapid urbanization, industrial growth, rising consumption, and resource use create strong sustainability challenges. At the same time, SMEs often operate with limited finance, weak management systems, restricted technology access, and limited sustainability knowledge (Amankwah-Amoah et al., 2019; Johnson and Schaltegger, 2016). These conditions raise an important question: how can SMEs in emerging markets pursue business growth while creating positive environmental and social outcomes?

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Clearly, the emerging-market context creates additional challenges for SME sustainability. Firms in these economies often operate within changing regulatory systems, uneven enforcement, limited infrastructure, restricted financial markets, and different levels of technological development. These conditions influence the ability of SMEs to turn sustainability intentions into actual business practices. Scholars therefore call for greater attention to the institutional and contextual conditions surrounding SMEs, especially in developing and emerging economies (Amankwah-Amoah et al., 2019; Jamali et al., 2009; Johnson and Schaltegger, 2016). Institutional conditions matter because firms respond to regulations, social expectations, industry norms, and pressures from other organizations. An SME may understand the value of environmental management while lacking the financial, technical, or institutional support needed to implement it. Emerging markets therefore provide an important setting for examining how external pressures interact with internal capabilities.

The collective environmental impact of SMEs also deserves attention. Individual SMEs may have a small environmental footprint, yet millions of small firms operate across manufacturing, agriculture, transportation, retail, tourism, construction, food production, and services. Their combined use of energy, water, raw materials, packaging, and transportation can create substantial environmental effects (Hillary, 2004; Johnson and Schaltegger, 2016; Revell et al., 2010). SME sustainability therefore involves more than major environmental investments. It can include waste reduction, energy efficiency, recycling, cleaner production, sustainable purchasing, responsible employee management, product development, and improved resource use (Bos-Brouwers, 2010; Gadenne et al., 2009; Klewitz and Hansen, 2014). Small operational changes can collectively produce meaningful sustainability outcomes.

Existing scholarship has examined SME sustainability from several perspectives. One stream focuses on environmental management and eco-efficiency. Research shows that SMEs can improve sustainability through waste reduction, energy efficiency, pollution prevention, recycling, and cleaner production (Gadenne et al., 2009; Hillary, 2004; Revell et al., 2010). Another stream focuses on sustainable innovation and shows that environmental pressures can encourage firms to develop new products, processes, and business models (Bos-Brouwers, 2010; Dangelico and Pujari, 2010; Klewitz and Hansen, 2014). A third stream examines corporate social responsibility and stakeholder relationships (Jamali et al., 2009; Jenkins, 2009). A further stream examines the financial implications of sustainability and considers whether environmental practices can improve efficiency, innovation, reputation, and long-term performance (Gadenne et al., 2009; Spence, 1999). These studies provide valuable insights, yet many examine individual dimensions of sustainability separately. Such fragmentation limits our understanding of how different factors work together within resource-constrained SMEs.

Equally important, despite the growing literature, several gaps remain. First, many studies examine one sustainability driver at a time, such as finance, regulation, technology, stakeholder pressure, or managerial attitudes. This approach can hide important relationships among these factors. A manager may strongly support sustainability yet lack the finance required to purchase cleaner equipment. Another SME may possess sufficient capital yet lack the digital capabilities needed to manage new technology. A third firm may have strong digital capabilities while facing weak regulatory incentives. Sustainability adoption therefore reflects the interaction between internal capabilities and external conditions. Second, emerging-market settings require greater scholarly attention because institutional structures, financial systems, technological infrastructure, and stakeholder relationships differ across countries and regions (Amankwah-Amoah et al., 2019; Jamali et al., 2009; Johnson and Schaltegger, 2016). Third, research often separates environmental, social, and economic dimensions even though SME decisions frequently connect these areas in everyday business activities.

This literature review addresses these gaps by bringing together four interconnected perspectives: financial access, institutional and regulatory pressure, digital capability, and owner-manager values. These dimensions provide a useful framework for understanding why SMEs adopt sustainable practices and why adoption differs across firms. Financial access determines whether firms can mobilize resources for sustainability investment. Institutional pressure shapes external expectations and incentives. Digital capability affects the firm's ability to collect information, improve processes, manage resources, and innovate. Owner-manager values influence how decision-makers interpret sustainability and convert external pressure into organizational action. These factors also interact. Finance can support digital investment. Digital capability can improve resource efficiency and regulatory compliance. Regulation can encourage firms to seek finance for sustainability projects. Owner-manager commitment can determine whether available resources and external pressure result in actual implementation.

The central argument is that SME sustainability in emerging markets develops through the interaction of resources, institutions, technology, and managerial agency. These factors work together to shape the ability and willingness of SMEs to pursue sustainable practices. The review contributes by connecting four research areas that scholars often examine separately: SME finance, institutional pressure, digital transformation, and owner-manager behavior. This integrated perspective provides a broader explanation of why SMEs facing similar sustainability pressures can produce different outcomes.

The remainder of the paper is organized as follows. Section 2 reviews four major areas: sustainability drivers, sustainability barriers, digital transformation, and theoretical perspectives. Section 3 explains the data sources, research procedure, and analytical approach. Section 4 presents four themes emerging from the literature: financial access and green finance constraints, institutional and regulatory pressure, digital transformation as an enabler, and owner-manager values and organizational culture. The final section connects these themes and identifies implications and future research directions.

LITERATURE REVIEW

SME sustainability in emerging markets develops through a complex relationship between external pressure, internal capability, resource availability, technological development, and managerial judgment. Existing scholarship increasingly moves away from viewing sustainability as a single environmental practice and treats it as a broader organizational process involving economic, environmental, and social outcomes (Klewitz and Hansen, 2014; Johnson and Schaltegger, 2016). This broader view matters for SMEs because sustainability decisions often emerge from everyday business choices involving finance, production, purchasing, employees, technology, customers, and suppliers. The resource limitations that characterize many SMEs also make these decisions highly interconnected. Limited finance can restrict technology investment; limited knowledge can reduce the value of available technology; weak institutional support can reduce incentives for sustainability; and owner-manager priorities can determine how firms respond to these conditions (Beck and Demirguc-Kunt, 2006; Amankwah-Amoah et al., 2019; Johnson and Schaltegger, 2016). The emerging-market setting adds further complexity because SMEs operate within diverse regulatory systems, infrastructure conditions, financial markets, and institutional environments. Recent research therefore increasingly calls for sustainability research that connects firm-level capabilities with the institutional and technological environment surrounding SMEs (Madrid-Guijarro et al., 2024). Such an integrated view provides a stronger basis for understanding how sustainability emerges, develops, and becomes embedded within smaller firms.

Drivers of SME Sustainability Adoption

Sustainability adoption begins with the pressures and opportunities that make sustainable practices relevant to SME decision-makers. Stakeholder theory provides a useful starting point because SMEs operate through relationships with customers, suppliers, employees, communities, regulators, investors, and business partners (Buysse and Verbeke, 2003). These relationships create different forms of sustainability pressure. Customers can demand environmentally responsible products, large buyers can impose supply-chain standards, employees can encourage responsible workplace practices, and local communities can demand cleaner production. Research on SMEs shows that these pressures can encourage environmental practices, especially in firms that see sustainability as connected to reputation, customer relationships, efficiency, and long-term business value (Revell et al., 2010; Gadenne et al., 2009; Jenkins, 2009; Johnson and Schaltegger, 2016). This evidence challenges a simple view of SMEs as firms that pursue sustainability only because external actors force them to do so. Owner-managers can also interpret sustainability as an opportunity to strengthen market position, reduce costs, attract customers, retain employees, and improve organizational legitimacy (Bos-Brouwers, 2010; Revell et al., 2010; Crossley et al., 2021). Sustainability therefore gains strategic meaning through the way managers connect external expectations with perceived business benefits.

The role of owner-managers becomes particularly important within this process. SMEs frequently concentrate strategic authority within owners or a small management group, giving individual values and judgments considerable influence over organizational sustainability (Spence, 1999; Del Giudice et al., 2017). Research shows a positive relationship between owner-managers' personal sustainability behavior and corporate sustainability practices, although this relationship depends on perceived economic advantages and environmental conditions (Chassé and Courrent, 2018). This finding creates an important connection between personal values and business logic. Owner-managers may hold strong environmental concerns, yet their sustainability decisions also reflect perceived costs, expected benefits, market conditions, and organizational constraints. Recent research reinforces this argument by showing that owner-manager environmental concern interacts with firm size and sector-specific regulation. Smaller firms show stronger dependence on mandatory environmental practices, whereas owner-manager environmental concern becomes more influential among larger SMEs. Sustainability adoption therefore reflects managerial agency within a broader institutional environment.

This relationship also helps explain why stakeholder pressure produces different outcomes across SMEs. External demands reach the organization through managerial interpretation. Two firms can face similar environmental requirements and respond through different levels of commitment because their managers hold different values, knowledge, capabilities, and perceptions of business opportunity. Del Giudice et al. (2017) demonstrate how owner-managers can translate individual sustainability concerns into collective organizational practices through interactions with employees and stakeholders. Crossley et al. (2021) similarly show that SMEs can pursue sustainability for a combination of legitimacy, reputation, social engagement, environmental embeddedness, and differentiation. Sustainability therefore develops through a process in which external expectations become internal priorities. This process also explains why stakeholder pressure alone provides an incomplete explanation of SME sustainability.

The business case for sustainability further strengthens this relationship. Environmental practices can reduce waste, improve energy efficiency, strengthen resource productivity, support innovation, and enhance reputation (Gadenne et al., 2009; Bos-Brouwers, 2010; Dangelico and Pujari, 2010). Sustainability can also strengthen relationships with customers and larger firms that increasingly expect responsible supply-chain behavior (Lee, 2008; Vachon and Klassen, 2008). These benefits create an important connection between environmental responsibility and competitiveness. Yet the business case depends heavily on the firm's capacity to invest and learn. A firm may recognize

potential cost savings from energy efficiency, for example, while lacking the funds required to purchase efficient equipment. This tension leads directly to the resource question that sits underneath much of the SME sustainability literature: the motivation to pursue sustainability and the capacity to pursue it develop through different mechanisms.

Financial resources consequently become central to sustainability adoption. Sustainability investments can involve cleaner machinery, renewable energy, waste treatment systems, environmental certification, employee training, digital monitoring, and new product development. SMEs frequently face financing constraints because of limited collateral, short credit histories, uncertain cash flows, and weaker relationships with financial institutions (Beck and Demirguc-Kunt, 2006; Lee et al., 2015). Recent research on emerging markets places this issue within the wider sustainable-finance debate, showing how fragmented governance and sustainability-data gaps can increase financing difficulties for firms seeking sustainable investment. Finance therefore connects sustainability intention with implementation capacity. It also creates the transition into the barriers literature because the same resources that enable sustainability can become the conditions that restrict it.

Barriers to Sustainability Adoption

The barriers surrounding SME sustainability show why positive attitudes and external pressure often produce uneven outcomes. Financial constraints remain among the most persistent limitations because sustainability investments frequently involve upfront costs with benefits that develop over a longer period (Beck and Demirguc-Kunt, 2006; Lee et al., 2015; Johnson and Schaltegger, 2016). This problem becomes more complex in emerging markets, where SMEs may face higher borrowing costs, limited green-finance products, weak financial infrastructure, and greater uncertainty. The financing problem also extends beyond the amount of capital available. SMEs may lack the information, documentation, sustainability indicators, or technical knowledge required to demonstrate their eligibility for green finance.

The connection between finance and sustainability becomes clearer through the resource-based perspective. Barney (1991) argues that valuable resources provide the foundation for organizational advantage, while the Natural Resource-Based View extends this argument to environmental capabilities (Hart, 1995). From this perspective, financial resources support the acquisition of other sustainability-related resources, including technology, knowledge, skilled employees, environmental management systems, and innovation capabilities. A financing constraint therefore creates a chain of consequences across the organization. Limited finance can restrict technology acquisition; technology limitations can reduce efficiency; lower efficiency can weaken competitiveness; and weaker competitiveness can further reduce the firm's ability to invest.

Knowledge and skills form another critical constraint. Environmental practices often require firms to understand regulatory requirements, identify environmental impacts, evaluate technologies, measure resource use, and assess investment returns. SMEs with limited human resources can struggle to develop these capabilities internally (Hillary, 2004; Johnson and Schaltegger, 2016). Research on environmental management accounting in developing-country SMEs similarly identifies organizational, knowledge, resource, and institutional barriers that can prevent firms from gaining the full benefits of environmental information systems. Mukwarami and van der Poll (2024) argue that SMEs require approaches that recognize these interconnected barriers because universal implementation models often fail to reflect the realities of smaller firms in developing economies. The issue therefore extends beyond environmental awareness. Firms need practical knowledge that enables managers to translate sustainability concepts into operational decisions.

Institutional conditions further influence these resource constraints. Institutional theory suggests that formal rules can motivate firms to adopt sustainability practices, while institutional

weakness can reduce the effectiveness of those pressures (DiMaggio and Powell, 1983). Regulation can create direction, legitimacy, and incentives, while fragmented regulation can create uncertainty. Crossley et al. (2021) show that SMEs can use sustainability practices to strengthen legitimacy through both substantive and symbolic actions. This finding suggests that sustainability practices can serve multiple organizational purposes. Firms may improve environmental performance, demonstrate responsible behavior to stakeholders, strengthen reputation, and protect legitimacy through the same activities. The quality and clarity of institutional signals therefore influence how managers decide which sustainability practices deserve attention.

Regulation also produces a more complex relationship than a simple pressure-response model suggests. Strong regulation can motivate environmental improvements, while poorly designed regulation can increase perceived costs and administrative burdens. Graafland and Bovenberg (2020) show that owner-managers' responses to regulatory pressure depend partly on their perceptions of the regulatory environment. This finding connects institutional pressure with managerial cognition. Managers interpret rules through their own experiences, values, and expectations. Sustainability policy therefore gains greater practical influence through a combination of regulatory design, managerial interpretation, and organizational capacity.

Digital Transformation and Sustainability

Digital transformation has become increasingly important in the sustainability debate because digital technologies can change how SMEs produce, monitor, communicate, finance, and innovate. Digital tools can support real-time resource monitoring, energy management, inventory control, waste reduction, supply-chain coordination, customer engagement, and sustainability reporting (Vial, 2019; Verhoef et al., 2021). Research specifically examining sustainable digital transformation in SMEs shows that digital transformation connects with the economic, environmental, and social dimensions of the Triple Bottom Line, although much of the literature still gives greater attention to selected dimensions than to sustainability as an integrated outcome. This evidence suggests that digitalization should be examined as an organizational capability rather than simply as technology adoption.

The relationship between digitalization and sustainability becomes stronger through innovation. Digital technologies can help SMEs gather information, identify inefficiencies, redesign processes, develop new products, and respond to changing customer expectations. Nambisan et al. (2019) describe digital transformation as a process that reshapes innovation and entrepreneurship, while Vial (2019) emphasizes organizational transformation around digital technologies. These perspectives fit SME sustainability because environmental improvement often requires changes in processes and business models. The relationship between digital transformation and sustainability therefore depends on organizational capability.

RESEARCH METHOD

This review adopts a systematic narrative literature review approach to synthesize scholarship on SME sustainability in emerging markets, with particular attention to the Indonesian context. The following subsections describe the data sources, selection procedure, and analytical approach used to identify and synthesize the reviewed literature.

The review draws on peer-reviewed academic literature retrieved primarily from Scopus, Web of Science, and Google Scholar, databases widely recommended for management and sustainability-oriented systematic reviews because of their broad indexing coverage and citation-tracking capabilities (Kraus et al., 2020; Mongeon and Paul-Hus, 2016). Search terms combined core constructs, including “SME sustainability,” “sustainable SMEs,” “green finance,” “digital transformation,” “institutional pressure,” and “owner-manager values”, with Boolean operators to capture conceptual overlap across subfields (Paul and Criado, 2020). Our searches were not restricted

to a single discipline, since SME sustainability research spans management, environmental studies, entrepreneurship, and development economics (Klewitz and Hansen, 2014; Johnson and Schaltegger, 2016).

Priority was given to studies published in ranked journals, though seminal foundational works predating standard ranking systems, such as Barney's (1991) resource-based view, were retained given their continued theoretical relevance. Emphasis was placed on more recent publications (post-2015) to capture the growing body of work on digital transformation and green finance in emerging economies (Madrid-Guijarro et al., 2024; Narayan et al., 2025), while older studies were included where they represented foundational or highly cited contributions still shaping the field (DiMaggio and Powell, 1983). Where possible, studies specific to Indonesia or comparable emerging-market contexts were prioritized to strengthen contextual relevance, supplementing them with broader emerging-market and cross-national studies when Indonesia-specific evidence was limited (Amankwah-Amoah et al., 2019; Jamali et al., 2009). Grey literature, such as policy reports, was excluded to preserve methodological consistency and peer-review rigor across the sample.

The selection procedure followed a staged screening process broadly consistent with PRISMA-informed practices adapted for narrative reviews in management research. Initial searches generated a broad pool of records, which were first screened by title and abstract to remove clearly irrelevant studies, such as those focused exclusively on large multinational corporations or on sustainability topics unrelated to organizational or SME-level analysis. Remaining articles were then assessed at full-text level against inclusion criteria requiring that studies (a) addressed SME-level sustainability, environmental practice, or related organizational behavior; (b) were published in peer-reviewed journals or recognized academic outlets; and (c) contributed conceptually or empirically to at least one of the four thematic pillars guiding this review, financial access, institutional and regulatory pressure, digital capability, or owner-manager values.

Studies were excluded if they addressed sustainability at a purely macroeconomic or policy level without organizational relevance, or if they focused solely on large-firm contexts without applicability to resource-constrained SMEs (Bos-Brouwers, 2010; Revell et al., 2010). Reference lists of key articles were also hand-searched to identify additional relevant studies not captured through database queries, a technique known as backward citation tracking, which helps mitigate gaps arising from inconsistent keyword indexing (Webster and Watson, 2002; Rowley and Slack, 2004). This iterative process of searching, screening, and citation tracking continued until additional searches yielded diminishing new relevant material, indicating reasonable thematic saturation for a review of this scope.

Once the final set of studies was compiled, analysis proceeded through thematic synthesis. It is a method well suited to integrating conceptually diverse literature around shared organizing themes. Each article was read in full and coded according to its primary contribution to one or more of the four thematic pillars, financial access and green finance, institutional and regulatory pressure, digital transformation, and owner-manager values, while also noting cross-cutting theoretical perspectives such as stakeholder theory (Buysse and Verbeke, 2003), the resource-based view and Natural Resource-Based View (Barney, 1991), and institutional theory (DiMaggio and Powell, 1983). This coding process allowed patterns, points of convergence, and unresolved tensions across studies to be identified systematically rather than impressionistically (Kraus et al., 2020).

Particular attention was paid to how studies conceptualized the interaction between internal firm capabilities and external institutional or market conditions, since this interaction forms the conceptual core of the review's argument. Where studies produced conflicting findings, for instance, regarding whether regulatory pressure primarily motivates or burdens SMEs (Graafland and Bovenberg, 2020), these tensions were retained and discussed rather than resolved artificially, consistent with best practice in narrative synthesis (Snyder, 2019). The synthesis process was

iterative: emerging themes were continually checked against the broader sample to ensure they reflected patterns across multiple studies rather than isolated findings. This approach ultimately enabled the four thematic pillars to be integrated into a single explanatory framework connecting resources, institutions, technology, and managerial agency in shaping SME sustainability outcomes.

This section moves beyond the conceptual mapping offered in the literature review to examine what the reviewed research suggests for how Indonesian SMEs might practically advance sustainability within their specific resource and institutional conditions. The discussion traces financial access, institutional context, digital capability, and owner-manager values in turn, drawing out at each stage what the evidence implies for how Indonesian firms, policymakers, and support institutions could act.

RESULTS AND DISCUSSION

Financial Access: Building Sustainability from Where Indonesian SMEs Already Stand

Across the reviewed studies, financial access rarely behaves as a single, uniform barrier, and this variation carries direct implications for how Indonesian SMEs might approach sustainability given their typically limited starting capital. Younger and micro-scale firms, which dominate Indonesia's SME landscape, tend to struggle primarily with collateral and credit history, rather than with a lack of viable sustainability ideas (Beck and Demirguc-Kunt, 2006). For these firms, the most realistic path forward begins not with large capital-intensive investments but with low-cost, operationally embedded improvements, tighter resource use, reduced material waste, more efficient energy consumption in daily operations, that require modest capital yet generate visible, near-term savings.

This starting point matters because financial capacity and sustainability practice appear to build on one another cumulatively. Firms that begin with these modest actions often generate the cost savings, operational discipline, and documentation that later strengthen their standing with lenders and green-finance providers (Mukwarami and van der Poll, 2024). Indonesian SMEs often face difficulties in obtaining external financing because they have limited financial resources, weak financial records, and limited access to formal financing. In this situation, sustainability activities can play an important role. SMEs do not always need to make large investments in sustainability from the beginning. They can start with gradual and affordable practices, such as reducing waste, saving energy, improving resource efficiency, or using more responsible business processes.

Reaching those later-stage financing opportunities, however, depends on which channels are realistically within reach, and here Indonesian SMEs would benefit from looking beyond the formal green-finance products that dominate the academic literature. Bank credit and certification-linked loans remain limited across many emerging markets, including Indonesia, where fragmented governance and inconsistent sustainability-reporting standards constrain their availability (Madrid-Guijarro et al., 2024). This limited access to financing can increase pressure on SMEs to present stronger financial performance to lenders and other external parties. Such pressure may create incentives for financial statement fraud (Maulidi, 2016), particularly when SMEs rely heavily on financial statements to demonstrate their creditworthiness. Moreover, in practice, Indonesian SMEs already draw heavily on informal and relational financing, supplier credit, cooperative arrangements, community-based lending, and strengthening sustainability practice through these existing, trusted channels is likely to prove more immediately actionable than waiting for formal green-finance markets to mature.

What connects these possibilities is the importance of building basic sustainability-reporting capacity within Indonesian SMEs themselves, since much of the financing gap traces back to information rather than capital scarcity. Even where financing exists in principle, SMEs often lack the standardized indicators or technical documentation needed to demonstrate eligibility (Narayan et

al., 2025). Indonesian business associations, cooperatives, and local financial institutions are well positioned to close this gap by offering simplified sustainability-reporting templates and basic technical support, allowing SMEs to translate everyday operational improvements into the kind of evidence formal and informal lenders alike can recognize that turn a capacity gap into a manageable, addressable step rather than a structural barrier that only large-scale capital could resolve.

Institutional Pressure: Working With Indonesia's Layered Governance System

Institutional pressure operates unevenly across the reviewed literature, and its effectiveness traces closely to how consistently rules are enforced on the ground. It is a dynamic with particular relevance for Indonesia's decentralized regulatory structure, where environmental authority is distributed across national, provincial, and municipal levels. Where enforcement is steady and predictable, regulation shapes firm behavior effectively and can encourage voluntary practice beyond minimum compliance (Graafland and Bovenberg, 2020). For Indonesian regulators, this suggests that the sustainability agenda for SMEs is likely to advance further through consistent, well-resourced local enforcement than through the introduction of additional formal rules alone, since predictability appears to matter as much to firm behavior as the stringency of the requirement itself.

Where local enforcement capacity remains uneven, as it does across much of Indonesia's diverse regional economy, community expectations, industry norms, and peer conduct can meaningfully fill the gap, offering firms a source of pressure grounded in social visibility and reputational concern (Revell et al., 2010). Indonesian industry associations, cooperatives, and local business networks are therefore well positioned to play an active role in encouraging sustainability, translating broad national policy direction into locally credible expectations that carry weight even in districts where formal environmental oversight is thin.

Supply-chain relationships offer Indonesian SMEs a further, increasingly accessible route into sustainability practice. For firms connected to export-oriented value chains, environmental expectations transmitted by large buyers, through supplier codes, audits, and certification requirements, often function as a more immediate and binding pressure than domestic regulation itself (Lee, 2008; Vachon and Klassen, 2008). Indonesian SMEs seeking practical entry points into sustainability can treat these buyer requirements not simply as compliance burdens but as a structured pathway, since meeting one major buyer's environmental standard often builds capabilities readily transferable to other markets and to domestic regulatory expectations alike.

Underlying all of these channels is the way individual managers interpret the pressures reaching them, which ultimately determines how much practical force any regulation, community expectation, or buyer requirement carries. Support programs aimed at Indonesian SME owner-managers are therefore likely to be most effective when they address not just the technical content of environmental rules, but managers' understanding of why those rules matter and how compliance connects to tangible business benefit that build institutional pressure into something managers actively engage with, rather than a distant requirement to be navigated around.

Digital Capability: A Practical Entry Point for Resource-Constrained Firms

Digital transformation enters the sustainability picture as a capability rather than a single technology purchase, and for Indonesian SMEs, this framing matters because it shifts the question from whether firms can afford sophisticated systems to how they can build capability incrementally using tools already within reach. Real-time monitoring, basic energy-tracking applications, and simple digital record-keeping show the clearest links to environmental efficiency gains, allowing SMEs to identify waste and resource inefficiency with a precision that manual tracking rarely achieves. Given Indonesia's rapidly expanding mobile and digital infrastructure, many of these tools

are increasingly accessible even to smaller firms, that make digital capability one of the more immediately actionable levers available to Indonesian SMEs pursuing sustainability.

Beyond monitoring and efficiency, digital tools open a further avenue particularly relevant to Indonesian SMEs operating in competitive, fast-evolving markets: the capacity to experiment with new products, processes, and resource configurations at low cost and risk (Nambisan et al., 2019; Dangelico and Pujari, 2010). Encouraging Indonesian SMEs to use digital platforms for this kind of small-scale experimentation, testing a resource-efficient process change or a redesigned product line before committing significant capital, offers a practical route toward the deeper process innovation that sustainability improvement ultimately requires, well beyond what monitoring tools alone can deliver.

Owner-Manager Values: Cultivating Commitment That Spreads Through the Organization

Ownership structure gives individual conviction unusual weight in SME sustainability outcomes, and for Indonesian SMEs, where family ownership and close-knit management teams are common, this concentration of authority represents both an opportunity and a responsibility. Personal environmental concern translates into corporate sustainability practice with real consistency across the reviewed studies, though this translation runs through a filter of perceived economic advantage, meaning Indonesian owner-managers are more likely to act on conviction when sustainability is framed in terms of concrete business benefit, cost savings, customer appeal, market access, rather than environmental responsibility alone (Chassé and Courrent, 2018).

This filtering effect shifts with firm size, offering a useful guide for how support should be tailored across Indonesia's SME sector. Smaller firms tend to track mandatory requirements closely, implementing what compliance demands rather than extending meaningfully beyond it, suggesting that for Indonesia's smallest enterprises, clear and consistently enforced baseline requirements may do more to advance sustainability than appeals to voluntary conviction alone. Larger SMEs, by contrast, show more independent responsiveness to owner-manager commitment once compliance obligations are met, suggesting these firms are better candidates for leadership-focused sustainability initiatives that go beyond minimum standards.

Turning conviction into lasting practice depends on how effectively values travel through the rest of the organization, and Indonesian SMEs stand to benefit from treating this as a deliberate, ongoing process rather than assuming personal commitment alone suffices. Sustained practice tends to emerge through consistent interaction with employees and stakeholders, as managers communicate priorities and embed expectations into daily routines (Del Giudice et al., 2017). Simple internal practices, regular staff briefings on sustainability goals, visible tracking of resource savings, recognition of employee contributions to efficiency improvements, offer Indonesian SMEs a low-cost way to convert individual owner-manager conviction into organization-wide habit.

The motivations driving Indonesian owner-managers toward sustainability are rarely singular, often blending legitimacy concerns, reputational considerations, and market differentiation alongside genuine environmental commitment (Crossley et al., 2021). Recognizing and reinforcing this blend, rather than expecting environmental concern to stand alone as the primary motivator, gives training programs and business associations a broader and more realistic set of levers for encouraging Indonesian SMEs to adopt and sustain environmental practice over time.

Toward a Coordinated Path for Indonesian SMEs

Read as a whole, the evidence points toward a clear implication for encouraging sustainability among Indonesian SMEs: progress is most likely to come not from a single large intervention, but from aligning financial support, institutional consistency, digital access, and managerial engagement so that each reinforces the others. Financial capacity determines what a firm can afford to attempt,

institutional pressure shapes what it is expected to do, digital capability shapes how efficiently it can act on opportunity, and owner-manager conviction determines whether all of this translates into sustained practice rather than sporadic effort.

For Indonesian SMEs specifically, this suggests beginning where the barriers are lowest and building outward. Low-cost operational improvements offer an accessible starting point that requires little capital, generates measurable savings, and builds the operational record that can later support access to formal financing. Local enforcement consistency and community-level institutional support can extend the reach of national sustainability policy into the many regions where formal oversight alone is insufficient. Accessible digital tools, supported by targeted training, allow even resource-constrained firms to identify efficiency gains without requiring the sophisticated systems only larger firms can afford. And engaged, well-supported owner-managers can carry all of these elements forward consistently, translating available resources and external pressure into daily practice rather than allowing them to remain unrealized potential.

Coordinating these elements does not require Indonesian SMEs, policymakers, and support institutions to act in isolation from one another. Financial institutions, industry associations, local government, and larger buyers each hold levers relevant to different pieces of this picture, and their combined, mutually reinforcing efforts are likely to advance SME sustainability further than any single actor working alone. It is this pattern of coordinated, cumulative progress, starting from what Indonesian SMEs can realistically do now and building systematically toward greater capacity, that offers the most promising path for encouraging sustainability across the sector, and it forms the foundation for the discussion of implications and future research that follows.

Theoretical Implications

This review brings together four research areas that scholars usually study apart: finance, institutions, digital transformation, and owner-manager values. Most existing studies isolate a single factor and examine it on its own, which hides how these factors actually work together inside a firm. Bringing them into one framework shows that finance, rules, technology, and personal values do not act alone. They shape each other continuously. A firm's financial strength affects how well it can use digital tools. Local rules shape how much value an owner-manager places on going green. Digital capability turns saved resources into measurable performance. Seeing these connections moves SME sustainability research past single-factor explanations and toward a more integrated model of how change actually happens inside small firms.

This connected view also extends the resource-based view (Barney, 1991) and the Natural Resource-Based View (Hart, 1995) in a new direction. These theories traditionally treat resources as fixed assets that a firm either holds or lacks at the outset. The evidence gathered here instead shows resources building cumulatively through small, repeated actions. A firm can begin with limited capital, cut some waste, save money, and use that saving to strengthen its financial position over time. Resources become an outcome that firms construct step by step, not simply a starting condition that determines what is possible from day one. This reframing gives future researchers a clear basis for tracking the same SMEs over several years to observe how early operational choices compound into later capability.

Institutional theory (DiMaggio and Powell, 1983) gains similar refinement through this review’s attention to enforcement. Classic accounts assume formal rules push firms toward similar behavior once those rules exist. The evidence here shows that rules only produce this effect when enforcement stays steady across regions and over time. In decentralized settings such as Indonesia, where enforcement authority spreads across national, provincial, and municipal levels, the same law can produce very different outcomes depending on where a firm operates. Local norms and community expectations step into this space naturally, carrying real influence even where formal

enforcement remains thin. This pattern points toward a version of institutional theory that treats enforcement consistency as a variable in its own right, sitting alongside rule design as a determinant of firm behavior.

Stakeholder theory (Buysse and Verbeke, 2003) extends in a related direction through the role of supply-chain buyers. Large buyers transmit environmental standards to smaller suppliers through codes, audits, and certification requirements, often shaping supplier behavior more directly and more quickly than domestic law. This positions buyers as a form of private institutional actor operating alongside formal government regulation, a role that current stakeholder frameworks acknowledge only loosely and that deserves fuller treatment in future SME sustainability models. Moreover, research on owner-manager values (Chassé and Courrent, 2018; Del Giudice et al., 2017) gains added texture from this synthesis as well. Personal conviction translates into organizational practice most reliably when it passes through a filter of perceived economic benefit and interacts with firm size, with smaller firms tracking compliance closely and larger firms responding more independently to managerial belief. This dynamic positions owner-manager values as one interacting input within a broader system rather than a standalone driver acting in isolation from financial and institutional context.

Therefore, this review offers a more complete theoretical account of SME sustainability, one in which finance, institutions, digital capability, and personal values feed into each other in a continuous loop rather than a linear sequence. Early sustainability action builds financial access; financial access enables digital investment; digital capability strengthens performance; and owner-manager commitment carries all of it into daily practice. Future theory building can treat SME sustainability as an interacting system that develops continuously offering a richer foundation than models built around any single explanatory factor.

Practical Implications

Indonesian SME owners gain a clear and encouraging message from this review: sustainability does not require large upfront investment to begin. Small, low-cost actions, cutting waste, saving energy, using materials more carefully, generate savings almost immediately while building the operational record that lenders and green-finance providers later recognize. Treating these early steps as the foundation for future financing, rather than waiting for financing to arrive first, gives owners a realistic and immediate starting point regardless of their current capital position.

Financing itself becomes more reachable when owners look beyond formal bank products toward channels already woven into daily business life. Supplier credit, cooperative arrangements, and community-based lending remain widely used across Indonesia's SME sector and offer a faster, more familiar route to funding sustainability improvements than formal green loans, which stay limited in supply and difficult to access. Business associations and cooperatives can strengthen this pathway further by offering simple reporting templates and light technical support, helping owners translate everyday improvements into documentation that both formal and informal lenders can recognize and act on.

Consistent enforcement gives policymakers a more effective lever than new regulation alone. Firms respond most strongly to rules applied predictably over time, making steady, well-resourced enforcement across Indonesia's provinces and municipalities a more productive priority than expanding the volume of formal requirements. Where enforcement capacity remains uneven, industry associations and local business networks can carry sustainability expectations into communities through shared norms and peer visibility, reaching firms that formal oversight alone does not yet reach effectively.

Moreover, large buyers connected to export markets hold a parallel and complementary lever. Clear supplier standards, communicated through codes and certification requirements, build

environmental capabilities in smaller firms that transfer readily to other markets and to domestic regulatory expectations alike, turning buyer relationships into a practical training ground for sustainability practice well beyond the immediate transaction. Digital tools extend this momentum by giving owners a low-cost way to see where resources go and where waste occurs, using platforms increasingly available through Indonesia's expanding mobile and digital infrastructure. Reaching smaller and less-connected firms with targeted digital literacy support ensures these tools narrow gaps across the SME sector rather than favoring firms that already hold an advantage in capital or technical skill. Then, training programs and support agencies achieve the strongest results by speaking directly to business outcomes rather than environmental duty alone. Owner-managers act most consistently on sustainability when they see a clear link to cost savings, customer trust, or new market access, making this connection between environmental practice and business value the most effective foundation for encouraging lasting change across Indonesia's SME sector.

CONCLUSION

This review brings together four areas usually studied apart, financial access, institutional pressure, digital transformation, and owner-manager values, to show that SME sustainability grows through their interaction rather than through any single factor acting alone. Finance sets the boundary of what a firm can attempt, but it is not fixed. It means small, low-cost actions build savings and proof that later open access to stronger financing. Institutions shape what a firm is expected to do, yet formal rules carry real weight only when enforcement stays consistent; where it weakens, community norms and buyer standards fill the gap. Digital tools shape how efficiently a firm can act, helping smaller firms spot waste and test ideas without large investment. Owner-manager conviction ties these threads together, since resources, rules, and technology produce lasting change only when a manager chooses to act on them and carries that choice through the organization. None of these elements works well alone.

As such, this view offers a hopeful path for Indonesian SMEs. Progress does not require every advantage at once. A firm can start with what it already holds, a committed owner-manager, an accessible digital tool, a supportive local network, a modest saving from reduced waste, and build outward, each step creating the conditions for the next. Sustainability, understood this way, becomes an ongoing process of alignment between resources, rules, technology, and people, rather than a single achievement. So, this integrated framework gives researchers, policymakers, and business owners a shared foundation for understanding how sustainability takes hold in resource-constrained firms, and points toward research and action that treats these four elements as one connected system.

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