

Eco-Innovation and Sustainability in Halal SMEs: The Role of Dynamic Capabilities in Emerging Economies

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ABSTRACT

The increasing environmental challenges and evolving regulatory expectations have intensified the need for sustainable practices among small and medium-sized enterprises (SMEs), particularly within the rapidly expanding halal industry in emerging economies. Halal SMEs face unique dual pressures of maintaining strict compliance with halal standards while simultaneously addressing sustainability and environmental concerns. Despite growing awareness, many halal SMEs encounter significant challenges in implementing eco-innovation due to resource limitations, capability constraints, and operational complexities, which may hinder their long-term competitiveness and resilience.

This study aims to develop a conceptual framework that explains how halal SMEs can enhance sustainability performance through eco-innovation by leveraging internal organisational capabilities. The paper adopts a qualitative conceptual research design based on a structured and systematic review of existing literature on eco-innovation, SME sustainability, halal industry practices, and dynamic capabilities. Relevant studies were critically analysed and synthesised to identify key theoretical constructs and relationships influencing eco-innovation adoption in halal SME contexts.

Drawing on the dynamic capabilities' perspective, the study proposes that sensing, seizing, and reconfiguring capabilities enable halal SMEs to overcome structural, technological, and institutional barriers associated with eco-innovation. The findings suggest that eco-innovation acts as a critical mechanism linking organisational capabilities to improved sustainability outcomes while preserving halal integrity. Furthermore, the framework highlights the strategic role of capability development in aligning environmental sustainability with religious compliance requirements.

This study contributes to the literature by contextualising dynamic capabilities within the halal SME sector and extending eco-innovation research into emerging economy settings. It also provides practical insights for SME managers and policymakers to support capability development, innovation readiness, and sustainable growth in the halal industry.

Keywords: Eco-innovation, Dynamic capabilities, Halal SMEs, Sustainability

INTRODUCTION

The increasing pressure to address environmental sustainability has compelled businesses to adopt more responsible and resource-efficient practices. Small and medium-sized enterprises (SMEs), which contribute significantly to employment and industrial output across many economies, are now expected to align their operations with sustainability goals (Yadav et al., 2018). However, despite their economic importance, many SMEs continue to face substantial challenges in implementing sustainable practices, particularly due to limited financial resources, technological capabilities, and organisational support (Aragón-Correa et al., 2008; Lee and Klassen, 2008).

Eco-innovation has emerged as a key mechanism through which firms can respond to these challenges by developing environmentally friendly products, processes, and business models (Kemp and Pearson, 2007; Bossle et al., 2015). Beyond environmental benefits, eco-innovation can also enhance firm competitiveness and long-term performance (Horbach, 2008; Bossle et al., 2016). Nevertheless, the adoption of eco-innovation among SMEs remains uneven, particularly in emerging economies where institutional support, technological infrastructure, and access to green financing are often constrained (García et al., 2020). As a result, many SMEs struggle to translate sustainability intentions into practical and scalable innovation outcomes (Saima et al., 2024).

In this context, the halal industry offers a particularly relevant setting for examining sustainable practices. The global halal market has expanded rapidly, driven by growing demand for products that comply with Islamic principles of quality, safety, and ethical production. Halal SMEs, especially in emerging economies such as Malaysia, play a central role in supporting this growth (Islam et al., 2023). However, these firms operate under dual pressures: maintaining strict adherence to halal standards while simultaneously responding to increasing environmental and sustainability expectations (Jaaffar et al., 2024). This dual requirement introduces additional complexity, as halal compliance often involves stringent supply chain controls, certification processes, and quality assurance systems that may constrain flexibility in adopting new innovations (Abdul Rahman et al., 2018).

Although both eco-innovation and halal industry practices have received increasing scholarly attention, they have largely been examined in isolation. Eco-innovation research has predominantly focused on technological and environmental dimensions (Bossle et al., 2015; García et al., 2020), while studies on halal SMEs have emphasised compliance, certification, and market development (Abdul Rahman et al., 2018). Consequently, there remains limited integrated understanding of how halal SMEs can effectively adopt eco-innovation to achieve sustainability outcomes. More critically, insufficient attention has been given to the internal organisational capabilities that enable this transition.

To address this gap, this study adopts the dynamic capabilities perspective to explain how SMEs can leverage internal capabilities to support eco-innovation adoption and enhance sustainability performance. Dynamic capabilities, defined as a firm's ability to sense opportunities, seize resources, and reconfigure organisational processes, provide a valuable lens for understanding how firms adapt to rapidly changing environments (Teece, Pisano and Shuen, 1997; Teece, 2007). By applying this perspective to the context of halal SMEs, this paper develops a conceptual framework linking dynamic capabilities to eco-innovation and, ultimately, to firm sustainability, while offering context-specific insights relevant to emerging economies.

This paper contributes to the literature in several ways. First, it extends the application of dynamic capabilities theory to the intersection of eco-innovation and halal SME sustainability, an area that remains underexplored. Second, it proposes a structured conceptual framework that explains how SMEs can translate internal capabilities into sustainable innovation outcomes. Third, it offers practical insights for SME managers and policymakers in emerging economies, particularly within the halal sector, to support capability development and sustainable industrial growth.

The remainder of this paper is organised as follows. The next section reviews the relevant literature on dynamic capabilities, eco-innovation, SME sustainability, and the halal industry context. This is followed by the conceptual framework, which presents the relationships among the key constructs. The subsequent section outlines the methodology adopted in developing the framework. The paper then discusses the theoretical and practical implications of the proposed model before concluding with key insights and directions for future research.

LITERATURE REVIEW

Dynamic Capabilities in SMEs

The concept of dynamic capabilities has been widely recognised as a valuable framework for understanding how firms adapt to rapidly changing environments. Originating from the work of Teece, dynamic capabilities

refer to a firm's ability to integrate, build, and reconfigure internal and external competencies in response to shifting market conditions (Teece, Pisano and Shuen, 1997; Teece, 2007). This perspective moves beyond traditional resource-based views by placing greater emphasis on managerial processes and organisational routines that enable firms to renew and reconfigure their strategic capabilities over time.

In the context of small and medium-sized enterprises (SMEs), dynamic capabilities are particularly important due to inherent resource constraints and limited organisational slack. SMEs often lack the financial, technological, and human resources required to respond effectively to environmental changes (Aragón-Correa et al., 2008; Lee and Klassen, 2008). Consequently, the ability to sense opportunities, seize resources, and reconfigure organisational processes becomes essential for maintaining competitiveness. Prior studies suggest that SMEs possessing strong dynamic capabilities are better positioned to innovate, respond to environmental pressures, and achieve improved performance outcomes (Eisenhardt and Martin, 2000; Liao, Kickul and Ma, 2009).

In recent years, dynamic capabilities have been linked to sustainability-oriented strategies. Firms that can effectively reconfigure their resources are better positioned to integrate environmental considerations into their operations and develop adaptive responses to sustainability challenges (Huang and Xiao, 2023). However, despite their recognised importance, the application of dynamic capabilities within specific industry contexts remains limited, particularly in halal food manufacturing in emerging economies. This suggests a need for more context-specific investigations into how these capabilities translate into sustainable outcomes.

Eco-Innovation and Sustainability in SMEs

Eco-innovation has emerged as a key mechanism through which firms can address environmental challenges while simultaneously enhancing economic performance. It encompasses the development and implementation of new or improved products, processes, organisational methods, and business models that reduce environmental impact (Kemp and Pearson, 2007; Bossle et al., 2015). As sustainability concerns continue to intensify, eco-innovation has gained increasing recognition as a strategic approach, particularly for SMEs operating under resource constraints.

The adoption of eco-innovation can generate multiple benefits, including improved resource efficiency, cost reduction, regulatory compliance, and enhanced market positioning (Horbach, 2008; Yacob et al., 2019). It also enables SMEs to respond more effectively to stakeholder expectations and evolving environmental regulations, thereby strengthening organisational resilience (Bossle et al., 2016; Rabadán et al., 2019).

However, despite these advantages, eco-innovation adoption among SMEs remains inconsistent, particularly in emerging economies. This uneven adoption is often attributed to a combination of external and internal barriers, including limited access to financial resources, inadequate technological expertise, weak institutional support, and low levels of environmental awareness (García et al., 2020; Saima et al., 2024). In addition, internal organisational challenges, such as insufficient leadership commitment and the absence of a clear strategic orientation, can further constrain innovation efforts (Lee and Xie, 2024).

These challenges suggest that eco-innovation adoption is not solely dependent on external conditions but also on the firm's internal ability to mobilise and reconfigure resources. This highlights the relevance of dynamic capabilities as a critical enabler of eco-innovation within SMEs.

Halal SMEs in Emerging Economies

The halal industry has experienced significant growth in recent years, driven by increasing global demand for products that comply with Islamic principles of quality, safety, and ethical production. Within this expanding market, halal SMEs play a particularly important role, especially in emerging economies such as Malaysia, where the halal sector contributes substantially to economic development (Islam et al., 2023; HDC, 2024).

Unlike conventional SMEs, halal SMEs operate within a distinct regulatory and ethical framework that requires strict adherence to halal certification standards. These requirements extend beyond product ingredients to include production processes, supply chain management, and quality assurance systems (Jaaffar et al.,

2024). While such standards enhance product integrity and consumer trust, they may also introduce operational rigidity that limits flexibility in adopting new practices.

At the same time, the core principles underlying halal production, such as cleanliness, safety, and ethical responsibility are inherently aligned with broader sustainability objectives. This alignment presents a unique opportunity for halal SMEs to integrate eco-innovation into their operations. However, existing research has predominantly focused on halal compliance, certification, and market development, with relatively limited attention given to sustainability integration and eco-innovation adoption (Abdul Rahman et al., 2018; Yusoff et al., 2021).

More importantly, there remains a limited understanding of how internal organisational capabilities, particularly dynamic capabilities, influence eco-innovation adoption within halal SMEs. This gap is even more pronounced in emerging economy contexts, where institutional constraints and resource limitations further complicate innovation processes. Addressing this gap is therefore essential for developing a more comprehensive understanding of how halal SMEs can achieve sustainable growth.

CONCEPTUAL FRAMEWORK

This study develops a conceptual framework to explain how dynamic capabilities enable halal small and medium-sized enterprises (SMEs) to adopt eco-innovation and ultimately enhance sustainability performance. Drawing on the dynamic capabilities perspective, the framework emphasises the role of internal organisational capabilities in helping firms respond effectively to changing environmental demands, particularly within the unique constraints of halal compliance.

Dynamic capabilities, as conceptualised by Teece (2007), refer to a firm's ability to sense opportunities and threats, seize resources, and reconfigure organisational processes in response to dynamic environments (Teece, Pisano and Shuen, 1997; Teece, 2007). In the context of halal SMEs, these capabilities become especially important due to the dual requirement of maintaining halal integrity while simultaneously addressing sustainability challenges. This dual pressure necessitates a higher level of strategic alignment, coordination, and adaptability in organisational processes.

The sensing capability enables firms to identify emerging environmental trends, regulatory developments, and market opportunities related to eco-innovation (Teece, 2007; Pavlou and El Sawy, 2011, Omar A., 2011). For halal SMEs, this involves recognising how environmentally sustainable practices can be incorporated without compromising halal standards. Without effective sensing, firms may fail to identify viable eco-innovation opportunities that align with both sustainability and halal requirements.

The seizing capability involves the mobilisation of resources and the implementation of strategic decisions to capture identified opportunities (Teece, 2007). Within halal SMEs, this is reflected in the ability to invest in environmentally friendly technologies, adopt sustainable production methods, and align organisational strategies with both environmental objectives and halal compliance requirements. Through this capability, firms translate recognised opportunities into concrete eco-innovation initiatives (Arranz et al., 2020; Chien et al., 2022).

The reconfiguring capability refers to a firm's ability to realign its structures, processes, and organisational culture to support continuous innovation (Helfat and Peteraf, 2009; Pavlou and El Sawy, 2011). For halal SMEs, this capability is essential for embedding eco-innovation into routine operations while ensuring ongoing compliance with halal certification standards. This may involve reconfiguring supply chains, strengthen employee competencies, and foster an organisational culture that integrates both sustainability and halal values.

Building on these dimensions, the framework proposes that dynamic capabilities enable eco-innovation adoption by facilitating the identification, mobilisation, and institutionalisation of environmentally sustainable practices. Eco-innovation, in turn, functions as a mediating mechanism through which organisational capabilities are translated into improved sustainability performance (Roscoe et al., 2019; Reyes-Santiago et al.,

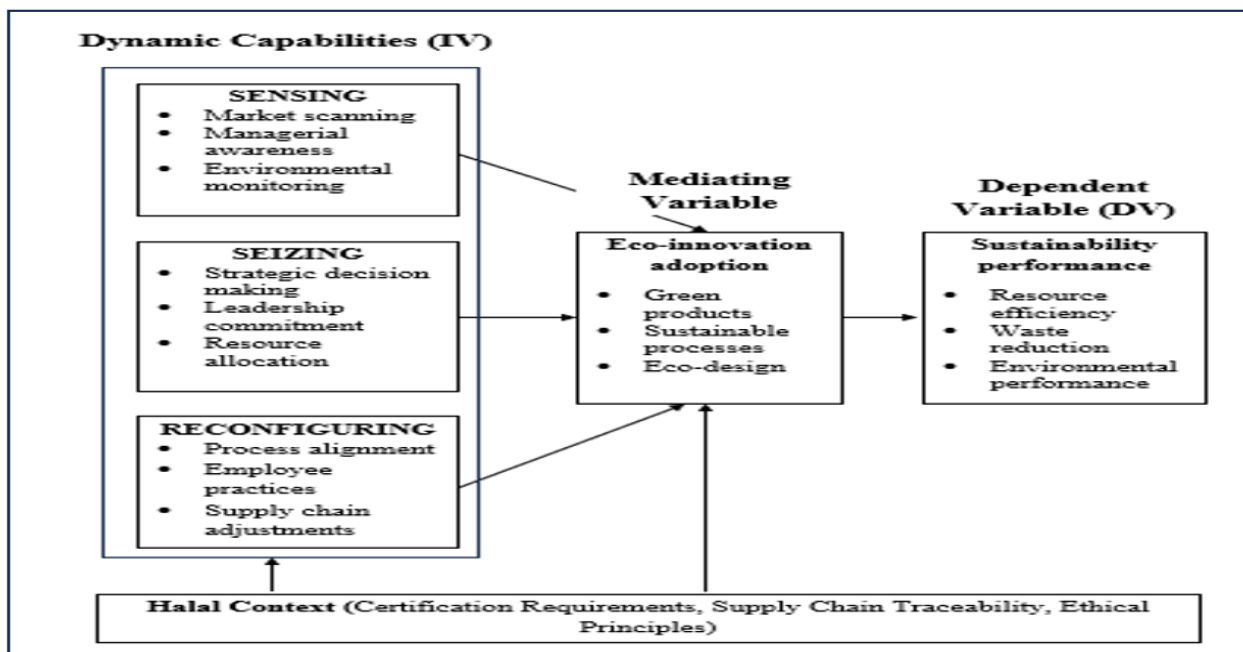
2020). Through eco-innovative practices, firms can reduce environmental impact, improve resource efficiency, and enhance long-term competitiveness while maintaining halal integrity (Bossle et al., 2015; García et al., 2020).

Importantly, the framework recognises that the halal context introduces additional strategic and operational considerations that shape the relationship between dynamic capabilities and eco-innovation. Compliance with halal standards, including certification requirements and supply chain traceability, may both constrain and enable innovation efforts (Tieman, 2013; Ab Talib and Ai Chin, 2018). However, these requirements can also act as structured mechanisms that enhance process discipline, quality assurance, and traceability, thereby supporting the implementation of eco-innovation initiatives. In this sense, halal principles can function not only as constraints but also as enabling conditions for sustainable practices.

Based on the proposed framework, the key constructs in this study include dynamic capabilities (comprising sensing, seizing, and reconfiguring), eco-innovation adoption, and sustainability performance. Dynamic capabilities are positioned as the primary independent construct, eco-innovation as a mediating construct, and sustainability performance as the outcome variable. In addition, the halal context is incorporated as a contextual dimension that shapes how these relationships are enacted in practice. The framework proposes that dynamic capabilities positively influence eco-innovation adoption, which in turn enhances sustainability performance, thereby linking organisational capabilities to sustainable outcomes within halal SMEs.

Overall, the proposed framework offers an integrated perspective that links dynamic capabilities, eco-innovation, and sustainability within the halal SME context. It provides a structured yet flexible explanation of how firms can navigate both environmental and religious requirements while pursuing sustainable growth in emerging economies.

Figure 1: Conceptual Framework of Dynamic Capabilities, Eco-Innovation Adoption, and Sustainability Performance in Halal SMEs



Propositions Development

Building on the proposed conceptual framework, this study advances several propositions to guide future empirical investigation of the relationships between dynamic capabilities, eco-innovation, and sustainability performance within halal SMEs.

Dynamic capabilities, encompassing sensing, seizing, and reconfiguring capabilities, enable firms to identify opportunities, mobilise resources, and transform organisational processes in response to changing

environmental conditions (Teece, 2007). In the context of halal SMEs, these capabilities are particularly critical due to the dual pressures of maintaining halal compliance while adapting to increasing sustainability demands. Firms that effectively deploy dynamic capabilities are therefore more likely to adopt eco-innovation practices that align environmental objectives with operational and regulatory requirements.

P1: Dynamic capabilities (sensing, seizing, and reconfiguring) are expected to enhance eco-innovation adoption in halal SMEs.

Eco-innovation represents a key mechanism through which firms translate internal capabilities into sustainability outcomes. Through the adoption of environmentally friendly products, processes, and organisational practices, SMEs can improve resource efficiency, reduce environmental impact, and strengthen long-term competitiveness (Bossle et al., 2015; García et al., 2020). In halal SMEs, eco-innovation further supports the integration of sustainability practices with halal principles, reinforcing both compliance and value creation.

P2: Eco-innovation adoption is expected to enhance sustainability performance in halal SMEs.

Eco-innovation enables firms to achieve both environmental and economic benefits by improving resource efficiency, reducing waste, and strengthening competitive advantage (Horbach, 2008; Yacob et al., 2019). In addition, eco-innovation has been widely recognised as a critical driver of firm sustainability by integrating environmental considerations into products, processes, and organisational practices, thereby enhancing long-term performance outcomes (Bossle et al., 2015; García et al., 2020). In the context of halal SMEs, the adoption of eco-innovation practices further supports alignment between sustainability objectives and halal compliance requirements, thereby enhancing overall sustainability performance, particularly in meeting both environmental standards and halal integrity expectations.

P3: Eco-innovation is expected to mediate the relationship between dynamic capabilities and sustainability performance.

While dynamic capabilities provide the foundation for organisational adaptability, their impact on sustainability outcomes is often indirect and realised through intermediate processes such as innovation (Eisenhardt and Martin, 2000; Teece, 2007). In this regard, eco-innovation functions as a critical mechanism through which firms translate internal capabilities into tangible sustainability outcomes (Bossle et al., 2015; Reyes-Santiago et al., 2020). In the context of halal SMEs, this mediating role is particularly important because internal capabilities must not only support sustainability-oriented innovation but also ensure that such innovation remains consistent with halal requirements. Firms that possess strong dynamic capabilities are therefore better equipped to develop and implement eco-innovative solutions that enhance sustainability performance while preserving halal integrity (Roscoe et al., 2019; Jaaffar et al., 2024).

P4: Sensing capability is expected to facilitate eco-innovation adoption by strengthening opportunity recognition in halal SMEs.

To further unpack the role of dynamic capabilities, it is important to consider their individual dimensions. Sensing capability enables firms to identify emerging environmental trends, regulatory changes, and market opportunities related to sustainability (Teece, 2007; Pavlou and El Sawy, 2011, Omar A., 2011). By enhancing a firm's ability to recognise such opportunities, sensing capability provides the necessary foundation for the development and adoption of eco-innovation initiatives. In the context of halal SMEs, this capability also involves recognising opportunities to introduce environmentally responsible practices without compromising halal compliance, certification requirements, or consumer trust. This strengthens the firm's ability to respond proactively to evolving environmental and market demands while ensuring alignment with halal market expectations (Tieman, 2013).

P5: Seizing capability is expected to support eco-innovation adoption through effective resource mobilisation.

Seizing capability reflects a firm’s ability to mobilise resources and make strategic decisions to capture identified opportunities (Eisenhardt and Martin, 2000; Teece, 2007). By allocating financial, technological, and organisational resources effectively, firms are better positioned to develop and implement eco-innovation initiatives that support sustainability objectives. In halal SMEs, this capability includes investing in green technologies, adopting environmentally friendly processes, and aligning organisational strategies with both sustainability goals and halal requirements. Such strategic resource mobilisation enhances the firm’s ability to translate recognised opportunities into practical eco-innovation outcomes while maintaining compliance with halal standards (Arranz et al., 2020).

P6: Reconfiguring capability is expected to enable eco-innovation adoption by fostering organisational transformation and process alignment.

Reconfiguring capability enables firms to restructure organisational processes, routines, and resources to support continuous innovation. This capability is essential for embedding eco-innovation into daily operations while maintaining compliance with halal standards (Helfat and Peteraf, 2009; Pavlou and El Sawy, 2011; Omar A., 2011). By realigning internal structures and operational processes, this capability facilitates the integration and implementation of eco-innovation within organisational routines. In halal SMEs, reconfiguring capability is particularly critical for embedding eco-innovation into daily operations while maintaining compliance with halal standards. It enables firms to adapt internal structures and supply chain practices to accommodate both environmental and halal requirements, thereby ensuring long-term adaptability, operational coherence, and sustained sustainability performance.

Table 1: Suggested Measurement Indicators

Source: Author’s development based on Teece (2007), Pavlou and El Sawy (2011), Omar A. (2011), and eco-innovation literature.

Construct	Example Indicators
Sensing capability	Environmental scanning activities; Identification of sustainability-related opportunities; Monitoring of regulatory and market trends
Seizing capability	Investment in green technologies; Allocation of resources for sustainability initiatives; Strategic decision-making for eco-innovation adoption
Reconfiguring capability	Process restructuring to support sustainability; Organisational flexibility; Integration of new eco-innovative practices into operations
Eco-innovation	Development of green products; Adoption of eco-friendly processes; Implementation of environmentally sustainable practices
Sustainability performance	Reduction in environmental impact; Improved resource efficiency; Enhancement of long-term economic and environmental performance

METHODOLOGY

This study adopts a qualitative conceptual research design to develop a theoretical framework linking dynamic capabilities, eco-innovation, and sustainability within the context of halal small and medium-sized enterprises (SMEs). Conceptual research is appropriate for synthesising existing knowledge and advancing theoretical understanding in areas where empirical findings remain fragmented and context-specific (Gilson and Goldberg, 2015; Saunders, Lewis and Thornhill, 2019).

A structured literature review approach was employed to identify and analyse relevant studies related to dynamic capabilities, eco-innovation, SME sustainability, and halal industry practices. The review focused on peer-reviewed journal articles, conference papers, and policy reports available in established academic databases, including Scopus, Web of Science, and Google Scholar (Tranfield et al., 2003). Key search terms

included “dynamic capabilities”, “eco-innovation”, “SMEs”, “sustainability”, and “halal industry”, ensuring comprehensive coverage of the relevant domains.

To enhance the rigour and transparency of the review process, explicit inclusion and exclusion criteria were applied. Studies were included if they (i) were directly relevant to the research themes, (ii) were published in peer-reviewed or reputable academic sources, and (iii) were written in English. Studies lacking theoretical grounding or empirical relevance were excluded. This approach aligns with established systematic literature review protocols in management research (Tranfield et al., 2003).

The selected literature was systematically analysed using a thematic synthesis approach to identify recurring concepts, theoretical constructs, and relationships across studies. This process facilitated the categorisation and integration of key themes linking organisational capabilities, eco-innovation adoption, and sustainability outcomes (Creswell and Creswell, 2017; Saunders, Lewis and Thornhill, 2019). Through this synthesis, the study integrates insights from multiple research streams to develop a coherent conceptual understanding of sustainable innovation in halal SMEs.

The framework development was guided by the dynamic capabilities’ perspective, particularly the sensing, seizing, and reconfiguring dimensions proposed by Teece (2007). These dimensions were integrated with eco-innovation and sustainability constructs to form a coherent conceptual model tailored to the halal SME context. The halal dimension was incorporated as a contextual layer influencing both capability deployment and innovation processes.

Overall, this methodological approach enables the development of a theoretically grounded and context-specific framework that contributes to the understanding of sustainable innovation practices in halal SMEs within emerging economies.

DISCUSSION AND IMPLICATIONS

Discussion

This study set out to develop a conceptual framework explaining how dynamic capabilities enable halal SMEs to adopt eco-innovation and enhance sustainability performance within emerging economies. Drawing on the dynamic capabilities’ perspective, the proposed model highlights the role of sensing, seizing, and reconfiguring capabilities in facilitating eco-innovation adoption, which subsequently contributes to improved sustainability outcomes (Eisenhardt and Martin, 2000; Teece, 2007).

The findings suggest that dynamic capabilities provide the underlying mechanism through which halal SMEs can respond effectively to both environmental and market pressures. In particular, sensing capability allows firms to recognise emerging sustainability trends and regulatory expectations, while seizing capability enables them to mobilise resources and translate these opportunities into actionable strategies. Reconfiguring capability further supports the continuous alignment of organisational processes and structures, ensuring that eco-innovation can be embedded within daily operations (Helfat and Peteraf, 2009; Pavlou and El Sawy, 2011).

Importantly, the role of eco-innovation as a mediating mechanism reinforces the idea that organisational capabilities alone are insufficient unless they are translated into concrete innovation practices. This highlights the need for SMEs to move beyond awareness and actively implement environmentally sustainable solutions. Prior studies have similarly emphasised the importance of eco-innovation in linking organisational capabilities to sustainability outcomes (Bossle et al., 2015; García et al., 2020). In the halal SME context, this process becomes more complex due to the need to maintain strict compliance with halal standards, which may influence both the pace and direction of innovation (Jaaffar et al., 2024).

For instance, consider a halal food manufacturing SME aiming to improve its environmental performance while maintaining strict compliance with halal certification standards. Through its sensing capability, the firm identifies growing market demand for environmentally sustainable and ethically produced halal products. In response, the firm leverages its seizing capability to invest in eco-innovative solutions such as energy-efficient

production technologies, waste reduction practices, and sustainable product design, which are widely recognised as key forms of eco-innovation in SMEs (Bossle et al., 2015; García et al., 2020). Subsequently, through reconfiguring capability, the firm realigns its internal processes, employee practices, and supply chain systems to ensure that these innovations are fully integrated while remaining compliant with halal requirements (Tieman, 2013; Ab Talib and Ai Chin, 2018). This example illustrates how dynamic capabilities enable halal SMEs to translate sustainability-oriented opportunities into practical eco-innovation outcomes that enhance both environmental performance and regulatory compliance.

Additionally, the effectiveness of dynamic capabilities in driving eco-innovation adoption may not be uniform across all halal SMEs, but rather contingent upon specific organisational and institutional conditions. In particular, the deployment of sensing, seizing, and reconfiguring capabilities may be shaped by factors such as regulatory intensity, firm resource endowment, and market orientation (Teece, 2007; Eisenhardt and Martin, 2000). In highly regulated halal environments, stricter certification and compliance requirements may necessitate more structured and coordinated capability deployment, potentially slowing down innovation processes while enhancing reliability and traceability (Tieman, 2013; Ab Talib and Ai Chin, 2018). Conversely, SMEs with stronger resource bases and strategic flexibility may be better positioned to leverage dynamic capabilities for proactive eco-innovation adoption (Aragón-Correa et al., 2008; Lee and Klassen, 2008). These contextual variations suggest that the relationship between dynamic capabilities and eco-innovation is context-dependent and path-sensitive, highlighting the need for future research to examine how different environmental and organisational contexts influence capability effectiveness within halal SMEs (Helfat and Peteraf, 2009).

The inclusion of the halal context provides an additional layer of understanding by demonstrating that sustainability and religious compliance are not mutually exclusive. Instead, halal principles such as cleanliness, safety, and ethical responsibility can complement sustainability objectives, creating opportunities for integrated value creation (Tieman, 2013; Ab Talib and Ai Chin, 2018). This perspective shifts the narrative from viewing halal requirements as constraints to recognising them as potential enablers of responsible innovation.

Overall, the proposed framework offers a coherent explanation of how halal SMEs can navigate the dual pressures of sustainability and compliance by leveraging internal capabilities and innovation practices. It also contributes to a more nuanced understanding of how dynamic capabilities operate within context-specific environments, particularly in emerging economies.

Theoretical Implications

This study contributes to the existing literature in several important ways. First, it extends the application of dynamic capabilities theory as proposed by Teece, Pisano and Shuen (1997) by integrating it with eco-innovation and sustainability within the underexplored context of halal SMEs (Huang and Xiao, 2023). While prior research has examined these constructs separately, the present study offers a more integrated perspective that highlights their interrelationships.

Furthermore, it contributes to the microfoundations perspective of dynamic capabilities by explicitly linking sensing, seizing, and reconfiguring capabilities to eco-innovation processes within a context-specific setting.

In addition, the role of eco-innovation as a mediating mechanism between organisational capabilities and sustainability performance is reinforced. By positioning eco-innovation as the link between dynamic capabilities and outcomes, the framework provides a clearer explanation of how capabilities are translated into tangible results (Roscoe et al., 2019; Reyes-Santiago et al., 2020).

Finally, the study contributes to the growing body of literature on sustainability in emerging economies by incorporating contextual factors such as halal requirements. This adds depth to existing theoretical models, which often overlook the influence of cultural, religious, and institutional factors on organisational behaviour (Islam et al., 2023).

Practical Implications

From a practical perspective, the findings provide useful insights for SME managers and policymakers operating within the halal sector. For managers, the framework highlights the importance of developing internal capabilities that support not only operational efficiency but also innovation readiness. Investing in capabilities related to opportunity recognition, resource mobilisation, and organisational flexibility can enhance the firm's ability to adopt eco-innovation effectively (Arranz et al., 2020).

Furthermore, managers should recognise that eco-innovation is not solely a technological issue but also an organisational one. Building a supportive internal environment, including leadership commitment and employee engagement, is essential for successful implementation. In the halal context, firms should aim to align sustainability initiatives with halal principles, thereby strengthening both compliance and competitive positioning (Jaaffar et al., 2024).

For policymakers, the study underscores the need to provide greater institutional support for halal SMEs, particularly in areas such as access to green financing, technological assistance, and training programmes. Policies that encourage the integration of sustainability and halal practices can help SMEs overcome existing barriers and accelerate the adoption of eco-innovation (García et al., 2020).

Overall, these findings suggest that capability development and eco-innovation adoption should be treated as strategic priorities rather than operational initiatives within halal SMEs.

CONCLUSION

This study develops a conceptual framework that explains how dynamic capabilities enable halal SMEs to adopt eco-innovation and achieve sustainability performance within emerging economies. By integrating the dynamic capabilities perspective with eco-innovation and the halal context, the study provides a more comprehensive understanding of how firms can respond to increasing environmental and regulatory pressures (Teece, 2007).

The framework highlights the critical role of sensing, seizing, and reconfiguring capabilities in facilitating eco-innovation adoption, which in turn drives sustainability outcomes. It further demonstrates that halal principles can be aligned with sustainability objectives, creating opportunities for firms to generate value while maintaining compliance with religious standards.

Overall, this study contributes to both theory and practice by providing a structured and context-sensitive perspective on sustainable innovation in halal SMEs. While conceptual in nature, the framework offers a foundation for future empirical research to validate and extend the proposed relationships.

Future research may operationalise the proposed constructs using established measurement scales for dynamic capabilities, eco-innovation, and sustainability performance, and empirically test the framework using quantitative approaches such as structural equation modelling. Such efforts would enable the validation of the proposed relationships and provide deeper insights into the strength and significance of these linkages across different halal SME contexts.

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