

The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance

Abstract

Purpose: This study builds upon Dynamic Capabilities (DC) and Triple Bottom Line (TBL) theories and investigates the influence of Knowledge Integration Capability (KIC), Reconfiguring Capability (RC), and Innovation Orientation (IO) on Sustainable Performance (SP), and the impact of IO on KIC and RC.

Methodology: This study employs SEM-PLS methodology on a sample of 156 employees of Egyptian SMEs that operate in the food manufacturing industry.

Findings: The findings indicate significant positive effects of KIC, RC, and IO on SP which is consistent with DC theory principles. Furthermore, the statistical analysis emphasizes the significant impact of IO on KIC and RC.

Originality: First, this study reconceptualizes KIC, IO, and RC within the sensing, seizing and transforming framework proposed by David Teece and colleagues (1997), offering a more granular operationalization of dynamic capabilities. Second, it reveals the central role of IO and its synergistic interaction with KIC and RC in driving sustainable performance. Third, the study advances the dynamic capabilities literature by positioning these capabilities as integrated antecedents of sustainable performance rather than examining them in isolation. Finally, it provides robust empirical evidence from an underexplored context, strengthening the explanatory power of dynamic capability theory in enhancing firms’ competitive positioning and sustainability outcomes.

Key words: Knowledge Integration Capability (KIC), Reconfiguring Capability (RC), Innovation Orientation (IO), Sustainable Performance (SP), SMEs

Paper type: Research paper

List of Abbreviations:

AVE	Average Variance Extracted
CMB	Common Method Bias
CR	Composite Reliability
DC	Dynamic Capabilities
IO	Innovation Orientation
KBV	Knowledge-Based View
KIC	Knowledge Integration Capability
M	Mean
RBV	Resource-Based View
RC	Reconfiguring Capability

SD Standard Deviation

SMEs Small and Medium sized Enterprises

SP Sustainable Performance

TBL Triple Bottom Line

VIF Variance Inflation Factor

1. Introduction

Although previous studies have emphasized the importance of Dynamic Capabilities (DC) in sustaining competitive advantage (Teece, 1998, 2007; Schilke, 2014; Fainshmidt et al., 2019; Ferreira & Coelho, 2019; Abdelkareem et al., 2022), scholars continue to debate the specific attributes and interrelationships of different types of DC (Fainshmidt & Frazier, 2017; Luo et al., 2025). Meanwhile, the global shift toward sustainability has intensified expectations for firms to achieve balanced economic, social, and environmental outcomes particularly within the manufacturing sector (Zaid et al., 2018). Yet achieving balance across these dimensions remains difficult (Pullman, Maloni, & Carter, 2009; Grethchen & Christine, 2012).

Building on these challenges, this study integrates DC theory and the Triple Bottom Line (TBL) framework to examine how Knowledge Integration Capability (KIC), Reconfiguring Capability (RC), and Innovation Orientation (IO) interact to enhance Small and Medium sized Enterprises' (SMEs) sustainable performance (SP). This focus is especially relevant in developing contexts where digital transformation and sustainability pressures demand adaptive and knowledge-based strategic responses.

Although sustainability has become a mainstream concern in management research (Sapta et al., 2021; Tajpour et al., 2022), SMEs have lagged behind larger corporations in implementing sustainability initiatives (Dey et al., 2020; Di Vaio & Varriale, 2020). This gap is critical because SMEs represent around 90% of businesses globally and contribute approximately 60% of total employment (Bonner, 2019). The limited financial, technological, and managerial resources of SMEs particularly in developing countries make it difficult to achieve sustainability goals while maintaining competitiveness. Weak infrastructure, regulatory complexity, and institutional voids further constrain their progress, underscoring the need for research that examines how dynamic capabilities can help SMEs overcome these barriers (Mady, et al., 2022; Akinyele, et al., 2025).

Existing research has examined a variety of organizational capabilities that promote sustainability such as innovation (Mady et al., 2023), big data integration (Edwin Cheng et al., 2022), network capability (Ben Amara & Chen, 2020), organizational learning (Iqbal & Ahmad, 2021), and knowledge management (Farooq, 2018; Sapta et al., 2021). However, a critical theoretical and empirical gap remains regarding how KIC, RC, and IO collectively shape SP. Previous studies have treated these capabilities separately, neglecting their dynamic interdependence and potential synergistic effects.

Accordingly, this research argues that KIC, RC, and IO represent interconnected DC that together enable SMEs to sense opportunities, reconfigure resources, and innovate toward sustainability. KIC facilitates the assimilation and synthesis of diverse knowledge sources to support sustainability-oriented decision-making (Wang, Kung, & Byrd, 2018). IO provides a

proactive cultural and strategic orientation that drives creative solutions aligned with sustainability goals (Farzaneh et al., 2022; Al-Husseini, 2023). RC allows firms to translate such innovations into reconfigured processes and resources, enabling responsiveness to environmental complexity and long-term resilience (Pezeshkan et al., 2016; Khan, Daddi, & Iraldo, 2021).

Theoretically, this study advances DC theory by developing and empirically validating an integrated model that conceptualizes KIC, IO, and RC as complementary and mutually reinforcing capabilities. By examining their joint effect, the study explains how dynamic capabilities collectively drive sustainable performance, particularly within resource constrained SME contexts, an area that remains underexplored.

Practically, the findings provide actionable guidance for SME managers and policymakers in developing economies, highlighting how adaptive structures, innovation-driven practices, and effective knowledge integration can strengthen resilience and support long term sustainability objectives.

The remainder of this paper is structured as follows: Section 2 reviews relevant literature and presents the conceptual framework. Section 3 outlines the research methodology. Section 4 reports empirical findings and analysis. Section 5 discusses theoretical and practical implications, limitations, and directions for future research.

2. Theory and hypotheses development

2.1 Theory of Dynamic Capabilities (DC)

DC theory, proposed by Teece et al. (1997), is one of the most influential frameworks in strategic management. It explains a firm's capacity to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Unlike the Resource-Based View (RBV), which emphasizes the possession of valuable, rare, inimitable, and non-substitutable resources, DC theory focuses on the processes through which firms continuously renew, recombine, and redeploy these resources to remain competitive (Eisenhardt and Martin, 2000; Ferreira and Coelho, 2019). This distinction is particularly relevant in sustainability research, where competitive advantage increasingly depends not on static assets, but on a firm's ability to respond to evolving economic, environmental, and social demands.

Teece (2007) identifies three core components of DC: sensing, seizing, and reconfiguring. Sensing involves scanning and interpreting both internal and external environments to identify opportunities and threats (Fainshmidt et al., 2019). Seizing refers to responding decisively to these changes by mobilizing resources to capture emerging opportunities or mitigate risks (Blome, Schoenherr & Rexhausen, 2013). Reconfiguring entails restructuring and recombining organizational resources, capabilities, and routines to maintain strategic alignment and achieve sustainability (Wilden, Devinney & Dowling, 2016). Together, these processes explain how firms translate environmental turbulence into sustained performance, rather than merely reacting to change.

The alignment of KIC, IO, and RC with Teece's (2007) DC framework—comprising sensing, seizing, and reconfiguring—is grounded in the way each capability enables firms to identify, exploit, and adapt to opportunities in dynamic environments. KIC reflects the sensing dimension because it underpins a firm's ability to identify and interpret new opportunities by

integrating dispersed knowledge from internal and external sources (Wang, Chen & Fang, 2018; Fainshmidt et al., 2019). Sensing does not merely involve scanning the environment. It requires absorptive capacity—the ability to assimilate and apply new knowledge (Zahra & George, 2002)—and KIC operationalizes this by transforming fragmented insights into actionable intelligence. IO represents the seizing process, as it involves converting sensed opportunities into strategic actions through innovation-driven initiatives (Siguaw, Simpson & Enz, 2006; Farzaneh et al., 2022). Seizing depends on organizational commitment to experimentation and risk-taking, which IO embodies through its proactive pursuit of novel ideas that align with sustainability and market responsiveness (Teece, 2007; Li, Zhang & Zhang, 2021). Finally, RC corresponds with the reconfiguring dimension, which entails continuously transforming the firm’s resource base to sustain competitive advantage (Wilden, Devinney & Dowling, 2016). RC allows firms to re-align structures and competencies in response to environmental feedback, thus enabling long-term adaptability and resilience (Teece, Peteraf & Leih, 2016; Fainshmidt & Frazier, 2017).

Importantly, although KIC and RC are related, they represent analytically distinct stages of the DC process. KIC operates primarily at the cognitive and informational level, shaping how firms understand their environments and identify sustainability opportunities, whereas RC operates at the structural and operational level, determining how resources are physically redeployed and organizational routines are modified. In this sense, KIC informs what should change, while RC determines how change is enacted. This distinction addresses concerns of conceptual overlap by positioning KIC as an antecedent input into reconfiguration processes, rather than as a substitute for them.

Collectively, these three capabilities represent an interdependent dynamic process: KIC provides the cognitive foundation for environmental sensing, IO channels this knowledge into innovative strategic responses, and RC institutionalizes these changes through resource reconfiguration. This systematic mapping illustrates how dynamic capabilities interact to convert environmental turbulence into sustained performance.

Therefore, this study draws on DC theory to conceptualize the relationships among KIC, IO, RC, and SP. As illustrated in the conceptual framework (Figure 1), these three capabilities are theorized to enhance a firm's ability to respond to dynamic market demands and achieve long-term sustainability (Teece, Peteraf & Leih, 2016).

2.2 Triple Bottom Line (TBL) and Sustainable Performance (SP)

SP is an integrated concept that captures a firm’s ability to balance environmental, social, and economic objectives over the long term (Elkington, 1998; Severo, Guimarães & Dorion, 2017). It goes beyond traditional financial performance to encompass the TBL: economic, environmental, and social dimensions (Elkington, 1998; Engert, Rauter & Baumgartner, 2016). The economic dimension refers to profitability, cost efficiency, and long-term financial growth. The environmental dimension emphasizes the responsible use of natural resources, pollution reduction, and ecological innovation. The social dimension involves fair labor practices, community engagement, and employee well-being (Goyal, Sergi & Kapoor, 2017; Rashid, 2022).

Firms that effectively manage sustainability tend to outperform their peers not only financially but also in terms of brand reputation, risk mitigation, and long-term stakeholder trust (Severo

Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) "The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance", *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026

et al., 2017; Masocha, 2018). This broader view of performance is especially relevant in the context of increasing environmental regulations, stakeholder scrutiny, and global challenges such as climate change (Klewitz & Hansen, 2014; Daddi, Todaro & Frey, 2018).

In this study, SP is conceptualized as a multidimensional construct that captures how well firms perform across the TBL. It serves as the dependent variable in the conceptual framework, influenced by three dynamic capabilities: KIC, IO, and RC. By aligning business strategies with sustainability goals, firms can enhance resilience, create long-term value, and contribute meaningfully to sustainable development.

2.3 Knowledge Integration Capability (KIC)

Van Knippenberg's (2017) framework defines knowledge integration as the synergistic combination of knowledge held by different organizational members to create a collective understanding that supports decision-making and innovation. Zahra et al. (2007) conceptualize KIC as a firm's ability to process, combine, and apply existing and newly acquired knowledge effectively. In this context, KIC reflects an organization's ability to synthesize and utilize knowledge and skills from operational processes, suppliers, and partners (Wang et al., 2018; Al-Husseini, 2023). These processes include both the exchange of internal knowledge and the assimilation of external knowledge (Newell, Tansley and Huang, 2004), thereby allowing firms to transform dispersed information into actionable insights.

From the perspective of the knowledge-based view (KBV), knowledge is the most strategically significant resource, and the firm's ability to integrate it underpins superior and sustained performance (Taylor and Greve, 2006; Bashir and Farooq, 2019). While knowledge creation focuses on generating new ideas and competencies, knowledge integration emphasizes embedding those ideas into processes, products, and services that enhance performance (Farooq, 2018; Salunke et al., 2019; Al-Husseini, 2023). In this sense, KIC functions as a micro foundation of DC, enabling firms to sense and interpret environmental shifts by integrating diverse information sources, and to seize opportunities through effective application of knowledge (Teece, 2007; Fainshmidt et al., 2019). Thus, it is not merely a static repository of information but a dynamic process that allows organizations to adapt, innovate, and sustain competitive advantage in volatile contexts.

Empirical studies reinforce that firms with strong KIC are better positioned to leverage collective expertise for innovation and sustainability. Davies and Hobday (2005) assert that KIC allows firms to integrate knowledge, skills, and technologies to achieve superior outcomes, while Farooq (2018) and Wang et al. (2018) highlight its role in strengthening competitive positioning through effective resource utilization. Moreover, KIC facilitates the conversion of available resources into innovative products and services that enhance both financial and environmental performance (Mazloomi et al., 2017). Caridi-Zahavi, Carmeli, and Arazy (2016) further demonstrate that KIC supports operational excellence and innovation by promoting the development of novel, high-quality offerings. Collectively, these findings indicate that KIC contributes not only to competitiveness but also to long-term sustainability by embedding environmental and social considerations into innovation processes.

Critically, the link between KIC and SP can be explained through two complementary mechanisms. First, by enabling the integration of diverse knowledge, KIC fosters innovative solutions that align with sustainability objectives, such as eco-efficient production or waste

reduction. Second, the integration process enhances organizational learning and tacit knowledge accumulation, making it difficult for competitors to replicate these advantages (Salunke et al., 2019). This aligns with Teece's (2007) framework, where KIC supports sensing and seizing functions by identifying sustainability opportunities and embedding them into business models while simultaneously reinforcing reconfiguring through adaptive learning. As a result, firms with high KIC can translate sustainability knowledge into tangible, strategic outcomes that balance economic, environmental, and social goals. Therefore, grounded in the DC and KBV perspectives, it is hypothesized that:

H1: Knowledge integration capability positively influences sustainable performance.

2.4 Reconfiguring Capability (RC)

RC refers to a firm's ability to integrate, renew, and reallocate its existing and newly acquired resources to exploit emerging opportunities and respond to environmental changes (Teece et al., 1997; Khan, Daddi and Iraldo, 2021). Within dynamic markets characterized by technological turbulence and shifting sustainability expectations, RC enables firms to maintain strategic alignment by continuously reshaping their resource base. This ability is especially crucial in ensuring that internal processes, technologies, and structures remain adaptive to both market demands and sustainability imperatives.

From the DC perspective, RC represents the reconfiguring dimension of Teece's (2007) triad of sensing, seizing, and reconfiguring capabilities. While sensing identifies environmental changes and seizing exploits opportunities, reconfiguring ensures the long-term viability of these actions by transforming organizational assets and routines (Eisenhardt and Martin, 2000; Teece, 2007). This process involves unlearning obsolete practices, redeploying resources toward sustainable innovations, and embedding flexibility within the organizational architecture (Fainshmidt and Frazier, 2017). In this way, RC acts as a continuous renewal mechanism that allows firms to maintain competitiveness and achieve sustainability even under volatile conditions.

Empirical studies affirm the centrality of RC in enhancing firm performance. Lavie (2006) and Girod and Whittington (2016) found that reconfiguring processes strengthen operational adaptability and positively affect firm performance. However, as dynamic capability theorists note, the importance of RC extends beyond short-term performance improvements to sustain competitive advantage through ongoing transformation (Teece, 2007; Girod and Whittington, 2016). Fainshmidt et al. (2019) argue that RC contributes to sustainable performance by facilitating resource redeployment that reduces inefficiencies and environmental costs while creating value through innovation and strategic renewal. This perspective is consistent with Teece's (2007) view that the RC is essential to firms' SP in changing markets and technologies.

Furthermore, RC enables firms to realign their resource portfolios toward environmentally and socially responsible initiatives, integrating sustainability into the core of strategic reconfiguration (Khan, Daddi and Iraldo, 2021). By continuously adjusting internal structures and processes, firms can enhance cost efficiency, minimize waste, and improve environmental compliance, thus achieving both ecological and financial sustainability. Eisenhardt and Martin (2000) conceptualize such reconfiguration processes as replicable best practices that lead to sustained competitive advantage by enhancing firms' responsiveness and innovation capability. Hence, RC is a vital mechanism that enables firms to thrive in dynamic

environments by fostering strategic flexibility and long-term resilience. Through the continuous modification of organizational resources and capabilities, firms can integrate sustainability objectives into their value-creation processes, thereby strengthening SP. Accordingly, it is hypothesized that:

H2: Reconfiguring capability positively influences sustainable performance.

2.5 Innovation Orientation (IO)

IO is defined as “a learning philosophy in which firms have common standards and beliefs about learning and knowledge that pervade and guide all functional areas toward innovation” (Siguaw et al., 2006; p. 559). It reflects an organization’s strategic mindset toward continuous renewal and creativity, emphasizing differentiation, experimentation, and proactive opportunity-seeking (Jafari et al., 2022). IO encourages firms to challenge existing norms, develop novel processes, and generate creative ideas especially during turbulent or crisis periods, thereby sustaining competitive performance (Farzaneh et al., 2022; Alwali, 2023). In contemporary competitive markets characterized by volatility and rapid technological shifts, IO acts as a proactive strategic mechanism that enhances a firm’s ability to innovate, adapt, and sustain superior performance (Li, Zhang and Zhang, 2021; Tajpour et al., 2025).

Within the DC framework, IO functions as an essential sensing and seizing mechanism that enables firms to detect emerging market trends, anticipate customer needs, and translate opportunities into innovative outcomes (Siguaw, Simpson and Enz, 2006; Teece, 2007; Alwali, 2023). By embedding a culture of innovation and learning across all organizational levels, IO facilitates the development of unique competencies in resource allocation, technology adoption, and cross-functional collaboration (Garcia-Perez-de-Lema, Madrid-Guijarro and Martin, 2017). Such a culture fosters experimentation and risk-taking, allowing organizations to respond swiftly and effectively to changing customer preferences and market demands (Jafari et al., 2022). As Jafari et al. (2022; p. 1548) observe, IO “enables firms to be more efficient and quicker when allocating resources, prioritizing activities, and providing solutions to increase responsiveness.” Thus, IO enhances organizational agility—an essential determinant of sustainable competitive advantage in uncertain environments.

Empirical studies have demonstrated that IO contributes directly to a variety of performance outcomes, including market differentiation, operational excellence, and employee engagement (Simpson, Siguaw and Enz, 2006; Yang et al., 2012). Simpson et al. (2006) highlight that IO not only generates innovative products and services but also strengthens market and employee advantages, leading to improved quality, speed, and responsiveness. Moreover, IO supports sustainability-oriented innovation by enabling firms to design environmentally friendly products, adopt cleaner production technologies, and exploit green market opportunities (Li, Zhang and Zhang, 2021). In this respect, IO does not merely foster innovation for competitiveness but drives innovation for sustainability, ensuring the alignment of business growth with environmental and social objectives.

Critically, IO reinforces the dynamic interplay between knowledge and innovation by shaping how firms absorb and apply new insights for sustainable outcomes (Bernardes and Hanna, 2009). This learning-based orientation supports both incremental and radical innovation, enabling firms to manage short-term operational improvements while pursuing long-term sustainability goals. Furthermore, IO has been recognized as a catalyst for achieving

sustainability and project success, as it enhances firms’ capacity to sense external changes and seize opportunities through creative problem-solving (Yang et al., 2012; Zaman et al., 2020). When viewed through the DC lens, IO therefore represents a vital organizational capability that integrates knowledge, creativity, and responsiveness to promote sustained value creation across economic, social, and environmental dimensions. Accordingly, based on the DC and innovation literature, it is hypothesized that:

H3: Innovation orientation positively influences sustainable performance.

According to Simpson et al. (2006), IO also plays a fundamental role in sensing market turbulence by enabling firms to detect emerging opportunities and threats through a culture of creativity and experimentation. This sensing process inherently involves the mobilization and integration of knowledge. From the perspective of the DC framework, IO operates as a catalyst for KIC by shaping the organizational conditions that facilitate continuous learning, experimentation, and adaptive knowledge sharing (Teece, 2007; Siguaw, Simpson and Enz, 2006).

The main emphasis of IO is on fostering innovation through new ideas, processes, products, and services that enhance sustainable performance and organizational renewal (Jafari et al., 2022). This innovation-driven orientation creates a systematic flow of knowledge generation and application, allowing firms to accumulate, refine, and deploy knowledge more effectively (Bernardes and Hanna, 2009). IO thus strengthens a firm’s internal knowledge ecosystem by encouraging employees to engage in open communication, experimentation, and reflective learning—all of which expand the organization’s absorptive capacity and improve KIC (Cohen and Levinthal, 1990; Simpson, Siguaw and Enz, 2006). As employees innovate and share insights, they collectively enhance the firm’s ability to integrate diverse knowledge sources—both tacit and explicit—into new capabilities, products, and sustainability-oriented solutions (Jafari et al., 2022; Al-Husseini, 2023).

In essence, an innovation-oriented organization nurtures a dynamic environment that supports cross-functional collaboration and knowledge recombination. This cultural foundation not only facilitates problem-solving but also enables firms to think creatively in decision-making (Jafari et al., 2022), thereby transforming dispersed knowledge into actionable strategies. The pursuit of innovation encourages the integration of diverse viewpoints, collaboration across disciplines, and continuous organizational learning from both successes and failures. Over time, this process deepens KIC and enhances a firm’s ability to respond creatively to evolving environmental and market challenges. Through this synergistic relationship, IO serves as a strategic antecedent to KIC creating an innovation-led learning system that embeds knowledge integration as a core capability driving sustainable growth and performance. Accordingly, it is hypothesized that:

H4: Innovation orientation positively influences knowledge integration capability.

Mousavi et al. (2018) suggest that Reconfiguring Capabilities (RC) have a positive impact on fostering an innovation-oriented approach; however, the reverse relationship is equally, if not more, significant. In line with the DC framework, IO can be seen as a primary antecedent that activates and shapes a firm’s reconfiguring processes. Without innovation-oriented intent and vision, RC remains underutilized and directionless, since it is IO that drives the renewal and

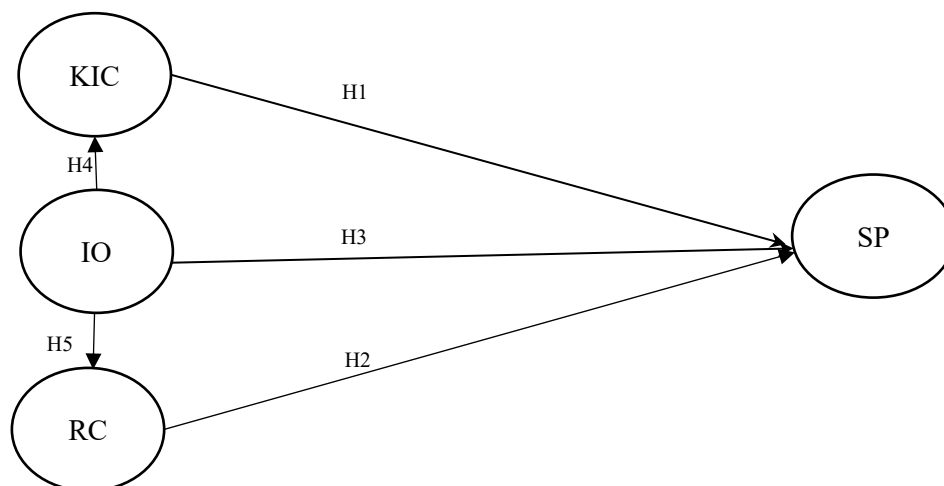
reconfiguration of resources and competencies to maintain strategic relevance and adaptability (Teece, Pisano and Shuen, 1997; Khan, Daddi and Iraldo, 2021). IO equips firms with the strategic mindset and creative foresight necessary to continuously redesign internal processes, structures, and assets in alignment with evolving market dynamics (Siguaw, Simpson and Enz, 2006).

While IO enables firms to effectively utilize their internal strengths and exploit emerging external opportunities (Li, Zhang and Zhang, 2021), RC embodies the transformation mechanism through which these opportunities are operationalized into new resource configurations, technologies, and business models (Khan et al., 2021). Reconfiguring, as Khan et al. (2021) argue, is an iterative process that depends on both the internal learning environment and the external context of change. Accordingly, IO acts as the cognitive and cultural foundation that motivates and guides this iterative transformation process. It instills a proactive organizational philosophy that values creativity, experimentation, and risk-taking, thereby creating an environment conducive to reconfiguration and renewal (Abiodun and Rosli, 2014; Kevill, Trehan and Easterby-Smith, 2017).

From a managerial perspective, the reconfiguration of resources and capabilities is highly dependent on leadership and orientation (Kevill, Trehan and Easterby-Smith, 2017). Firms that possess a strong IO are more likely to initiate reconfiguring efforts because innovation-oriented managers tend to sense and seize market opportunities and redesign organizational structures accordingly (Hoegh-Guldberg et al., 2018). Within the DC framework, sensing and seizing are precursors to resource reconfiguration, implying that IO, through its proactive focus on opportunity identification and exploitation, serves as the engine that triggers and sustains RC (Fainshmidt and Frazier, 2017; Teece, 2007). The more effectively a firm leverages its IO to explore novel market spaces, the more dynamically it can realign its resources, processes, and technologies to ensure long-term competitiveness and sustainability.

Therefore, IO not only complements but also drives RC by providing the strategic direction, learning orientation, and innovative culture required for ongoing renewal. Firms with a strong IO can continuously reconfigure their resources and competencies to adapt to environmental volatility and exploit new opportunities, thereby enhancing both agility and sustainable performance. Accordingly, it is hypothesized that:

H5: Innovation orientation positively influences reconfiguring capability.



KIC= Knowledge Integration Capability; IO = Innovation Orientation; RC = Reconfiguring Capability; SP = Sustainable Performance

Fig.1. Conceptual model

3. Research methods

3.1 Sampling and data collection

This study employed a non-probability purposive sampling technique to target general and executive managers of small and medium-sized enterprises (SMEs) operating in the Egyptian food manufacturing industry. This approach enabled deliberate selection of respondents with relevant strategic and operational insights necessary to evaluate organizational capabilities (Saunders, Lewis and Thornhill, 2019). While this approach limits statistical generalizability, it enhances the analytical relevance and internal validity of capability-based research by ensuring respondent expertise.

Using a self-reported questionnaire, data was collected from general/executive managers of 247 food manufacturing SMEs operating in Egypt. SMEs were chosen because of their significant impact on the economy in both developed and developing countries, and because their capabilities to sustain performance during crisis are more restrained relative to large firms (Mady *et al.*, 2022; Abdelkareem and Augustyn, 2025). Egypt was chosen because more than 90% of Egyptian firms are classified as a small firm (Anter and Elnagy, 2019; Abdelkareem, 2019), and because the COVID-19 crisis has negatively affected Egyptian SMEs' performance, particularly in the manufacturing sector (Egyptian Ministry of Planning & Economic Development, April, 2020¹). To mitigate potential common method bias (CMB) arising from the self-reported data, a procedural strategy was applied. Respondent anonymity and voluntary participation were emphasized to minimize social desirability bias (Podsakoff *et al.*, 2003).

Data was collected in three stages between February and June 2023. An online questionnaire distributed via email yielded 17 responses, followed by a postal survey generating 107 responses. Subsequent telephone reminders resulted in 39 additional returns, producing a total of 163 responses (66% response rate). Following data screening, seven questionnaires with substantial missing values were excluded. Duplicate responses were eliminated by cross-checking firm identifiers to ensure that each organization was represented only once, resulting in a final sample of 156 usable responses (valid response rate \approx 63%).

Among the 156 usable responses, there were 107 (68%) males and 49 (32%) females. Eighty-seven (56%) responses were completed by general managers, 38 (24%) completed by middle managers, 31 (20%) completed by other staff (e.g., secretary, employees). Most firms (92) (59%) had been operating for a period from 10-15 years, 26 (17%) firms from 5-10 years, 17 (11%) firms less than 5 years, and 21 (13%) firms for more than 15 years.

3.2 Constructs and Measures

The questionnaire for this research was designed based on an extensive review of recent literature. To assess the four latent constructs (Figure 1), a multi-item scale was employed. Although the original measures were developed in English, they were carefully back-translated from English to Arabic and from Arabic to English by bilingual experts following Brislin's (1980) guidelines to ensure semantic equivalence. Prior to the main survey, the questionnaire

¹ [Brefing Note Egypt Impact of COVID19 on the Manufacurting Sector.pdf \(unido.org\)](#)

Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026

was pre-tested with 10 academics to confirm its face validity. Respondents indicated their agreement with the items using a 5-point Likert scale.

KIC was measured using a 10-item scale originally created by Gardner, Gino, and Staats (2012) and later applied in related research by Xie et al. (2022). IO was measured using a 4-item scale (Meliá, Pérez and Dobón, 2010; Farzaneh *et al.*, 2022). RC was measured as a second-order construct comprising four first-order dimensions: organizational restructuring (2 items), technological upgrading (3 items), knowledge integration (2 items), and adaptation of best practices (3 items). This scale was first proposed by Khan, Daddi, and Iraldo (2020) and later validated by Khan et al. (2021). SP was measured using a 12-item scale developed by Dey et al. (2020) and further supported by Chowdhury et al. (2022) and Abdelkareem et al. (2024).

Treating RC as a second-order construct allows for a more comprehensive assessment of its impact on SP by accounting for the shared variance among these dimensions, while reducing measurement redundancy and capturing the holistic capability of firms to reconfigure resources effectively (Schilke, 2014; Bechtel, 2023; Bhadra, 2024). This conceptualization aligns with prior literature emphasizing the multidimensional and integrative nature of DC in organizational research (Schilke, 2014; Bechtel, 2023).

4. Data analysis and results

4.1 Measurement model

Following the recommendations of Hair et al. (2017), the reflective measurement model was evaluated using four key criteria: indicator reliability, internal consistency, convergent validity, and discriminant validity. Table 1 presents the indicators’ factor loadings (FL) for all research items, which satisfy the indicator reliability threshold value that ideally should be higher than 0.70 (Hair et al. 2017). Internal consistency was assessed using composite reliability where CR values (0.845, 0.913, 0.801, 0.777) for the four research constructs were higher than 0.70 (Hair et al. 2017). The Average Variance Extracted (AVE) value of each construct was higher than 0.50, which indicates the convergent validity of the scales (Hair et al. 2017). Finally, discriminant validity was assessed based on the Fornell and Larcker (1981) approach where the square root of the AVE of each construct was greater than the value of its correlation with other constructs (Chin, 2010) (Table 2). Although the measurement model achieved satisfactory reliability and validity (CR > 0.70, AVE > 0.50), several indicators—KIC7 (0.651), RC2 (0.642), SP7 (0.634), and SP12 (0.641)—had FL below 0.70. However, FL between 0.60 and 0.70 are generally considered acceptable when supported by adequate reliability and theoretical justification (Fornell and Larcker, 1981; Chin, 1998; Hair et al., 2019). Retaining these items preserved the constructs’ conceptual integrity and ensured content validity (Henseler, Ringle and Sarstedt, 2015).

Table 1: Assessing the measurement model

Constructs	FL	M	SD	CR	AVE	VIF
Knowledge Integration Capability (KIC)				0.845	0.919	2.03
KIC1. Our company members always communicate the relevant knowledge	.891	4.01	1.72			

KIC2. Our company members communicate knowledge in a timely manner	.942	3.89	1.60			
KIC3. Our company members objectively communicate knowledge	.761	4.16	1.50			
KIC4. Our company members clearly communicate knowledge	.888	3.99	0.99			
KIC5. Our company members communicate supportive knowledge	.728	4.92	1.32			
KIC6. Our company members concisely communicate knowledge	.737	4.55	1.56			
KIC7. Our company members communicate truthful knowledge	.651	4.32	1.99			
KIC8. Our company members communicate knowledge in non-confrontational manner	.793	4.42	0.98			
KIC9. Our company members communicate the right amount of knowledge	.985	4.33	1.35			
KIC10. Our company members' communication fosters teamwork behavior	.841	4.69	2.01			
Innovation Orientation (IO)				0.913	0.990	1.42
IO1. Our company is known as an innovative company	.945	3.45	0.88			
IO2. Our company promotes new and innovative products	.900	3.98	0.64			
IO3. Our company is a leader in new product development	.988	4.10	0.89			
IO4. Our company is a leader in creating new technologies	.876	4.44	1.02			
Reconfiguring Capability (RC)				0.801	0.847	1.90
RC1. Our company can merge or acquire another company if needed	.712	4.16	2.11			
RC2. Our company can change the organizational structure	.642	4.81	2.34			
RC3. Our company can make a modification in existing technology/machinery	.931	4.32	0.78			
RC4. Our company can introduce new technology	.842	3.09	1.81			
RC5. Our company can acquire new manufacturing plant	.771	3.92	1.47			
RC6. Our company organizes training programs to employees	.680	4.15	1.95			
RC7. Our company acquires existing know-how	.894	4.66	1.55			
RC8. Our company adopts new business practices for organizing procedures	.954	4.72	2.01			
RC9. Our company adopts new methods of organizing external relations	.861	3.99	0.76			
RC10. Our company adopts new logistics	.730	4.09	1.45			
Sustainable Performance				0.777	0.870	
SP1. Our company have reduced our manufacturing costs in recent years	.838	4.80	1.01			
SP2. Our company increased average return on net assets from green products	.861	4.44	1.28			
SP3. Our company have reduced inventory carrying cost	.761	4.96	1.45			
SP4. Our company have reduced cost of transportation and handling	.871	4.99	1.84			
SP5. Our company have reduced business waste across our processes	.882	4.97	0.45			
SP6. Our company have improved compliance with environmental standards	.718	3.55	2.11			
SP7. Our company have decreased carbon emissions	.634	4.00	2.74			
SP8. Our company have increased revenue from green products and practices	.987	3.88	0.87			
SP9. Our company have improved work safety in recent years	.913	4.53	1.43			
SP10. Our company have improved work environment in recent years	.885	3.70	1.98			
SP11. Our company has commitment from employees and managers towards incorporating environmental management	.920	4.81	1.78			
SP12. Our company has created jobs to support the community and thus contributed to nation's entrepreneurial growth.	.641	3.60	1.36			

Notes: FL= Factor Loading; M = Mean; SD = Standard Deviation; CR= Composite Reliability; AVE= Average Variance Extracted; VIF=Variance Inflation Factor

Table 2: Discriminant validity assessment.

	(1)	(2)	(3)	(4)
(1) KIC	0.959			
(2) IO	0.612	0.995		
(3) RC	0.445	0.098	0.920	
(4) SP	0.371	0.187	.030	0.933

4.2 Assessing the structural model:

SEM-PLS methodology was used to test the structural model. First, multicollinearity issues were assessed by calculating Variance Inflation Factor (VIF) values for all the predictors. As shown in Table 1, all VIF values were below 5.0 which indicates the absence of any multicollinearity problems in the structural model (Hair et al. 2017). Although residual diagnostics and non-linear effects were not explicitly tested, PLS-SEM is a variance-based approach that is robust to non-normal data and less constrained by classical residual assumptions (Henseler, Ringle and Sinkovics, 2009; Hair et al., 2011). Furthermore, the bootstrapping method applied in this study provides distribution-free estimates that mitigate concerns related to non-linearity and heteroscedasticity (Chin, 1998; Hair et al., 2021). Additionally, the goodness indicators show that the structural model fits the data well. For instance, R^2 for the key endogenous construct (SP) was 0.268 which means 27% of the change in the SP can be explained by the exogenous variables. According to (Cohen 1992), the value of R^2 is described as follows: 0.02= small, 0.13= medium, and 0.26= large. Furthermore, the predictive power of the model ($Q^2= 0.210$) was above zero confirming the predictive power of the path (Henseler, Ringle and Sarstedt, 2014). Additionally, the model satisfies the overall Goodness-of-fit indices for SEM-PLS (Hair et al., 2017): $\chi^2 (232) = 432.25$, $p < .001$; $\chi^2 /d.f. = 1.63$; CFI = .91; NFI = .95; NNFI = .93; SRMR = .04. Although the χ^2 statistic and its p-value indicated a statistically significant result, this is a well-documented outcome in large or complex models due to the test’s sensitivity to sample size (Bentler and Bonett, 1980; Hair et al., 2019). Accordingly, greater emphasis was placed on alternative fit indices such as CFI, NFI, and SRMR, all of which met the recommended thresholds, confirming acceptable model fit (Hu and Bentler, 1999; Henseler et al., 2014). This approach aligns with established SEM practice, where χ^2 significance is not solely relied upon for evaluating model adequacy.

The statistical results supported the five research hypotheses (Table 3). KIC significantly positively influences SP ($\beta= 0.361$; $t= 21.771$; $p= 0.016$). IO significantly positively influences SP ($\beta= 0.312$; $t= 19.154$; $p= 0.000$), as well as KIC ($\beta= 0.415$; $t= 28.355$; $p= 0.004$), and RC ($\beta= 0.501$; $t= 36.630$; $p= 0.000$). Finally, RC significantly positively influences SP ($\beta= 0.397$; $t= 16.908$; $p= 0.001$).

Although the p-value for H1 (0.016) is marginal and some t-values (e.g., $t = 36.630$ for H4) appear unusually high, considering the sample size ($N = 156$), these results remain within an acceptable statistical range for PLS-SEM, which is known to produce larger t-values due to its resampling-based bootstrapping procedure (Hair et al., 2019; Sarstedt et al., 2020). Additionally, to mitigate concerns regarding potential inflation or common method bias, procedural remedies were implemented during data collection—such as ensuring respondent anonymity and randomizing item order—and statistical checks, including Harman’s single-factor test that indicated no significant bias.

Table (3): Hypothesis testing

Hypotheses		Path	β	S.D.	t-value	p-value	Conclusion
H1	KIC	—————▶ SP	0.361	0.178	21.771	0.016	Supported
H2	IO	—————▶ SP	0.312	0.162	19.154	0.000	Supported
H3	IO	—————▶ KIC	0.415	0.048	28.355	0.004	Supported
H4	IO	—————▶ RC	0.501	0.087	36.630	0.000	Supported
H5	RC	—————▶ SP	0.397	0.101	16.908	0.001	Supported

Note: The t values near 1.65, 1.96, and 2.58 are considered with the significance level of 10%, 5% and 1%, respectively (Two-sided test).

5. Discussion

This research examined the influence of KIC, RC, and IO on sustainable performance within Egyptian SMEs operating in the food manufacturing industry. By grounding the analysis in the DC framework, this study responds to calls for more context-sensitive examinations of sustainability-oriented capabilities in emerging economies. Unlike prior studies that tend to generalize across industries and institutional settings, this research provides empirical evidence from Egyptian SMEs, which operate under conditions of institutional voids, regulatory uncertainty, and resource constraints (El Baz & Ruel, 2021; Hafez & Elsayed, 2022). In doing so, the findings extend DC theory by illustrating how specific micro-level capabilities function in constrained environments rather than assuming uniform performance effects across contexts.

Overall, the results confirm a positive relationship between DC and SP. However, their theoretical relevance extends beyond merely validating DC theory. The findings suggest that in resource constrained SME contexts, sustainability outcomes are driven less by the possession of dynamic capabilities per se and more by how selectively and coherently these capabilities are enacted. This insight contributes to ongoing debates questioning whether DC dimensions universally enhance performance, particularly in SMEs where managerial attention, financial slack, and absorptive capacity are limited (Arend & Bromiley, 2009; Schilke, Hu, & Helfat, 2018). Thus, the study reframes DC not as a guaranteed performance-enhancing mechanism, but as a contingent process whose effectiveness depends on organizational and environmental conditions.

The significant relationship between KIC and SP highlights the centrality of sensing-related processes in Egyptian SMEs. In line with Mousavi et al. (2018) and Wang et al. (2018), KIC enables firms to acquire, interpret, and apply dispersed knowledge to address sustainability challenges. However, this finding also refines prior assumptions by suggesting that KIC's value lies not in knowledge accumulation alone, but in its ability to reduce uncertainty and support informed decision-making in volatile institutional settings. In contexts characterized by weak infrastructure and fragmented information flows, ineffective knowledge integration may exacerbate resource misallocation and undermine sustainability initiatives (Kalmykova, Sadagopan, & Rosado, 2018). Therefore, KIC functions as a critical filtering mechanism that allows SMEs to prioritize sustainability-relevant knowledge under conditions of scarcity.

The positive effect of RC on SP further underscores the importance of adaptive resource realignment. Consistent with Jantunen et al. (2018) and Khan et al. (2021), RC enables firms to restructure processes and redeploy resources toward long-term sustainability objectives. At the same time, this finding must be interpreted cautiously given the conflicting prior evidence suggesting that excessive reconfiguration can impose coordination costs and disrupt operational stability in SMEs (Winter, 2003; Arend & Bromiley, 2009). The present study suggests that RC contributes to sustainable performance when it is incremental and strategically aligned rather than radical. This nuance advances DC theory by emphasizing that reconfiguring capabilities yield positive outcomes only when firms possess sufficient managerial discipline and organizational coherence to absorb change.

Finally, IO was found to positively influence sustainable performance as well as KIC and RC, reinforcing its role as a seizing mechanism within the DC framework. While prior studies often

treat innovation as an unambiguously positive driver of performance (Chowdhury et al., 2022), the findings here suggest that IO's contribution lies in its integrative role, linking sensing and reconfiguring processes rather than operating in isolation. In Egyptian SMEs, IO appears to facilitate the translation of knowledge into actionable strategies and support resource reconfiguration toward sustainability goals. This finding challenges the linear interpretations of innovation-performance relationships and supports a more systemic view in which IO amplifies the effectiveness of other dynamic capabilities. Accordingly, IO should be understood not merely as a standalone capability, but as a coordinating mechanism that enhances the coherence of sustainability-oriented strategic action.

6. Implications

6.1 Theoretical implications

Drawing on DC theory and sustainable performance research, this study makes several important contributions to SME sustainability literature. First, it advances theory by integrating KIC, IO, and RC as interrelated DC that influence sustainable performance. By linking DC theory with sustainability outcomes, the study explains how organizational capabilities shape SMEs' sustainability trajectories. While the DC and TBL frameworks are well established, this research contextualizes them within resource-constrained SMEs facing increasing sustainability pressures, offering a novel perspective on how these capabilities jointly drive sustainable performance.

Second, the findings of this study extend prior sustainability research by demonstrating how the interaction of KIC, IO, and RC systematically enhances SMEs' capacity to achieve sustainability goals. Whereas earlier studies emphasized circular economy practices in UK SMEs or the roles of leadership, culture, and innovation in Vietnamese SMEs, this study shows that the combined deployment of KIC, IO, and RC drives sustainable outcomes in Egypt's food manufacturing SMEs, thereby contributing evidence from an underexplored context.

Third, this study deepens understanding of the mechanisms underpinning SME sustainability by empirically validating the interaction between dynamic capability dimensions, knowledge-based processes, and TBL outcomes. These findings highlight the importance of adapting established theoretical frameworks to the operational realities of SMEs in emerging economies, offering nuanced insights that extend beyond generic applications of DC and sustainability models.

6.2 Managerial and policy implications

This study provides important implications for managers, particularly those operating in manufacturing SMEs. The findings offer empirical evidence encouraging managers to invest in dynamic capabilities rather than focusing solely on physical resources. The results confirm a strong positive relationship between the development of dynamic capabilities and sustainable performance. In increasingly dynamic markets characterized by diverse customer demands and intensified competition (Mousavi et al., 2018), manufacturing SMEs must strengthen their knowledge integration capability (KIC). Managers should establish open communication channels between managers and employees and foster knowledge sharing across teams. However, effective knowledge exchange requires that shared knowledge be complete, relevant, truthful, clear, concise, supportive, and timely (Gardner, Gino and Staats, 2012; Xie et al.,

2022). As demonstrated by the findings, enhancing KIC significantly contributes to sustaining superior performance.

Furthermore, growing societal pressure to achieve sustainability and wellbeing, which are core elements of the TBL, demands continuous innovation, particularly during times of crisis (Farzaneh et al., 2022). The results reveal a significant positive impact of IO on SP, KIC, and RC. Managers are therefore advised to embed IO within their organizational culture and increase investment in innovative ideas, processes, products, and services that meet evolving customer needs. The identification and successful exploitation of opportunities are unlikely to occur without a strong innovation orientation.

Additionally, RC represents a central pillar of DC theory (Teece, 2007). Without RC, firms struggle to capitalize on emerging opportunities and respond effectively to environmental changes (Teece, Pisano and Shuen, 1997; Khan, Daddi and Iraldo, 2021). Managers should continuously scan external markets for opportunities and threats, integrate internal and external resources, and realign organizational processes accordingly. Strengthening RC enables SMEs to remain adaptive, competitive, and capable of sustaining superior performance in dynamic environments.

Finally, the managerial implications are tailored to the challenges faced by Egyptian SMEs. Managers should strengthen KIC to integrate internal and external knowledge effectively, leverage IO to identify and exploit emerging opportunities, and apply RC to realign resources and processes in dynamic environments. Policymakers are encouraged to provide supportive infrastructure, targeted training, and enabling regulatory frameworks to help SMEs develop these capabilities, thereby enhancing sustainable performance in resource-constrained and rapidly changing contexts.

7. Limitations and future research

The findings of this research do not exist without its limitations that open avenues for further research. First, this research operationalized DC through KIC, IO, and RC. While this operationalization is theoretically grounded, dynamic capabilities are inherently firm-specific and path-dependent (Teece, 2007). As such, the selected constructs may not fully capture all relevant micro foundations of dynamic capabilities in Egyptian SMEs. Future research could explore alternative or complementary capability configurations—such as learning capability, managerial cognition, or digital capability—to examine how different bundles of dynamic capabilities shape sustainable performance under varying institutional conditions. This would help address ongoing theoretical debates regarding the heterogeneity and boundary conditions of dynamic capabilities.

Second, this study focused on sustainable performance as the primary outcome variable. While this choice aligns with the study’s objectives, it may constrain the explanatory scope of the model, particularly given the R^2 value observed. Future research could extend the model by examining additional organizational outcomes such as corporate reputation, intellectual capital development, resilience, or SME survival rates. Moreover, incorporating mediating or moderating variables such as environmental turbulence, resource slack, managerial experience, or institutional support would allow researchers to unpack the mechanisms through which dynamic capabilities translate into performance outcomes. Such extensions would address

Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026

theoretical tensions concerning whether dynamic capabilities exert direct effects or operate primarily through indirect pathways.

Third, the empirical data were collected from food manufacturing SMEs in Egypt, which may limit the generalizability of the findings. Egyptian SMEs operate within a distinctive institutional context characterized by regulatory complexity, informal practices, and resource constraints. While this context strengthens the study’s relevance, it may also shape how dynamic capabilities are developed and deployed. Future studies could adopt comparative designs across industries or countries to examine how cultural norms, institutional quality, and market maturity condition the effectiveness of dynamic capabilities. Such research would contribute to a more contextualized and contingency-based understanding of DC theory rather than assuming universal performance effects.

Fourth, the cross-sectional data for this research purpose was collected in one shot from July to October 2021. Other research could consider longitudinal study or replicate the study in other geographical domains. Examining the same relationships in different contexts will introduce valuable insights and recommendations for managers regarding such relationships and how to enhance sustainable performance.

Fifth, further limitation concerns the model fit assessment. Although the χ^2 statistic and its p-value indicated a significant result, this is a common occurrence in large or complex models due to the χ^2 test’s sensitivity to sample size (Bentler and Bonett, 1980; Hair et al., 2019). As recommended in the SEM literature, greater emphasis was placed on alternative fit indices such as CFI, NFI, and SRMR, all of which met acceptable thresholds (Hu and Bentler, 1999; Henseler et al., 2014). Nevertheless, the significant χ^2 result suggests that future research could explore alternative model specifications or estimation techniques to further enhance overall model fit.

References

Abdelkareem, R., 2019. *Triple bottom line mission and Financial Performance in Egyptian SMEs: The role of CSR*. Bangor University (United Kingdom).

Abdelkareem, R.S. and Augustyn, M.M., 2025. Knowledge visualisation and strategic decision-making outcomes in small and medium-sized enterprises. *Journal of Information Science*, 51(5), pp.1047-1061.

Abdelkareem, R.S., Mady, K., Lebda, S.E. and Elmantawy, E.S., 2024. The effect of green competencies and values on carbon footprint on sustainable performance in healthcare sector. *Cleaner and Responsible Consumption*, 12, p.100179.

Abdelkareem, R., Battour, M. and Al-Awlaqi, M., 2022. Entrepreneurial Orientation, Dynamic Capabilities, and Business Processes Performance: Evidence from Egyptian SMEs.

Abiodun, S.T. and Rosli, M. (2014) ‘The mediating effect of reconfiguring capabilities on the relationship between entrepreneurial orientation and export performance of small and medium enterprises’, 6(34), pp. 345–358.

- Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026
- Akinyele, O.D., Lawal, T., Bako, P. and Al-Faryan, M.A.S., 2025. Enhancing Environmental Sustainability in Emerging Economies: Do the Roles of ICT and Institutional Structure Matter?. *Future Business Journal*, 11(1), p.141.
- Al-Husseini, S., 2024. Examining the impact of top management support on employee creativity through the mediating role of knowledge management and absorptive capacity. *International Journal of Innovation Science*, 16(4), pp.658-682.
- Alwali, J., 2023. The innovative–performance connection: how dynamic capabilities empower nurses. *International Journal of Innovation Science*, (ahead-of-print).
- Amui, L.B.L. *et al.* (2017) ‘Sustainability as a dynamic organizational capability: a systematic review and a future agenda toward a sustainable transition’, *Journal of Cleaner Production*, 142, pp. 308–322. Available at: <https://doi.org/10.1016/j.jclepro.2016.07.103>.
- Annunziata, E. *et al.* (2018) ‘The role of organizational capabilities in attaining corporate sustainability practices and economic performance: Evidence from Italian wine industry’, *Journal of Cleaner Production*, 171, pp. 1300–1311. Available at: <https://doi.org/10.1016/j.jclepro.2017.10.035>.
- Anter, M. and Elnagy, S.A. (2019) ‘Evaluate of The Small Tourism Business Performance On Economic Growth In Egypt’, *Minia Journal of Tourism and Hospitality Research MJTHR*, 7(1), pp. 23–41. Available at: <https://doi.org/10.21608/mjthr.2019.139597>.
- Barreto, I. (2010) ‘Dynamic Capabilities: A review of past research and an agenda for the future’, *Journal of Management*, 36(1), pp. 256–280. Available at: <https://doi.org/10.1177/0149206309350776>.
- Bashir, M. and Farooq, R., 2019. The synergetic effect of knowledge management and business model innovation on firm competence: A systematic review. *International Journal of Innovation Science*, 11(3), pp.362-387.
- Ben Amara, D. and Chen, H. (2020) ‘Investigating the effect of multidimensional network capability and eco-innovation orientation for sustainable performance’, *Clean Technologies and Environmental Policy*, 22(6), pp. 1297–1309. Available at: <https://doi.org/10.1007/s10098-020-01871-6>.
- Bechtel, J. (2023). The interplay between dynamic capabilities' dimensions and project portfolio performance. *International Journal of Project Management*, 41(4), 1–13.
- Bernardes, E.S. and Hanna, M.D. (2009) ‘A theoretical review of flexibility, agility and responsiveness in the operations management literature: Toward a conceptual definition of customer responsiveness’, *International Journal of Operations and Production Management*, 29(1), pp. 30–53. Available at: <https://doi.org/10.1108/01443570910925352>.
- Bhadra, K. V. (2024). Evolution of dynamic capabilities for business sustainability. *Business Strategy and the Environment*, 33(2), 1–15.
- Blome, D., Schoenherr, T. and Rexhausen, C. (2013) ‘Antecedents and enablers of supply chain agility and its effect on performance: A dynamic capabilities perspective’, *International Journal of Production Research*, 51(4), pp. 1295–1318. Available at: <https://doi.org/10.1080/00207543.2012.728011>.

Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026

Bonner, J. (2019) *SMEs and environmental/social impacts*.

Caridi-Zahavi, O., Carmeli, A. and Arazy, O. (2016) ‘The Influence of CEOs’ Visionary Innovation Leadership on the Performance of High-Technology Ventures: The Mediating Roles of Connectivity and Knowledge Integration’, *Journal of Product Innovation Management*, 33(3), pp. 356–376. Available at: <https://doi.org/10.1111/jpim.12275>.

Chin, W.W. (2010) ‘Bootstrap Cross-Validation Indices for PLS Path Model Assessment’, in V. Esposito Vinzi et al. (eds) *Handbook of Partial Least Squares: Concepts, Methods and Applications*. Heidelberg: Springer, pp. 83–97.

Chowdhury, S. et al. (2022) ‘Impact of Organisational Factors on the Circular Economy Practices and Sustainable Performance of Small and Medium-sized Enterprises in Vietnam’, *Journal of Business Research*, 147(April), pp. 362–378. Available at: <https://doi.org/10.1016/j.jbusres.2022.03.077>.

Cohen, J. (1992) ‘Statistical power analysis current directions’, *Psychol Sci.*, 1(3), pp. 98–101.

Davies, A. and Hobday, M. (2005) *The business of projects: managing innovation in complex products and systems*. Cambridge University Press. Available at: <https://doi.org/10.1017/cbo9780511493294>.

Dey, P.K. et al. (2020) ‘Circular economy to enhance sustainability of small and medium-sized enterprises’, *Business Strategy and the Environment*, 29(6), pp. 2145–2169. Available at: <https://doi.org/10.1002/bse.2492>.

Di Vaio, A. and Varriale, L. (2020) ‘Blockchain technology in supply chain management for sustainable performance: Evidence from the airport industry’, *International Journal of Information Management*, 52(September 2019), p. 102014. Available at: <https://doi.org/10.1016/j.ijinfomgt.2019.09.010>.

Edwin Cheng, T.C. et al. (2022) ‘Linkages between big data analytics, circular economy, sustainable supply chain flexibility, and sustainable performance in manufacturing firms’, *International Journal of Production Research*, 60(22), pp. 6908–6922. Available at: <https://doi.org/10.1080/00207543.2021.1906971>.

Eisenhardt, K.M. and Martin, J.A. (2000) ‘Dynamic capabilities: What are they?’, *Strategic Management Journal*, 21(10–11), pp. 1105–1121. Available at: [https://doi.org/10.1002/1097-0266\(200010/11\)21:10/11<1105::AID-SMJ133>3.0.CO;2-E](https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E).

Elkington, J. (1994) ‘Towards the Sustainable Corporation: Win-Win-Win Business Strategies for Sustainable Development’, *California Management Review*, 36(2), pp. 90–100. Available at: <https://doi.org/10.2307/41165746>.

Fainshmidt, S. et al. (2019) ‘When do Dynamic Capabilities Lead to Competitive Advantage? The Importance of Strategic Fit’, *Journal of Management Studies*, 56(4), pp. 758–787. Available at: <https://doi.org/10.1111/joms.12415>.

Fainshmidt, S. and Frazier, M.L. (2017) ‘What Facilitates Dynamic Capabilities? The Role of Organizational Climate for Trust’, *Long Range Planning*, 50(5), pp. 550–566. Available at: <https://doi.org/10.1016/j.lrp.2016.05.005>.

- Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) "The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance", *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026
- Farooq, R., 2018. Developing a conceptual framework of knowledge management. *International Journal of Innovation Science*, 11(1), pp.139-160.
- Farzaneh, M. *et al.* (2022) 'Dynamic capabilities and innovation ambidexterity : The roles of intellectual capital and innovation orientation', *Journal of Business Research*, 148(April), pp. 47–59. Available at: <https://doi.org/10.1016/j.jbusres.2022.04.030>.
- Ferreira, J. and Coelho, A., 2020. Dynamic capabilities, innovation and branding capabilities and their impact on competitive advantage and SME's performance in Portugal: the moderating effects of entrepreneurial orientation. *International Journal of Innovation Science*, 12(3), pp.255-286.
- Fornell, C. and Larcker, D.F. (1981) 'Evaluating Structural Equation Models with Unobservable Variables and Measurement Error', *Journal of Marketing Research*, 18(1), p. 39. Available at: <https://doi.org/10.2307/3151312>.
- Garcia-Perez-de-Lema, D., Madrid-Guijarro, A. and Martin, D.P. (2017) 'Influence of university–firm governance on SMEs innovation and performance levels', *Technological Forecasting and Social Change*, 123, pp. 250–261. Available at: <https://doi.org/10.1016/j.techfore.2016.04.003>.
- Gardner, H.K., Gino, F. and Staats, B.R. (2012) 'DYNAMICALLY INTEGRATING KNOWLEDGE IN TEAMS : TRANSFORMING RESOURCES INTO PERFORMANCE', *The Academy of Management Journal*, 55(4), pp. 998–1022.
- Girod, S.J.G. and Whittington, R. (2016) 'RECONFIGURATION, RESTRUCTURING AND FIRM PERFORMANCE: DYNAMIC CAPABILITIES AND ENVIRONMENTAL DYNAMISM', *Strategic Management Journal*, 38(April), pp. 1121–1133. Available at: <https://doi.org/10.1002/smj>.
- Grethchen, S. and Christine, P. (2012) 'Creating Sustainable Performance', *Harvard Business Review*, 90(February), pp. 92–99.
- Hafez, H. & Elsayed, M., 2022. Institutional voids and SME innovation in emerging economies: Evidence from Egypt. *Technological Forecasting and Social Change*, 180, p.121678.
- Hair, J.F. *et al.* (2017) *Advanced issues in partial least squares structural equation modeling*. SAGE publications.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2014) 'A new criterion for assessing discriminant validity in variance-based structural equation modeling', *Journal of the Academy of Marketing Science*, 43(1), pp. 115–135. Available at: <https://doi.org/10.1007/s11747-014-0403-8>.
- Hoegh-Guldberg, O. *et al.* (2018) *Impacts of 1.5o C global warming on natural and human systems. In: Global warming of 1.5°C, an IPCC special report*. Available at: <https://doi.org/10.1002/smj>.
- Iqbal, Q. and Ahmad, N.H. (2021) 'Sustainable development: The colors of sustainable leadership in learning organization', *Sustainable Development*, 29(1), pp. 108–119. Available at: <https://doi.org/10.1002/sd.2135>.

- Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026
- Jafari, H. *et al.* (2022) ‘The effects of supply chain flexibility on customer responsiveness: the moderating role of innovation orientation’, *Production Planning and Control*, 0(0), pp. 1–19. Available at: <https://doi.org/10.1080/09537287.2022.2028030>.
- Jantunen, A. *et al.* (2018) ‘Dynamic capabilities, operational changes, and performance outcomes in the media industry’, *Journal of Business Research*, 89(February), pp. 251–257. Available at: <https://doi.org/10.1016/j.jbusres.2018.01.037>.
- Jilani, M.M. *et al.* (2020) ‘The Influence of Knowledge Sharing on Sustainable Performance. A Moderated Mediation Study’, *Sustainability MDI*, 12(908), pp. 1–18.
- Kalmykova, Y., Sadagopan, M. and Rosado, L. (2018) ‘Circular economy - From review of theories and practices to development of implementation tools’, *Resources, Conservation and Recycling*, 135(February 2017), pp. 190–201. Available at: <https://doi.org/10.1016/j.resconrec.2017.10.034>.
- Kevill, A., Trehan, K. and Easterby-Smith, M. (2017) ‘Perceiving “capability” within dynamic capabilities: The role of owner-manager self-efficacy’, *International Small Business Journal: Researching Entrepreneurship*, 35(8), pp. 883–902. Available at: <https://doi.org/10.1177/0266242616688523>.
- Khan, O., Daddi, T. and Iraldo, F. (2021) ‘Sensing, seizing, and reconfiguring: Key capabilities and organizational routines for circular economy implementation’, *Journal of Cleaner Production*, 287, p. 125565. Available at: <https://doi.org/10.1016/j.jclepro.2020.125565>.
- Van Knippenberg, D. (2017) ‘Team Innovation’, *Annual Review of Organizational Psychology and Organizational Behavior*, 4, pp. 211–233. Available at: <https://doi.org/10.1146/annurev-orgpsych-032516-113240>.
- Lavie, D. (2006) ‘Capability reconfiguration: An analysis of incumbent responses to technological change’, *Academy of Management Review*, 31(1), pp. 153–174. Available at: <https://doi.org/10.5465/AMR.2006.19379629>.
- Li, Z., Zhang, M.Y. and Zhang, H. (2021) ‘Firm Growth Performance and Relative Innovation Orientation of Exploration vs Exploitation: Moderating Effects of Cluster Relationships’, *Management and Organization Review*, 17(1), pp. 143–172. Available at: <https://doi.org/10.1017/mor.2020.35>.
- Luo, T., Qu, J. and Cheng, S., 2025. Digital transformation, dynamic capability and total factor productivity of manufacturing enterprises. *Industrial Management & Data Systems*.
- Mady, K., Abdul Halim, M.A.S., Omar, K., Abdelkareem, R.S. and Battour, M., 2022. Institutional pressure and eco-innovation: The mediating role of green absorptive capacity and strategically environmental orientation among manufacturing SMEs in Egypt. *Cogent Business & Management*, 9(1), p.2064259.
- Mady, K., Halim, M.A.S.A., Omar, K., Battour, M. and Abdelkareem, R.S., 2023. Environmental pressures and eco-innovation in manufacturing SMEs: the mediating effect of environmental capabilities. *International Journal of Innovation Science*, 16(3), pp.501-526.

- Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026
- Mady, K., Battour, M., AboelImaged, M. and Abdelkareem, R.S., 2023. Linking internal environmental capabilities to sustainable competitive advantage in manufacturing SMEs: The mediating role of eco-innovation. *Journal of Cleaner Production*, 417, p.137928.
- Mazloomi Khamseh, H., Jolly, D. and Morel, L. (2017) ‘The effect of learning approaches on the utilization of external knowledge in strategic alliances’, *Industrial Marketing Management*, 63, pp. 92–104. Available at: <https://doi.org/10.1016/j.indmarman.2016.12.004>.
- Meliá, M.R., Pérez, A.B. and Dobón, S.R. (2010) ‘The influence of innovation orientation on the internationalisation of SMEs in the service sector’, *Service Industries Journal*, 30(5), pp. 777–791. Available at: <https://doi.org/10.1080/02642060802342679>.
- Mousavi, S., Bossink, B. and van Vliet, M. (2018) ‘Dynamic capabilities and organizational routines for managing innovation towards sustainability’, *Journal of Cleaner Production*, 203, pp. 224–239. Available at: <https://doi.org/10.1016/j.jclepro.2018.08.215>.
- Narayanan, V.K., Yang, Y. and Zahra, S.A. (2009) ‘Corporate venturing and value creation: A review and proposed framework’, *Research Policy*, 38(1), pp. 58–76. Available at: <https://doi.org/10.1016/j.respol.2008.08.015>.
- Newell, S., Tansley, C. and Huang, J. (2004) ‘Social Capital and Knowledge Integration in an ERP Project Team: The Importance of Bridging AND Bonding’, *British Journal of Management*, 15(SPEC ISS.). Available at: <https://doi.org/10.1111/j.1467-8551.2004.00405.x>.
- Pezeshkan, A. *et al.* (2016) ‘An empirical assessment of the dynamic capabilities-performance relationship’, *Journal of Business Research*, 69(8), pp. 2950–2956. Available at: <https://doi.org/10.1016/j.jbusres.2015.10.152>.
- Pullman, M.E., Maloni, M.J. and Carter, C.R. (2009) ‘Food for thought: Social versus environmental sustainability practices and performance outcomes’, *Journal of Supply Chain Management*, 45(4), pp. 38–54. Available at: <https://doi.org/10.1111/j.1745-493X.2009.03175.x>.
- Salunke, S., Weerawardena, J. and McColl-Kennedy, J.R. (2019) ‘The central role of knowledge integration capability in service innovation-based competitive strategy’, *Industrial Marketing Management*, 76(May 2018), pp. 144–156. Available at: <https://doi.org/10.1016/j.indmarman.2018.07.004>.
- Sapta, I.K.S. *et al.* (2021) ‘Sustainability performance of organization: Mediating role of knowledge management’, *Economies*, 9(3), pp. 1–16. Available at: <https://doi.org/10.3390/economies9030097>.
- Schilke, O. (2014) ‘On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism’, *Strategic Management Journal*, 35(2), pp. 179–203.
- Schilke, O. (2014). Second-order dynamic capabilities: A framework for understanding dynamic capabilities as organizational routines. *Organization Science*, 25(4), 1253–1273.

- Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) "The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance", *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026
- Siguaw, J.A., Simpson, P.M. and Enz, C.A. (2006) 'Conceptualizing innovation orientation: A framework for study and integration of innovation research', *Journal of Product Innovation Management*, 23(6), pp. 556–574. Available at: <https://doi.org/10.1111/j.1540-5885.2006.00224.x>.
- Simpson, P.M., Siguaw, J.A. and Enz, C.A. (2006) 'Innovation orientation outcomes: The good and the bad', *Journal of Business Research*, 59(10–11), pp. 1133–1141. Available at: <https://doi.org/10.1016/j.jbusres.2006.08.001>.
- Tajpour, M., Dekamini, F., SafarMohammadluo, S., Movahed, M.N. and Madadpour, F., 2025. The impact of innovation management on the sustainability of small and medium enterprises with the role of entrepreneurship mediation. *International Entrepreneurship and Management Journal*, 21(1), p.1.
- Tajpour, M., Hosseini, E., Mohammadi, M. and Bahman-Zangi, B., 2022. The effect of knowledge management on the sustainability of technology-driven businesses in emerging markets: The mediating role of social media. *Sustainability*, 14(14), p.8602.
- Taylor, A. and Greve, H.R. (2006) 'SUPERMAN OR THE FANTASTIC FOUR? KNOWLEDGE COMBINATION AND EXPERIENCE IN INNOVATIVE TEAMS', *Academy of Management Journal*, 49(4), pp. 723–740.
- Teece, D. (1998) 'Capturing Value from Knowledge Assets: The New Economy, Markets for Know-How and Intangible Assets', *California Management Review*, 40(30), pp. 55–79.
- Teece, D., Peteraf, M. and Leih, S. (2016) 'Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy', *California Management Review*, 58(4), pp. 13–35. Available at: <https://doi.org/10.1525/cm.2016.58.4.13>.
- Teece, D.J. (2007) 'Technology and export behavior', *Strategic Management Journal*, 28(13), pp. 1319–1350.
- Teece, D.J. (2018) 'Business models and dynamic capabilities', *Long Range Planning*, 51(1), pp. 40–49. Available at: <https://doi.org/10.1016/j.lrp.2017.06.007>.
- Teece, D.J., Pisano, G. and Shuen, A. (1997) 'Dynamic capabilities and strategic management', *Strategic Management Journal*, 18(7), pp. 509–533. Available at: <https://doi.org/10.1093/0199248540.003.0013>.
- Teece, D.J., Pisano, G. and Shuen, A. (2009) 'Dynamic capabilities and strategic management', *Knowledge and Strategy*, 18(April 1991), pp. 77–116. Available at: <https://doi.org/10.1093/0199248540.003.0013>.
- Wang, M.C., Chen, P.C. and Fang, S.C. (2018) 'A critical view of knowledge networks and innovation performance: The mediation role of firms' knowledge integration capability', *Journal of Business Research*, 88(March), pp. 222–233. Available at: <https://doi.org/10.1016/j.jbusres.2018.03.034>.
- Wilden, R., Devinney, T.M. and Dowling, G.R. (2016) 'The Architecture of Dynamic Capability Research Identifying the Building Blocks of a Configurational Approach', *Academy of Management Annals*, 10(1), pp. 997–1076. Available at: <https://doi.org/10.1080/19416520.2016.1161966>.

Abdelkareem, R., Augustyn, M., Mady, K., (forthcoming) “The Role of Knowledge Integration Capability, Reconfiguring Capability, and Innovation Orientation in Sustainable Performance”, *International Journal of Innovation Science*, DOI: 10.1108/IJIS-07-2025-0350, Accepted 15-04-2026

Wu, Q., He, Q. and Duan, Y. (2013) ‘Explicating dynamic capabilities for corporate sustainability’, *EuroMed Journal of Business*, 8(3), pp. 255–272. Available at: <https://doi.org/10.1108/EMJB-05-2013-0025>.

Xie, X. *et al.* (2022) ‘Inter-team coordination , information elaboration , and performance in teams : The moderating effect of knowledge integration capability’, *Journal of Business Research*, 149(April), pp. 149–160. Available at: <https://doi.org/10.1016/j.jbusres.2022.05.002>.

Yang, Y. *et al.* (2012) ‘What are the effective strategic orientations for new product success under different environments? An empirical study of Chinese businesses’, *Journal of Product Innovation Management*, 29(2), pp. 166–179. Available at: <https://doi.org/10.1111/j.1540-5885.2011.00900.x>.

Zahra, S.A. & George, G. (2002) ‘Absorptive capacity: A review, reconceptualization, and extension’, *Academy of Management Review*, 27(2), pp. 185–203.

Zahra, S.A., Van de Velde, E. and Larrañeta, B. (2007) ‘Knowledge conversion capability and the performance of corporate and university spin-offs’, *Industrial and Corporate Change*, 16(4), pp. 569–608. Available at: <https://doi.org/10.1093/icc/dtm018>.

Zaid, A.A., Jaaron, A.A.M. and Talib Bon, A. (2018) ‘The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study’, *Journal of Cleaner Production*, 204, pp. 965–979. Available at: <https://doi.org/10.1016/j.jclepro.2018.09.062>.

Zaman, U. *et al.* (2020) ‘Linking transformational leadership and “multi-dimensions” of project success: Moderating effects of project flexibility and project visibility using PLS-SEM’, *International Journal of Managing Projects in Business*, 13(1), pp. 103–127. Available at: <https://doi.org/10.1108/IJMPB-10-2018-0210>.

Acknowledgement of AI Assistance

The author acknowledges the use of artificial intelligence tools to support language editing, formatting, proofreading, and stylistic refinement of this manuscript. The AI assistance was used solely to enhance clarity and presentation. All intellectual content, analysis, and interpretations remain the authors’ own responsibility.