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Micro small business innovation recovery performance: the mediating roles of business agility, new idea search and frugal spending policies

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Abstract

Purpose – Grounded in dynamic capabilities theory (DCT), this study investigates the mechanisms linking innovation strategy to post-COVID-19 recovery performance of micro-, small- and medium-sized enterprises (MSMEs) in Ghana. It critically tests the presumed mediating roles of three micro-foundations, namely business agility (seizing), new idea search (sensing) and frugal spending (transforming), in a resource-constrained, post-crisis context.

Design/methodology/approach – A survey was administered to 243 owners and managers of Ghanaian MSMEs in the manufacturing and service sectors during the post-pandemic recovery period. Data were analysed using covariance-based structural equation modelling (SEM) to test the hypothesised mediation model.

Findings – Innovation strategy has a significant positive direct effect on MSME recovery performance. However, contrary to expectations derived from literature on constrained environments, only business agility significantly mediates this relationship. New idea search and frugal spending show no significant mediating effects.

Originality/value – This study provides a critical contextual refinement of DCT. First, it reveals a temporal hierarchy of dynamic capabilities in post-crisis recovery, in which the seizing function (agility) is paramount over sensing (search) or transforming (frugal reconfiguration). Second, it challenges the narrative of frugality as a key dynamic capability in such settings, positing it instead as a universal "hygiene factor" rather than a performance-differentiating mediator. Third, it demonstrates that, in this context, agility is enacted through informal, tactical adjustments rather than formal strategic planning. These findings advance theory by delineating boundary conditions for DCT's micro-foundations and offer counter-intuitive insights for MSME support in an emerging economy. Finally, the study translates these insights into targeted policy actions for MSME recovery in emerging economies, directly linking entrepreneurial capability to economic development strategy.

Keywords Small business, Innovation, Business performance, Business agility, New idea search, Frugal spending, Dynamic capabilities, COVID-19, Ghana, Sub-Saharan Africa

Paper type Research article

Introduction

The growing uncertainty in the global space, particularly the unprecedented COVID-19 pandemic, the Russian–Ukrainian war and ongoing hostilities in the Middle East, has adversely impacted major sectors of the world economy (Kraus *et al.*, 2020; Sharma *et al.*, 2022), and the United States' trade restrictions (Yu *et al.*, 2025) affected operations of micro small businesses adversely (Guckenbiehl and Corral de Zubielqui, 2022). This, therefore, compels the global community to rethink and re-strategise the support given to micro-, small- and medium-sized enterprises (MSMEs), also known as small businesses, in their recovery efforts. MSMEs, the mainstay of most economies worldwide, have become more vulnerable amid rising tensions and uncertainty stemming from unexpected environmental challenges (Papadopoulos *et al.*, 2020).

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Sadly, the research community has given very little attention to MSME policy initiatives aimed at survival, recovery and turnaround strategies following periods of unresolved tension and distress. The call is for owners, managers and policymakers of MSMEs to take bold strategic actions by crafting prudent recovery policies that promote sustainable investments, job retention and growth (West, 2024). In Ghana, where MSMEs form the economic backbone, contributing over 70% of GDP and employing more than 80% of the workforce (World Bank, 2020), this vulnerability is acute, yet context-specific research on their post-crisis innovation policy configurations is critically lacking. Notably, proactive MSME policies are required to drive fast firm recovery (Palazzo *et al.*, 2020).

As the world recovers from the global pandemic, amid ongoing wars, entrepreneurs must understand how MSMEs can thrive in this new reality through prudent operational policies. Thus, this study assesses the intricate relationship between MSMEs' innovation and performance in post-pandemic operations, with a focus on entrepreneurial strategy and policy to drive recovery. Over the years, innovation has been recognised as a catalyst for growth and sustainability. However, the challenges posed by the period of uncertainty have underscored the centrality of innovation for the success of MSME recovery policies (Roper and Turner, 2020; Sharma *et al*., 2022). Business recovery requires innovative ideas to navigate uncertain environments, which in turn hinge on entrepreneurial policies (Dayan *et al*., 2023). For example, following the 2008 financial crisis, the European Union prioritised supporting MSMEs to recover more quickly than expected, given their strategic importance. Notable measures include deferring debt and payments, developing new business lines to enhance MSME liquidity, incentivising commercial banks to lend to MSMEs and establishing an MSME tax-reduction policy.

The paper assesses the performance of MSMEs in innovation policy and business recovery. The study further examines the mediating role of operational policies, including business agility, new idea search, frugal spending, MSME innovation and business performance.

This study aims to move beyond a direct application of dynamic capabilities theory (DCT) to critically test its underlying assumptions in a distinctive, under-examined context. We do so by investigating three potential mediating mechanisms, each representing a core DCT micro-foundation, to determine which is pivotal to translating innovation into recovery performance in a resource-constrained, post-crisis environment (Opuni-Frimpong *et al*., 2024). The significance and theoretical novelty of this examination are threefold. Firstly, we critically examine business agility as the seizing function. While agility is theorised as a vital capacity to respond to market fluctuations (Mueller and Jungwirth, 2022), its requisite resource reconfiguration is presumed to require strategic flexibility and organisational slack, a condition critically absent in post-crisis Ghanaian MSMEs (Ackah *et al*., 2025). By testing its mediation, we challenge the assumption that this core DCT capability operates as expected under extreme resource scarcity, potentially revealing a more informal, tactical form of agility.

Secondly, we probe new idea search as the sensing function. Proactive search for novel ideas is recognised as a source of competitive edge (Hoyte *et al*., 2019). However, crisis survival mode may force a prioritisation of exploitation over exploration (March, 1991), potentially suppressing the absorptive capacity needed to leverage new ideas (Zahra and George, 2002). Testing its mediation, therefore, calls into question the universality of exploratory sensing in acute recovery and may identify a key boundary condition for this DCT component. Thirdly, and most originally, we test frugal spending as the transforming function. Recognising that financial constraints challenge MSMEs, frugal spending and resource optimisation are seen as critical to survival (Greene and Rosiello, 2020) and are often championed as a dynamic capability for innovation under constraints (Albert, 2019; Rosca *et al*., 2017). Yet, in a context where it is a universal survival imperative rather than a strategic choice, it may function as a baseline "hygiene factor" rather than a differentiating mediator. This investigation directly challenges the transferability of frugal innovation models from voluntary corporate strategy to imperative-driven MSME recovery, offering a crucial theoretical refinement.

Therefore, this study offers a targeted theoretical refinement by empirically determining which DCT micro-foundation sensing (via search), seizing (via agility), or transforming (via frugality) serves as the pivotal bridge between innovation and recovery in a survival-driven context. This moves the discourse beyond asking if MSMEs have dynamic capabilities to revealing how the hierarchy and manifestation of these capabilities shift under acute constraints, a crucial nuance absent from current DCT–MSME literature. The resultant framework provides a more context-sensitive lens for understanding post-shock recovery, with direct implications for both theory and practice.

This paper reviews the literature and conducts empirical analysis to provide a comprehensive overview. By synthesising existing research and drawing on real-world data, we identified insights that inform practical recommendations to help small businesses navigate the challenging post-pandemic environment. The study offers practical implications for small business owners, managers, policymakers and other stakeholders who promote small business development. The study also provides an in-depth understanding of the policy drivers shaping small-business performance in the post-pandemic era, highlighting the significance of innovation strategy and its mediating factors. This will ultimately enable informed decision-making and the formulation of effective methods to enhance the competitiveness and sustainability of small businesses.

In the subsequent sections, the paper reviews the relevant literature and the theoretical framework supporting the hypotheses, describes the research methodology employed, examines the collected data and discusses the implications of the findings. Through this comprehensive investigation, we aim to advance knowledge on small business innovation and performance, providing valuable insights for practitioners and scholars alike.

Literature review

Context of the study: post-COVID-19 and small business operations

The COVID-19 pandemic inflicted severe damage on the global economy due to lockdowns, including government-imposed ones. This led to significant economic problems with far-reaching consequences, disrupting people's social and economic lives (Mansour and Salem, 2020; Clampit *et al*., 2022), including financial crises and recessions in certain economies. Organisations, including MSMEs, were compelled to temporarily or permanently close or operate at minimal capacity (Amankwah-Amoah *et al*., 2021). The pandemic also disrupted the routines and operations of small businesses (Gautam and Sharma, 2020), and MSME owners incurred losses due to poor customer-to-direct sales interactions (Tan *et al*., 2020).

The World Bank reported that MSMEs account for approximately 40% of GDP and 50% of employment, creating between 52% and 57% of jobs in developed economies and 61% in developing economies (World Bank, 2020). There are several reasons for the revival of MSME business strategies, particularly in the post-pandemic context. First, they represent a significant share of small businesses and play a pivotal role in sustainability and innovation (Dias *et al*., 2022). Second, MSMEs operate more sustainably than large corporate firms, as they adopt flexible business policies that enable them to dominate local markets, create local jobs and preserve local traditions (Adomako and Danso, 2014; Morrison, 2006). In addition, entrepreneurs are pillars of the "new" post-pandemic business, thereby requiring the deployment of critical, differentiated business strategies to remain competitive.

In Ghana and other developing economies, MSMEs operate in a context of high informality (Khavul *et al*., 2009), limited access to formal credit and uneven digital infrastructure. These structural constraints mean that dynamic capabilities are not exercised through formal R&D or strategic planning but through improvised, tactical adjustments driven by immediate survival needs. This unique environment provides a critical test for DCT's assumptions about sensing, seizing and transforming under extreme resource scarcity.

Theoretical underpinning of the study

The theoretical foundation of this study is anchored in the DCT, first articulated by Teece *et al*. (1997). DCT explains how organisations systematically adapt, integrate and reconfigure internal and external competencies to address rapidly changing environments and achieve sustained competitive advantage (Teece, 2018a, b). The core of DCT lies in three iterative micro-foundations: sensing opportunities and threats, seizing those opportunities by mobilising resources and transforming the firm's asset structure and routines to maintain evolutionary fitness (Teece, 2007, 2016, 2018a, b).

While DCT has been extensively applied to large corporations in stable institutional settings, its use in MSMEs in post-crisis, resource-constrained environments such as Ghana remains underexplored (Zoogah *et al*., 2015). In such contexts, dynamic capabilities are not manifested through formal R&D departments or structured strategic planning but through informal, pragmatic and improvisational actions necessitated by survival imperatives. This study extends DCT by contextualising its micro-foundations within the specific realities of Sub-Saharan African MSMEs recovering from the post COVID-19 pandemic. We propose that for these firms, the sensing-seizing-transforming cycle is enacted through distinct, contextually embedded policy-driven capabilities, as illustrated in the conceptual framework below (Figure 1).

Conceptual framework: linking DCT processes to MSME recovery mechanisms

The study's hypothesised model directly maps onto the tripartite structure of DCT, positioning the key constructs, innovation strategy, business agility, new idea search and frugal spending, as specific manifestations of the sensing, seizing and transforming processes within the Ghanaian MSME context. Sensing (Innovation Strategy and New Idea Search): The sensing function involves scanning the environment to identify novel opportunities and threats. For MSMEs in Ghana's recovery landscape, this is operationalised through a deliberate innovation strategy that focuses on market shifts and recovery needs. Concurrently, the proactive search for new business ideas constitutes the active exploration component of sensing, aimed at identifying concrete avenues for adaptation and growth (Hoyte *et al*., 2019; Kier and McMullen, 2018). However, in a resource-scarce setting, the capacity for extensive exploratory search may be constrained, potentially attenuating its mediating role.

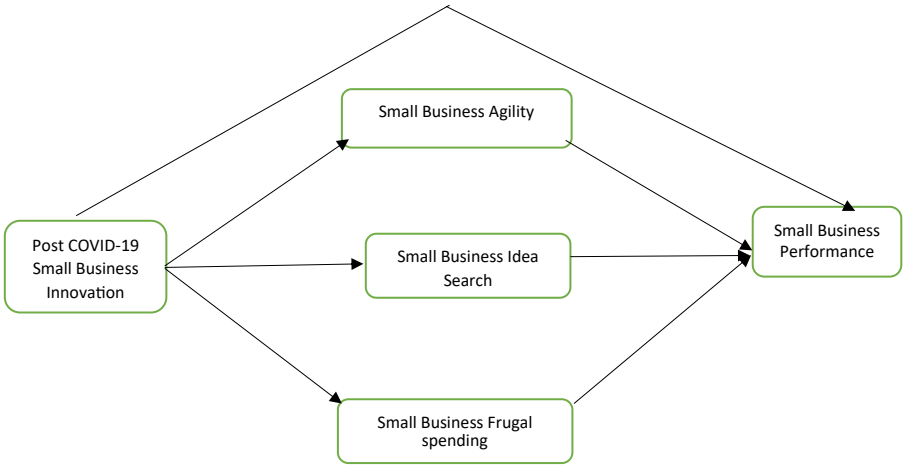

Figure 1. Authors' conceptual model

Seizing (business agility): The seizing function is the capacity to address opportunities by making timely, targeted resource commitments. In this model, business agility – defined as the ability to rapidly reconfigure resources, processes and offerings – embodies this capability (Mueller and Jungwirth, 2022). It represents the organisational flexibility needed to act upon sensed opportunities. Yet, the efficacy of seizing via agility depends on available resource slack, which is severely limited in post-crisis Ghanaian MSMEs, thereby calling into question its mediating effect.

Transforming (frugal spending): The transforming function entails the continuous renewal of tangible and intangible assets to maintain competitive advantage. In the context of Ghanaian MSMEs, the critical transformation mechanism is posited to be frugal spending, the strategic, cost-conscious orchestration and reallocation of severely limited resources (Albert, 2019; Greene and Rosiello, 2020). This goes beyond mere cost-cutting; it is a dynamic capability for asset reconfiguration under duress, enabling firms to redirect meagre savings towards implementing innovation and operational sustainability. We hypothesise that this transformative, frugal reconfiguration is the pivotal mediating mechanism linking innovation intent to recovery performance. Thus, this study empirically tests a critical proposition: in the survival-driven context of post-crisis Ghanaian MSMEs, which of the three DCT-derived capabilities serves as the pivotal bridge between innovation strategy and recovery performance?

The anticipated outcome of this dynamic process is to enhance small business performance, measured by a blend of financial and recovery-specific indicators pertinent to post-crisis survival and growth (Delmar and Wiklund, 2008; Clampit *et al*., 2022). Small business innovation strategy innovation is a multifaceted concept that entails creating, adopting and implementing novel concepts, products, processes or business models. Innovation practice goes beyond technological advancements and encompasses organisational and strategic processes (Baregheh *et al*., 2009; Teece, 2017). Schumpeter (1934) coined the term "creative destruction" to highlight the disruptive innovations that replace existing paradigms and foster economic growth. Innovation has become a critical driver of business success and a key source of competitive edge in today's rapidly evolving business environment (Damanpour, 2014). Organisations across industries must recognise the importance of innovation as a means of adapting, differentiating and thriving in dynamic markets. Innovations can be classified into product, process, business model and organisational innovation (Dosi *et al*., 2015). Innovation has been widely recognised as essential for competitiveness (Madrid-Guijarro *et al*., 2013). Small businesses that do not adopt innovation as part of their core strategies risk becoming uncompetitive.

Product innovation involves developing new or superior products or services that satisfy customer needs and create value (Burgelman *et al*., 2020). It can manifest as incremental improvements or radical breakthroughs (Damanpour and Aravind, 2012; Schilling, 2020). Process innovation enhances operational efficiency, streamlines workflows and optimises resource utilisation (Tidd and Bessant, 2019). It aims to improve productivity, decrease operational costs and effectively deliver the value of products or services to customers and stakeholders (Tidd and Bessant, 2019). Business model innovation encompasses reviewing and restructuring how a business generates, delivers and captures value. It entails new revenue streams, strategic partnerships or disruptive changes in the value proposition (Massa *et al*., 2017). Organisational innovation refers to innovations in management practices, organisational structures and human resource management that foster creativity, collaboration and knowledge sharing (Jansen *et al*., 2019), Innovation and innovative strategies are integral to organisations' long-term success and sustainability. Understanding the various dimensions of innovation drives strategic approaches to foster it, which is crucial for organisations seeking to thrive in today's dynamic and competitive business environment. By embracing innovation and developing effective strategies, organisations can unlock new opportunities, engineer growth and sustain a competitive advantage. Other key drivers of innovation include technological advancements, market forces, organisational culture and external collaboration with market giants (Bogers *et al*., 2017).

Innovation strategy refers to an organisation's deliberate and coordinated approach to fostering innovation and aligning it with its broader strategic objectives (Baregheh *et al*., 2009). Key elements of an effective innovation strategy include clear operational objectives, prudent resource allocation, risk management, organisational structures and processes, and continuous learning and adaptation (Adams *et al*., 2006). According to Xu *et al*. (2021), entrepreneurship is essential in crisis conditions, as it offers a useful perspective on the evolving business landscape and creates opportunities for creative entrepreneurs who need to recover quickly.

Small business agility

Business agility, the ability of an organisation to rapidly sense and respond to internal and external changes while maintaining strategic direction, is widely framed as a critical dynamic capability, especially in volatile environments (Mueller and Jungwirth, 2022; Eisenbeiss *et al*., 2008). It encompasses strategic and operational flexibility, customer-centric adaptation and a learning-oriented culture (Brozovic, 2018), enabling firms to reconfigure resources, pivot processes and seize emerging opportunities.

In developed economies, agility is strongly linked to innovation performance and competitive advantage (Christopher and Towill, 2001; Kalaignanam *et al*., 2021). Studies of larger firms emphasise that agile practices – such as lean startup methods and dynamic capability deployment through sensing, seizing and transforming (Teece, 2007) enhance responsiveness, resilience and customer experience, thereby strengthening the innovation–performance relationship. However, this dominant narrative largely assumes resource availability, formalised processes and organisational slack, conditions often absent in resource-constrained small businesses, particularly in post-crisis Sub-Saharan African settings.

While agility is theoretically beneficial, its mediating role may be limited when MSMEs face acute liquidity constraints, infrastructure gaps and institutional voids. In such contexts, the capacity to reallocate resources rapidly (Brozovic, 2018) may be more aspirational than practicable, and the pursuit of agility may divert scarce attention and funds from more immediately impactful recovery activities. Thus, although agility remains a valuable strategic ideal, its mediating role between innovation strategy and performance in a post-crisis MSME context remains empirically uncertain. This study, therefore, positions business agility not as an assumed enabler but as a tested mediator, hypothesising that its role may be less pronounced in Ghana's resource-constrained recovery environment, a departure from developed-economy models that treat agility as a primary mechanism.

Small business new idea search: The search for new business ideas encompassing the identification and exploration of innovative concepts, products, services or business models is widely recognised as a fundamental entrepreneurial activity that drives opportunity recognition and innovation (Hoyte *et al*., 2019; Kier and McMullen, 2018). Such ideation stems from diverse sources, including market observations, technological advancements and creative problem-solving, and is essential for fostering entrepreneurial ventures and sustaining competitive advantage (Davidsson, 2015; Kier and McMullen, 2018). In established organisations, the systematic pursuit of new ideas can stimulate intrapreneurship and enhance adaptive capacity in dynamic markets (Sirmon *et al*., 2011). At a macroeconomic level, continuous idea generation is linked to job creation, investment and technological progress, underscoring its role in economic recovery and growth (Shane, 2009; Van Praag and Versloot, 2007).

However, the prevailing literature largely presumes that firms possess the resources, risk tolerance and strategic bandwidth to engage in proactive idea search, an assumption that may not hold in resource-constrained, post-crisis environments. While new idea search is theorised to mediate the innovation–performance relationship by enabling firms to sense and seize emerging opportunities (Davidsson, 2015), empirical evidence remains predominantly rooted

in stable or high-resource contexts. In settings such as post-pandemic Ghana, MSMEs often operate under severe financial pressure, operational disruption and shortened planning horizons. Under these conditions, the exploratory search for new ideas may be deprioritised in favour of more immediate, exploitative activities aimed at ensuring survival. Consequently, the mediating role of new idea search in the relationship between innovation strategy and performance may be attenuated or non-significant, a possibility overlooked in mainstream innovation studies.

This study, therefore, critically examines whether new business new idea search functions as a significant mediator in a resource-scarce recovery context. By testing this relationship, we challenge the universal applicability of ideation-based models of innovation and probe the boundary conditions of entrepreneurial search theory in Sub-Saharan African MSME settings. Hypothesis 2 is thus positioned not as a foregone conclusion, but as an empirical question that may reveal context-specific limitations in how new-idea search translates innovation into performance.

Small business frugality

Frugality, often conceptualised within cost leadership and resource-efficiency frameworks, emphasises deliberate, cost-conscious decision-making and the efficient allocation of limited resources (Albert, 2019; Greene and Rosiello, 2020). In innovation contexts, frugality is not merely a defensive cost-cutting tactic but a strategic capability that enables firms, especially resource-constrained ones, to redirect savings towards innovative activities, thereby enhancing both innovation output and subsequent business performance (George *et al*., 2012; Rosca *et al*., 2017).

While existing literature acknowledges the role of frugality in sustaining innovation under financial constraints, most empirical studies are based in developed economies or focus on large firms that engage in frugal innovation for emerging markets. This body of work often treats frugality as a voluntary strategic choice rather than an imperative for survival. In contrast, for MSMEs in postcrisis Sub-Saharan Africa, frugality is frequently a non-negotiable reality shaped by liquidity shortages, limited access to credit and volatile demand. Here, frugal spending may function not as one of several dynamic capabilities, but as the central mediating mechanism through which innovation strategy translates into recovery performance.

This contextual distinction highlights a significant empirical gap: the mediating role of frugality has been underexplored in settings where it is less a strategic preference and more a structural condition. Prior models of innovation-performance linkages tend to prioritise agility or exploration, implicitly assuming a level of resource slack that Ghanaian MSMEs lack post-COVID-19. Consequently, frugality's potential to positively mediate the innovation-performance relationship may be particularly pronounced in such environments, offering a more relevant explanatory pathway than agility or new idea search.

By positioning frugal spending as a key mediator, this study directly addresses this gap and tests whether, in a resource-constrained recovery context, frugality serves as the pivotal bridge between innovation intent and performance outcomes. Hypothesis 4, therefore, proposes that frugal spending significantly mediates this relationship, challenging the conventional emphasis on more resource-intensive capabilities and contributing to a more context-sensitive application of DCT.

Small business performance

The performance of MSMEs is a multidimensional construct encompassing financial, operational and strategic outcomes that are essential for assessing firm viability, growth and recovery (Delmar and Wiklund, 2008; Wiklund and Shepherd, 2003). Traditional indicators, such as profitability, revenue growth and return on investment, provide critical insights into a firm's economic health (Taticchi *et al*., 2015; Acs *et al*., 2017). However, in post-crisis and resource-constrained environments, performance must also account for resilience, adaptive

capacity and the ability to sustain operations amid volatility, dimensions that are often underemphasised in conventional metrics (Hughes *et al*., 2021; Latifi *et al*., 2021).

The extant literature on MSME performance is largely informed by studies conducted in stable, institutionally supported economies, where factors such as entrepreneurial orientation, market agility and innovation are consistently linked to positive outcomes (Acs *et al*., 2017). Yet, this body of work frequently overlooks the acute constraints, such as liquidity shortages, infrastructural gaps and institutional voids, that characterise post-crisis settings in Sub-Saharan Africa. In such contexts, performance drivers may operate differently; for instance, frugal resource orchestration may be more consequential than strategic agility, and survival-oriented metrics may temporarily take precedence over growth indicators (Clampit *et al*., 2022; Latifi *et al*., 2021). This disconnect reveals a significant empirical gap: a lack of integrated models that explain how MSMEs translate strategic initiatives, such as innovation, into performance in recovery environments where traditional dynamic capabilities are materially constrained.

Furthermore, while prior research has examined performance antecedents in isolation, few studies have empirically tested how multiple capability-based mediators, such as agility, idea search and frugality, simultaneously influence the innovation–performance link in a post-crisis MSME context. This gap is particularly salient in Ghana, where the COVID-19 pandemic exacerbated existing vulnerabilities and forced MSMEs to prioritise cost-conscious recovery over exploratory growth (Uzir *et al*., 2022). By examining small business performance through the lens of the post-pandemic recovery, this study addresses these theoretical and contextual shortcomings. It adopts a balanced performance construct that integrates financial outcomes with recovery-specific indicators of stability and adaptive efficiency. More critically, it tests a mediation model examining whether frugal spending, rather than agility or new-idea search, serves as the pivotal mechanism that translates innovation strategy into performance, a proposition that challenges developed-economy assumptions and contributes to a more context-sensitive understanding of MSME performance dynamics.

Small business innovation strategy and small business performance

The DCT posits that a firm's ability to adapt, integrate and reconfigure its resources and capabilities in response to shifting market conditions is essential for achieving and sustaining a competitive advantage (Teece, 2016, 2018a, b; Clampit *et al*., 2022). Small businesses can create new products, improve processes and differentiate themselves in the market by actively pursuing innovation and investing in research and development (Baregheh *et al*., 2009; Teece, 2017; Burgelman *et al*., 2020). In small businesses, innovation strategy is a dynamic capability that enables firms to continuously renew and enhance their offerings to meet customer demands (Teece, 2016). Proactively seeking innovative solutions can positively impact a small business's overall performance, including financial profitability, market share and customer satisfaction. We, therefore, test this proposition under recovery conditions:

H1. Post-covid small business innovation strategy has a significant positive influence on small business performance.

New idea search as a mediator

A firm's dynamic capabilities emphasise the importance of sensing and seizing new opportunities (Teece, 2016, 2018a, b; Clampit *et al*., 2022). The proactive search for new business ideas can be viewed as a capability to sense and identify emerging trends, market gaps and customer needs, thereby enabling small businesses to recognise and capitalise on opportunities for innovation (Teece, 2016, 2018a, b). By integrating new business ideas into its innovation strategy, a small business can enhance its capacity to seize opportunities and translate them into successful innovations, which, in turn, positively impacts small business performance (Davidsson, 2015; Kier and McMullen, 2018; Roper and Turner, 2020). Thus, the

search for new business ideas could mediate the relationship between small-business innovation strategy and performance. We, therefore, hypothesise that:

H2. Post-covid small business new idea search significantly mediates the relationship between small innovation strategies and performance.

Small business agility as a mediator

DCT also highlights the significance of organisational agility in responding to market changes (Teece, 2016, 2018a, b). Business agility refers to a small business's ability to respond quickly and effectively to changes in its business environment (Eisenbeiss *et al*., 2008). Small businesses with robust innovation strategies are more likely to demonstrate business agility by adapting and reconfiguring their resources and processes to exploit emerging opportunities and address competitive threats (Eisenbeiss *et al*., 2008). This agility enables small businesses to respond quickly and effectively to market dynamics, thereby enhancing their performance. By incorporating business agility as a mediating variable, this study suggests that a small business's agility moderates the relationship between its innovation strategy and improved performance. We, therefore, hypothesise that:

H3. Post-covid small business agility significantly mediates the relationship between small business innovation strategy and small business performance.

Small business frugal spending as a mediator

DCT emphasises the efficient allocation and reconfiguration of resources (Teece, 2016, 2018a, b; Clampit *et al*., 2022). Frugal spending is a capability that enables small businesses to maximise the impact of their innovation strategies (Albert, 2019; Greene and Rosiello, 2020). A small business with frugal spending can reallocate resources towards innovation activities such as research and development, technology adoption or employee training. Small businesses can enhance their innovation capabilities by effectively managing their resources to develop and commercialise innovative products or services (George *et al*., 2012; Rosca *et al*., 2017). This, in turn, positively influences small business performance. Therefore, frugal spending can mediate the relationship between small business innovation strategy and performance. We, therefore, hypothesise that:

H4. Post-covid frugal spending among small businesses significantly mediates the relationship between innovation strategy and small business performance.

Research methodology

Research context and sampling rationale

This study was conducted in Ghana, a Sub-Saharan African nation with a population of approximately 31 million. In this context, MSMEs form the economic backbone, accounting for more than 80% of the workforce and contributing over 70% of the country's gross domestic product (GDP). The research focused on the Greater Accra Region, the national capital and economic hub. This region was selected for its cosmopolitan nature and high concentration of registered MSMEs across diverse sectors, particularly services and manufacturing, thereby providing a representative and accessible sample frame. The target respondents were owners and managers of MSMEs, as they possess the strategic insight and authority to formulate and implement strategic policies within their firms.

A purposive sampling technique was employed to ensure that participants possessed the relevant experiential knowledge of MSMEs during the post-pandemic recovery (Patton, 2002). The inclusion criteria for firms were: (1) having operated for a minimum of five years, (2) belonging to the manufacturing or service sectors and (3) having remained operational

throughout the acute phase of the COVID-19 pandemic (2020–2022). These criteria ensured that sampled entities had established operations prior to the crisis and had direct experience implementing strategic adaptations during and after severe disruption. MSMEs in these sectors, which often depend on physical customer interactions (e.g. shops, restaurants, hotels, gyms, artisanal workshops), experienced significant revenue losses during pandemic lockdowns and restrictions.

Data collection and sample characteristics

Quantitative data were collected via structured questionnaires in the last quarter of 2023, a period marked by post-pandemic recovery efforts. In total, 243 owners and managers participated through face-to-face survey sessions. This sample size ($N = 243$) is deemed adequate for analysis, satisfying the recommended minimum ratio of 10 cases per estimated parameter in structural equation modelling (Kline, 2015). The sample comprises entities from the hospitality, tourism, trading, laundry services and manufacturing sectors that digitalised aspects of their operations during the pandemic (Uzir *et al*., 2022). The research instrument first focused on firm demographic data and second on the variables of the study. Analysis of the data revealed that 42.8% of participants were micro-enterprises, while 57.2% were small or medium enterprises. Regarding the sector of operation, 78.2% were in services and 21.8% in manufacturing. Regarding longevity, 87.2% of firms had been in operation for more than 4 years, suggesting that many had operated during the pandemic. Respondents were 53.1% female and 46.9% male, and 74% were owners of MSMEs engaged.

The second section contained 20 items, which measured five key constructs grounded in established scales: small business agility had 5 items (Tallon and Pinsonneault, 2011), small business performance comprised of 4 items (Henri, 2006; Teeratansirikool *et al*., 2013; Rehman *et al*., 2023), frugal spending had 4 items (Lastovicka *et al*., 1999), innovation strategy with 4 items (Scott and Bruce, 1994) and new business search comprised of 3 scale items (Marvel and Lumpkin, 2007; Ucbasaran *et al*., 2008).

Analytical approach

Data were analysed using covariance-based structural equation modelling (SEM). This approach was selected for its ability to apply objective standards and rigorously test the hypothesised complex mediation model with latent variables (Hair *et al*., 2016), thereby providing robust fit indices for model validation. SEM is well-suited to theory testing, modelling multivariate relationships and generating new knowledge (Manley *et al*., 2021), as it captures the magnitude and direction of relationships within multivariate data distributions (Anderson and Gerbing, 1988).

Results

The questionnaire scales were validated through confirmatory factor analysis using Amos version 26. The item loadings of constructs and bootstrap t-values are shown in Table 1. The measurement model exhibited generally acceptable fit indices, with the comparative fit index (CFI) of 0.92 exceeding the 0.90 threshold for acceptability (Table 2). The root mean square error of approximation was 0.069, less than 0.08, and the X2/df ratio was 2.15, less than 5 (Hu and Bentler, 1999). Each of the five constructs made up of small business agility, business performance, frugal spending, innovation strategy and new idea search showed appropriate reliability and convergent validity, as evidenced by Cronbach's alphas above 0.70, composite reliabilities above 0.70 and average variance extracted estimates all greater than 50% (Byrne, 2013; Hair *et al*., 2016) (Table 3).

Additionally, the square root of the average variance-derived estimates for each of the five variables exceeds the correlations between the constructs, as suggested by Fornell and Larcker

Table 1. Item loadings and *t*-values

Codes	Construct and items	Loading	*t*
MSME agility			
agil3	We have responded to changes in aggregate/collective consumer demand after the pandemic	0.838	Fixed
agil2	We have customised our products to suit our customers after the pandemic	0.851	15.280
agil1	We react to new products launched by competitors after the pandemic	0.730	12.483
agil4	We introduced new pricing rates in response to changes in competitors' prices	0.689	11.584
agil5	We adopt new technologies to produce better, faster, cheaper products and services	0.579	9.330
MSME recovery performance			
bp3	After the pandemic, sales were normal, just as in other years	0.826	Fixed
bp2	After the pandemic, we made a profit, just like in other years	0.824	13.613
bp4	Our market share after the pandemic was intact just in other years	0.736	12.014
bp1	Generally, the business was normal after the pandemic, experiencing moderate growth	0.649	10.329
MSME frugal spending			
frug3	After the pandemic, we were careful about spending	0.781	Fixed
frug1	We tried to get the most of our money from debtors	0.753	11.147
frug2	We were disciplined in spending our resources	0.721	10.696
frug4	We worked hard to contain our costs after the pandemic	0.686	10.172
MSME innovation strategy			
inn2	We were successful in implementing our ideas into practice after the pandemic	0.785	Fixed
inn1	Many things we came up with are used in our organisation	0.706	10.343
inn3	We tried new ways of operating after the pandemic	0.694	10.167
inn4	We preferred to work through critical thinking	0.702	10.293
MSME New Idea Search			
new2	We tried to get new ideas from employees and business partners after the pandemic	0.792	Fixed
new1	We were interested in things done elsewhere in order to use acquired new ideas to work efficiently	0.702	9.062
new3	I learn new ideas from other people and sources to implement our strategy	0.697	9.026

Note(s): All *t*-values are significant at $p < 0.001$

Table 2. Model fit measures

Measure	Estimate	Interpretation
CMIN	343.851	–
DF	160	–
CMIN/DF	2.149	Excellent
CFI	0.916	Acceptable
SRMR	0.059	Excellent
RMSEA	0.069	Acceptable

Note(s): Hu and Bentler (1999)

(1981), for discriminant validity, as determined using the heterotrait-monotrait ratio (HTMT) (Table 4). Furthermore, the HTMT correlations reported were all below 0.85 (Henseler *et al.*, 2015; Hair *et al.*, 2016). Thus, there is enough evidence of reliability, convergent validity and discriminant validity to conclude that the measuring model is adequate.

Table 3. Reliability and convergent validity

	α	CR	AVE	MSV	MaxR (H)	1	2	3	4	5
1. MSME agility	0.858	0.859	0.554	0.391	0.883	0.744				
2. MSME recovery performance	0.839	0.846	0.581	0.391	0.861	0.626***	0.762			
3. MSME frugal spending	0.823	0.825	0.542	0.303	0.829	0.550***	0.325***	0.736		
4. MSME innovation strategy	0.812	0.813	0.522	0.286	0.818	0.505***	0.490***	0.534***	0.723	
5. MSME new idea search	0.771	0.775	0.536	0.161	0.783	0.377***	0.284***	0.395***	0.401***	0.732

Table 4. Discriminant validity – heterotrait-monotrait ratio (HTMT)

Constructs	HTMT 0.85 criterion 1	2	3	4	5
1. MSME agility					
2. MSME recovery performance	0.601				
3. MSME frugal spending	0.563	0.597			
4. MSME innovation strategy	0.297	0.297	0.422		
5. MSME new idea search	0.392	0.48	0.409	0.231	

Note(s): All HTMT values < 0.85 (Henseler *et al*., 2015)

Hypothesis testing

The hypotheses were tested using Hayes Process Macros 3 (Hayes, 2017). The model accounts for 12%, 20%, 19% and 35% of the variance in new idea search, small business agility, frugal spending and business performance, respectively. The outcomes presented in Table 5 support the study's first hypothesis (H1). Specifically, innovation strategy has a significant positive effect on small business performance. Additionally, small business agility mediates the relationship between innovation strategy and small business performance, thereby supporting hypothesis H3. There were, however, no mediation effects of new idea search and frugal spending on the relationship between innovation strategy and small business performance. Consequently, the second (H2) and fourth (H4) hypotheses were not supported in the present context. It is important to note that the overall mediation (the combined effect of new idea search, small business agility and frugal spending) was statistically significant.

Discussion of results

The study tested a dynamic capabilities framework to explain how innovation strategy influences the post-COVID-19 recovery performance of MSMEs in Ghana, with business agility, new idea search and frugal spending posited as mediating mechanisms. The findings present a distinct picture that both confirms and challenges conventional expectations derived from DCT, particularly when applied to resource-constrained, post-crisis contexts. First, innovation strategies significantly improved post-crisis performance, confirming their central role in MSME recovery. Second, only agility mediated this relationship, while frugality and idea search showed no significant mediation, indicating that the ability to reconfigure existing resources is the pivotal factor in Ghana's context.

Direct effect of innovation strategy on performance (H1 supported)

The data strongly support H1, confirming that innovation strategy has a significant positive direct effect on small-business performance ($\beta = 0.207$, $p < 0.001$). This aligns with the core proposition of DCT which posits that innovation is a critical micro-foundational for sensing and seizing opportunities in turbulent environments (Teece, 2016; Clampit *et al*., 2022). This finding suggests that small businesses that adopt and implement effective innovation strategies are more likely to achieve better business performance, including increased revenue, profitability, market share and customer satisfaction. The positive effect of innovation strategy on small business performance can be attributed to several factors. Innovation enables small businesses to develop new products, services or processes that cater to customer needs and preferences, thereby increasing customer satisfaction and loyalty. This can contribute to higher sales and market growth.

Secondly, innovation strategies enable small businesses to optimise operational efficiency, streamline processes and improve resource allocation. By identifying and implementing innovative solutions, small businesses can enhance productivity, reduce costs and maximise

Table 5. Direct, moderation and mediation results

Effect type	Hypothesis	Path	Effect	(Boot) SE	(Boot) *t*-value	*p*	(Boot) LLCI	(Boot) ULCI	Hypothesis results
Direct4	H1	IS→ MSMERP	0.207***	0.061	3.379	0.000	0.086	0.328	Supported
Mediation4	H2	IS →NIS →MSMERP	0.009	0.019	0.474	_	−0.029	0.051	Not Supported
	H3	IS →SA →MSEMRP	0.219***	0.045	4.867	_	0.131	0.308	Supported
	H4	IS →FS →MSMERP	−0.015	0.028	−0.535	_	−0.073	0.038	Not Supported
		Total	0.213***	0.053	4.018	_	0.109	0.319	Supported

Note(s): IS (innovation strategy); BP (business performance); FS (frugal spending); NIS (new idea search); SA (small business agility)
4 Hayes Process Macro Model 4: for mediation test
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$ (two-tail test)
Number of bootstrap samples = 5,000

resource utilisation, ultimately improving profitability and financial performance. Furthermore, an innovation-focused business strategy fosters a culture of continuous learning, creativity and experimentation within small businesses. This encourages employees to generate new ideas, collaborate across functions and contribute to innovation. Such a learning culture can enhance employee engagement, motivation and retention, thereby improving organisational performance. This direct relationship underscores that even amid severe resource constraints, strategic intent towards innovation remains a vital driver of recovery outcomes, consistent with prior studies in emerging economies (Baregheh *et al*., 2009; Roper and Turner, 2020). Thus, open innovation remains a crucial digitalisation strategy for firms willing to survive the post-pandemic era. Firm performance in sustaining start-ups can be notably influenced by information and communication technology and the adoption of artificial intelligence, a trend observed in recent times (Shan *et al*., 2023).

Non-significant mediation of new idea search (H2 not supported)

From the data, new idea search did not significantly mediate the innovation-performance link ($\beta = 0.009$, ns), thus H2 was not supported. This is a striking departure from the innovation literature that emphasises exploratory search as a key sensing activity (Hoyte *et al*., 2019; Kier and McMullen, 2018). While these results may be disappointing and unexpected, they provide valuable insights into the relationship among these variables. First, innovation strategies are embedded in the generation of ideas. This is because many innovation strategies inherently involve exploring and generating new ideas through research and development, customer feedback systems or competitor analysis. In such cases, the search for new ideas may not be an independent mediating mechanism but rather constitutes an integral component of the innovation strategy itself. This overlap reduces the distinct mediating effect of new idea search on performance outcomes (Laursen and Salter, 2006).

Second, firm performance depends more on the implementation of ideas than on searching for new ones. This is because, while searching for new ideas is essential, firm performance is often driven more by careful selection, adaptation and implementation of those ideas. For example, when a business lacks the resources and capabilities to translate search-generated ideas into marketable innovations, searching contributes little to performance. Therefore, the mediating role of new idea search may be limited relative to downstream processes such as commercialisation and diffusion (Zahra and George, 2002). In other words, while innovation strategy itself matters, the mechanism of formally searching for new ideas does not appear to be the pathway through which it impacts performance in this setting. A plausible explanation lies in the post-crisis context: MSMEs in survival mode may have deprioritised broad exploration in favour of exploiting existing knowledge and immediate opportunities (March, 1991). The search for new ideas may be perceived as a luxury when firms are focused on liquidity, customer retention and operational continuity. Additionally, the measure of new idea search in this study focused on external and internal idea sourcing, which may require slack resources and absorptive capacity that are severely constrained post-pandemic (Zahra and George, 2002).

Mediating role of business agility (H3 supported)

Contrary to the theoretical caution raised in the literature review, which questioned the relevance of agility in resource-scarce settings, H3 was supported. Business agility significantly mediated the relationship between innovation strategy and performance ($\beta = 0.219$, $p < 0.001$). This indicates that for Ghanaian MSMEs, the ability to rapidly reconfigure operations, customise offerings and respond to competitor actions (as measured) served as a critical channel through which innovation translated into improved performance. This finding partially challenges our contextual premise and suggests that even with limited resources, MSMEs in dynamic recovery environments leverage informal, tactical agility, such as adjusting prices, adopting incremental technologies or modifying customer engagement, to

enact their innovation strategies. This resonates with Brozovic's (2018) notion of strategic flexibility and Mueller and Jungwirth's (2022) observation that agility in SMEs is often embodied in quick, pragmatic decisions rather than structured agile frameworks.

Non-significant mediation of frugal spending (H4 not supported)

Contrary to expectations and much of the literature on resource-constrained innovation (Albert, 2019; Rosca *et al*., 2017; Baker and Nelson, 2005; Weick and Sutcliffe, 2015; Williams, 2017; Hou and Fang, 2023; Iqbal *et al*., 2021), H4 was not supported. Frugal spending did not mediate the relationship between innovation and performance ($\beta = -0.015$, ns). This null finding is particularly insightful. It suggests that in the Ghanaian MSME context, frugality may be a baseline condition rather than a dynamic capability that differentially enhances the impact of innovation. Most firms in the sample were likely already operating frugally out of necessity; thus, variation in frugal spending may not explain differences in how innovation translated to performance. Alternatively, frugality might relate more to survival than to strategic amplification of innovation. This challenges the assumed primacy of frugal innovation in emerging economy narratives and indicates that in post-crisis recovery, frugality may be a hygiene factor, necessary but not sufficient as a mediating mechanism.

Taken together, these results refine the application of DCT in post-crisis MSME environments. While the theory's core logic on innovation and agility holds, the expected mediating roles of new idea search and frugality did not materialise. This suggests that in resource-constrained, high-uncertainty recoveries, the seizing function (via agility) is more salient than the sensing function (via idea search) or the transforming function (via frugal reconfiguration) for linking innovation to performance.

Academic implications

This study yields significant theoretical implications, primarily by refining and contextualising DCT for post-crisis, resource-constrained MSME environments in Sub-Saharan Africa. By testing the mediating roles of business agility, new idea search and frugal spending, the findings challenge and extend established assumptions within innovation and capability-based literature.

Refining DCT's micro-foundations in constrained contexts: The findings challenge the assumed uniformity of DCT's sensing-seizing-transforming framework (Teece, 2007, 2018a, b). While the innovation strategy, a sensing activity aimed at identifying market shifts and recovery needs, directly drove performance, only business agility, operationalised as a seizing capability, served as a significant mediator. In contrast, new idea search (an exploratory sensing activity) and frugal spending (a transforming mechanism) did not mediate the relationship. This suggests a temporal hierarchy within DCT during acute recovery phases, where the capacity to rapidly reconfigure and act (seizing) becomes paramount over exploratory sensing or structural transformation. This aligns with the notion that in survival-driven contexts, MSMEs prioritise immediate, actionable responses over long-term exploration or structural renewal (March, 1991; Clampit *et al*., 2022). The study thus refines DCT by proposing that in post-crisis, resource-constrained settings, the seizing function may act as the primary conduit through which innovation intent translates into performance.

Challenging assumptions about frugality and agility in emerging economies: Contrary to literature positioning frugality as a dynamic capability that enables innovation under constraints (Albert, 2019; Rosca *et al*., 2017), frugal spending did not mediate the innovation–performance link. This implies that in environments such as post-pandemic Ghana, where frugality is a near-universal necessity, it functions as a baseline "hygiene factor" rather than a differentiating dynamic capability. This challenges the transferability of frugal innovation models from voluntary corporate strategy to imperative-driven MSME contexts. Conversely, the strong mediating role of business agility, despite theoretical caution regarding its

applicability in resource-scarce settings (Brozovic, 2018), reveals that MSMEs enact agility through informal, tactical adjustments (e.g. pricing changes, incremental digital adoption) rather than through formal strategic planning. This redefines agility as a micro-level, pragmatic capability, consistent with Mueller and Jungwirth's (2022) observation that it is embodied in quick, pragmatic decisions within SMEs.

Questioning the universality of exploratory search in crisis recovery: The non-significant mediation effect of new idea search contradicts innovation models that emphasise proactive exploration as a key driver of performance (Hoyte *et al*., 2019; Kier and McMullen, 2018). This finding introduces a critical boundary condition to theories of entrepreneurial search and absorptive capacity (Zahra and George, 2002). In post-crisis recovery, MSMEs appear to prioritise the exploitation of existing knowledge and immediate operational fixes over broad exploratory search, a shift consistent with March's (1991) exploration-exploitation trade-off under threat. This suggests that the capacity to assimilate and leverage external ideas (absorptive capacity) may be constrained when financial and managerial bandwidth is severely limited, thereby attenuating the mediating role of ideation.

Industry and managerial practice

The study also offers some concrete, actionable insights for MSME owners, managers and the broader business support ecosystem operating in post-crisis recovery contexts, particularly within emerging economies.

First and foremost, the significant mediating role of business agility calls for a fundamental reorientation in managerial priorities. In the pressured context of post-pandemic recovery, MSME leaders should focus less on formalised, resource-intensive ideation processes and more on cultivating practical, rapid-response capabilities. This means empowering frontline staff to make real-time, customer-facing adaptations, such as tailoring service offerings or resolving complaints with delegated authority, thereby embedding agility at the operational interface. Managers should also streamline decision-making protocols to enable rapid tactical adjustments, whether by adjusting pricing in response to market shifts or by adopting incremental technologies to enhance service delivery. Furthermore, building resilient, flexible supplier networks can extend this agility beyond the firm's boundaries, enabling external partnerships to be reconfigured quickly in response to supply chain disruptions. In essence, agility must evolve from a strategic buzzword into a set of executable, daily routines that allow the firm to sense and seize fleeting opportunities in a dynamic recovery landscape.

Equally critical is the need to embed innovation into the fabric of daily operations, rather than treating it as a separate or sporadic function. The strong direct effect of innovation strategy on performance underscores the need to demystify and operationalise innovation. This can be achieved by setting clear, incremental innovation goals, such as implementing one process improvement per quarter or experimenting with a new customer feedback mechanism each month, thereby aligning with the study's emphasis on translating ideas into practice and evaluating new operational methods. MSMEs should leverage existing customer interactions as a low-cost innovation engine, using direct feedback to drive small but meaningful adaptations to products or services. By fostering a culture that recognises and rewards efficiency gains and small wins, whether in time savings, waste reduction or quality improvement, managers can reinforce the notion that innovation is not the sole domain of research and development (R&D) but a mindset of continuous improvement accessible to all employees.

While frugal spending did not emerge as a mediator in this study, it remains the indispensable foundation for survival and recovery in resource-constrained settings. However, managers must reframe frugality from a reactive, defensive posture of cost-cutting to a proactive strategy of strategic resource orchestration. The disciplined spending and rigorous cost containment observed among Ghanaian MSMEs should be viewed not as ends in themselves but as means of generating a strategic pool of resources. These savings should be

consciously redirected into targeted investments that directly enhance agility or facilitate critical innovations, such as adopting a basic customer relationship management system, funding staff cross-training or developing a simple e-commerce platform. In this way, frugality transitions from a mere survival tactic to an enabling discipline that fuels the firm's adaptive and innovative capacity.

For business development service providers, industry associations and incubators, these findings necessitate recalibrating traditional support programmes. Training curricula should shift emphasis from theoretical business planning to applied skill-building in areas such as rapid prototyping of service changes, low-cost digital marketing adaptation, cash flow management under constraints and scenario planning for disruptions. Facilitating structured peer-learning forums where MSME owners exchange concrete "how-we-adapted" narratives can be particularly valuable, as tactical knowledge sharing often proves more impactful than top-down theoretical instruction. Additionally, these support entities should curate and provide subsidised access to simple, scalable digital tools that directly enhance operational agility, such as inventory management software and mobile payment systems, and offer hands-on training to ensure effective adoption.

Finally, the non-significant mediating role of new idea search suggests that in the acute phase of recovery, MSMEs may benefit more from exploiting and enhancing existing assets and knowledge than from pursuing broad exploratory searches. Managers are advised to conduct internal audits of their firm's core capabilities, customer relationships and operational processes to identify untapped opportunities for improvement or repurposing. This approach ensures that scarce managerial attention and limited resources are directed towards strengthening known competitive advantages and achieving immediate returns, thereby stabilising the firm before engaging in more speculative exploration.

Policy and social implications

The findings of this study offer clear, actionable guidance for policymakers, government agencies and international development partners committed to strengthening the MSME sector as a vital engine of inclusive post-crisis recovery. The evidence suggests that traditional, broad-based support programmes require recalibration to address the specific capabilities, particularly business agility, that most directly translate innovation into survival and growth within volatile, resource-constrained contexts.

First, public policy must move beyond generic advocacy for "innovation" or "frugality" and instead provide direct support for developing concrete, agile capacities within MSMEs. This entails designing interventions that subsidise access to modular, scalable digital tools, such as cloud-based point-of-sale systems or simple inventory management software, enabling firms to rapidly reconfigure operations. Furthermore, grants or technical assistance programmes should be tailored to support process re-engineering and supply chain diversification, thereby reducing operational vulnerabilities and enhancing the firm's inherent flexibility to respond to disruptions.

To foster the high-speed experimentation that underpins agility, governments should consider institutionalising mechanisms like "regulatory sandboxes" or innovation voucher schemes. These instruments would allow MSMEs to pilot new business models, such as e-commerce platforms or hybrid service delivery, within a temporarily simplified regulatory environment or with access to small-scale, de-risked funding. By lowering the legal and financial barriers to trial and error, such policies directly enable the tactical pivoting this study identifies as a critical mediator of recovery performance.

Underpinning all such efforts, however, is the need for strategic investment in foundational digital infrastructure. Policy must aggressively address the persistent digital divide by ensuring affordable, reliable broadband access and robust mobile financial ecosystems. These are not mere utilities but essential public goods that enable the very agility through online sales, digital payments and remote customer engagement that drives MSME recovery.

National and regional digitalisation strategies must therefore explicitly frame connectivity as a core determinant of private-sector resilience. Ultimately, policies designed to cultivate MSME agility transcend mere economic metrics; they are investments in social and economic resilience. A thriving, adaptable small-business sector serves as a stabiliser for communities, preserving local employment, sustaining essential services and maintaining economic circulation during downturns. By supporting MSME recovery through an agility-centric lens, policymakers can promote more inclusive economic rebuilding, mitigate the disproportionate impacts crises inflict on vulnerable populations and foster sustainable, localised development. In this way, enabling MSME agility becomes synonymous with strengthening the very fabric of societal recovery.

Limitations and future research directions

While this study provides significant insights, it is important to acknowledge its limitations, which in turn open avenues for future inquiry. First, the study's findings are based on a cross-sectional survey of 243 MSMEs in Ghana, primarily from the Greater Accra Region. This geographical and sectoral concentration, while providing depth to a specific post-crisis context, limits the generalisability of the results. The mediating role of business agility and the non-significance of frugal spending and new idea search may reflect the unique institutional, economic and cultural realities of Ghana's post-pandemic recovery. Future research should test this model in other Sub-Saharan African nations and across diverse emerging-economy contexts to determine whether these relationships hold in settings with varying levels of digital infrastructure, financial market development and crisis severity.

Second, the study relied on self-reported, perceptual measures collected from business owners and managers at a single point in time. Although the measurement model demonstrated strong reliability and validity, common method bias may still be a concern. Moreover, the cross-sectional design precludes definitive causal inferences about the dynamic interplay between innovation strategy, agility and performance over time. A longitudinal research design would be invaluable for tracing how the salience of these capabilities evolves as firms transition from acute crisis response to sustained recovery and growth phases. Such an approach could, for instance, reveal whether frugal spending assumes a more strategic mediating role once immediate survival is secured.

Third, the operationalisation of the key constructs, while grounded in established scales, may not have fully captured their exhibited manifestations in this specific context. For example, the measure of new idea search focused on proactive sourcing from employees and partners, which may be a luxury in survival mode. Future studies could employ mixed-methods approaches, combining surveys with in-depth interviews or case studies, to develop more context-sensitive measures. Qualitative insights could illuminate how MSMEs enact "agility" through informal, tactical adjustments, a finding that warrants deeper exploration beyond the quantitative indicators used here. Fourth, the study examined only three mediating variables. The significant direct effect of innovation strategy on performance, coupled with the partial mediation through agility, suggests that other unmeasured mechanisms are at play.

Future research should investigate alternative or complementary mediators, such as digital capability, entrepreneurial resilience, stakeholder trust or improvisational bricolage, which may be particularly relevant in resource-constrained, high-uncertainty settings. Similarly, exploring potential moderators – such as firm size, sector (e.g. tech-enabled versus traditional services), leadership characteristics or the level of government support – could help identify boundary conditions for the relationships identified here. Finally, the non-significant finding regarding frugal spending as a mediator is theoretically provocative and warrants further investigation. Is frugality truly a universal "hygiene factor" in such contexts or could its role become more salient under different conditions, such as in industries with higher fixed costs or for firms at a specific growth stage? Future studies could examine the qualitative dimensions of frugality, distinguishing between reactive cost-cutting and strategic resource orchestration

to better understand its potential as a dynamic capability rather than merely a condition of operation of MSMEs, particularly for firms in developing economies. By addressing these limitations, future research can build a more dynamic and contextually grounded understanding of how MSMEs in emerging economies translate innovation into sustained performance.

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