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Does dynamic capability influence organizational sustainability? Understanding the mediating role of business model innovation

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ABSTRACT

BACKGROUND AND OBJECTIVES: Organizational sustainability has become a focal point for businesses worldwide, with growing interest in how dynamic capabilities contribute to sustainability from environmental, social, and economic perspectives. This study aimed to investigate the effects of dynamic capability on sustainability within small and medium-sized enterprises using the Triple Bottom Line and Natural Resource-Based View frameworks. Specifically, it explored how dynamic capabilities influence the adoption and implementation of sustainable business practices in Small and Medium Enterprises.

METHODS: Structural equation modeling based on partial least squares was employed to analyze the data using data from a survey of 448 Small and Medium Enterprise owners and managers in Bangladesh. This study used PLS-SEM with SmartPLS (version 3.2.9) and IBM SPSS Statistics (ver. 26). This methodology helped examine the relationships between dynamic capability, business model innovation, and organizational sustainability across the three TBL dimensions.

FINDINGS: The results showed that dynamic capability had a significant direct impact on organizational sustainability, with adaptability, innovation, and resource reconfiguration being key drivers. While business model innovation positively contributed to sustainability, its mediating effect in the relationship between dynamic capability and sustainability was found to be modest. This study also found that dynamic capability, which negatively affects business model innovation uptake, accounted for 13.3 % of the influence on organizational sustainability.

CONCLUSION: These findings provided policy-makers with crucial information for better e-waste management policy development, addressing the conflict between development and conservation. These insights may be applicable in Bangladesh and other countries as well.

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INTRODUCTION

Organizational sustainability (OS) has emerged as a central imperative for firms navigating today's fast-paced and dynamic global market. This necessity is anchored in the Triple Bottom Line (TBL) approach, which demands simultaneous attention to environmental, economic, and social performance (Tseng et al., 2013). To achieve this long-term viability, firms must possess both the internal adaptive capacity (Dynamic Capability, DC) and the external transformative vision (Business Model Innovation, BMI) (Kare and Soriano, 2021; Wilson & Daniel, 2007). From an environmental standpoint, organizations must establish procedures and methods that limit their carbon footprint, waste production, and other harmful environmental consequences. According to Atkisson (2021), organizations prioritizing sustainability via dynamic capabilities and business model innovation have a fifty percent greater probability of decreasing their environmental impact. Dynamic capability and business model innovation may help firms generate new income streams and cut expenses from an economic standpoint. Paiola et al., (2022) demonstrate that organizations that invest in innovation and dynamic capabilities are 35% more likely to achieve sustainable revenue growth. Likewise, Kumar et al. (2019) emphasize business model innovation in decreasing costs and enhancing profitability. However, from a social standpoint, dynamic capacity and business model innovation may assist organizations in generating social value and enhancing stakeholder involvement. According to Marques & Simon (2020), organizations prioritizing sustainability via dynamic capacity and business model innovation have a 40% greater likelihood of accomplishing social objectives such as enhancing employee happiness, community participation, and social impact. The environment in which a firm operates is dynamic and ever-changing, and it presents a variety of difficulties for them, such as rising competition, shifting consumer preferences, and environmental concerns (Schulze & Brusoni, 2022). To achieve sustainable success over the long term, businesses increasingly need to concentrate on dynamic capabilities and business model innovation. However, the previous research does not provide a thorough knowledge of how dynamic capacity and innovative business models affect organizational sustainability from the viewpoints of

the environment, the economy, and society. Thus, the principal objective of this research is to examine how dynamic capabilities and business model innovation affect an organization's capacity for sustaining itself in terms of the environment, economy, and society. The study explicitly intends to analyze the impact of dynamic capabilities and innovative business models on organizational sustainability in the environmental, economic, and social dimensions. This study performs a thorough literature review and applies a quantitative research technique, which includes surveys and statistical analysis, to address these research objectives. The findings of this study can assist organizations in developing more sustainable business practices and strategies by helping them better understand the effects of dynamic capability and business model innovation on organizational sustainability across the environmental, economic, and social dimensions.

- *How does dynamic capability affect the organization's sustainability?*
- *How do dynamic capability and business model innovation affect organizational sustainability? And*
- *To what extent does business model innovation mediate the relationship between dynamic capability and organizational sustainability?*

The first and second research questions aim to explore and understand the relationship between dynamic capability, business model innovation, and organizational sustainability. This question examines how dynamic capability affects an organization's sustainability and ability to take advantage of opportunities. Furthermore, the third research question examines the potential mediating role of business model innovation in the relationship between dynamic capability and organizational sustainability, determining whether business model innovation plays a role and, if so, how it influences this contract. However, the overall objective is to better understand the mechanisms by which organizations can enhance their dynamic capability and improve their level of organizational sustainability through business model innovation. The study might add to the theoretical framework of dynamic capability, Triple Bottom Line (TBL), and the Resource-Based View (RBV) by investigating the function of business model innovation as a mediator between dynamic capability and organizational sustainability from

environmental, social, and economic dimensions. This may provide a more nuanced picture of the function of dynamic capacity in organizations and enhance our knowledge of how business model innovation affects organizational sustainability. The theoretical contribution to this work has three aspects. Firstly, the study will enrich the existing literature on dynamic capability, TBL, and the RBV by examining the relationship between dynamic capability and organizational sustainability and the possible mediating effect of business model innovation. Secondly, this study will offer a more subtle understanding of the concept of dynamic capability, moving beyond its conventional focus on the capacity to respond to changes in the external environment. This is accomplished by examining the relationship between dynamic capability and organizational sustainability. Lastly, the study will provide empirical data to support the field's current hypotheses using rigorous research techniques to evaluate the relationship among organizational sustainability, business model innovation, and dynamic capacity. However, the managerial contribution of this study can be as follows: First, the study can offer firms trying to increase their degree of organizational sustainability and dynamic capability valuable insights and suggestions. The study may guide organizational decision-making and assist companies in better understanding how to develop and carry out strategies that increase their dynamic capacity and ability to adjust to internal and external changes. Second, business model innovation mediates the link between dynamic capacity and organizational agility, which may guide organizational strategy. Third, by improving organizational competitiveness, the study provides insights into the link between dynamic capability, business model innovation, and organizational agility to adapt to changes in their internal and external environments and seize opportunities. The relationship between DC, BMI, and OS is particularly salient in emerging economies, where small and medium-sized enterprises (SMEs) face immense institutional pressures and resource constraints. This study focuses on Bangladesh, a rapidly developing economy whose SMEs form the backbone of its industrialization and growth (apparel, manufacturing, real estate). However, these firms frequently struggle with resource scarcity and regulatory gaps, making

their adoption of TBL-based sustainability practices highly challenging yet critical (Gallagher & Mahoney, 2021). Therefore, understanding how dynamic capabilities and business model innovation foster organizational sustainability within the unique, high-volatility environment of Bangladeshi SMEs is crucial for policy-makers and managers alike. Finally, by increasing organizational performance and revealing the link between dynamic capability, business model innovation, and organizational sustainability, the study may help companies improve their capacity to adapt to changes in the internal and external environment.

Background and objectives

The literature review on "Dynamic Capabilities (DC)" has concentrated on many facets of the idea, such as its definition, antecedents, outcomes, and empirical evidence. The concept of DC—which is the capacity of an organization to adapt and improve its capabilities in response to changes in the internal and external environment—is one of the critical insights of the prior literature overview on DC (Gupta *et al.*, 2020). The literature has found various antecedents of DC, including organizational culture, structure, resources, and leadership. Organizations with high levels of DC are better equipped to adjust to environmental changes and exploit new possibilities, making it a significant component in organizational success and competitiveness (Hughes *et al.*, 2019). These factors are crucial in determining an organization's capacity to create and deploy new capabilities in response to environmental changes; repercussions, where the literature has studied the implications of DC, including increased organizational performance, competitiveness, and environmental reaction (Hunt and Madhavaram, 2020). DC is a fundamental driver of organizational performance in an ever-changing corporate environment. However, DC positively influences organizational performance, competitiveness, and the capacity to adapt to environmental changes (Schulze and Brusoni, 2022). Case studies, survey research, and empirical studies on DC and outcomes have provided this evidence. Nonetheless, the initial DC literature review employed different and evolving techniques. Quantitative approaches are among the frequently utilized methodologies. Several quantitative studies have examined the influence of DC on organizational success (Gupta *et al.*, 2020; Hughes *et*

al., 2019). Regression analysis, structural equation modeling, and multivariate analysis have been utilized in this research to examine the link between DC and performance outcomes. Furthermore, in the literature on DC, qualitative methodologies have also been employed often, especially when examining the causes and effects of DC (Dwivedi *et al.*, 2023). These studies used case study research, content analysis, and interviews to examine DC development and implementation in businesses. Several mixed methods research have examined how DC affects organizational effectiveness (Reyes-Santiago *et al.*, 2019). This research employed quantitative and qualitative methodologies to further understand the concept and its effects on organizational performance. Several longitudinal studies have examined the growth of dynamic capabilities and their effects on organizational performance (Yang and Yee, 2022). These studies collected data over time using questionnaires, interviews, and case studies. Many comparative studies have examined dynamic capability's effects in various organizational settings, sectors, and nations (Khurana *et al.*, 2022). Cross-sectional surveys and case studies have been utilized to compare DC's effects in different organizational environments. The DC literature research gave a complete grasp of the concept and its influence on organizational performance and competitiveness. The literature has identified DC's main antecedents and implications and given empirical data on its effects, laying the groundwork for future study. The previous literature evaluation on DC employed varied and evolving techniques. A more thorough knowledge of the construction and its effect on organizational performance has been made possible by using several methods. In the previous literature review on Business Model Innovation (BMI), different areas of the concept were looked at, such as its definition, its causes, its effects, and the role it plays in the performance of an organization. Many of the major revelations from the literature study include the Definition: BMI is the process of developing and executing new business models that provide customers with value and bring in money for the company, according to the literature (Evers *et al.*, 2023). BMI's antecedents include environmental volatility, market pressure, technical development, and resource availability (Paiola *et al.*, 2022). BMI has been shown to boost organizational performance, customer happiness, and competitiveness (Jia *et al.*, 2023). Organiza-

tional performance: BMI has been proven to improve organizational performance, including profitability, market share, and customer loyalty (Malik *et al.*, 2022). Role in organizational agility: BMI has been shown to assist firms in adapting to changing market circumstances and consumer requirements (Guo *et al.*, 2022). Challenges: The research has also highlighted various obstacles connected with BMI, including reluctance to change, lack of organizational competency, and difficulty adopting new business models (Haftor & Climent Costa, 2023). Yet, the prior literature analysis on BMI included a variety of techniques, reflecting the field's dynamic character. Quantitative approaches, for example, are some of the often-employed methodologies. Many quantitative studies have examined how BMI affects organizational success (Paiola *et al.*, 2022). This research examined the link between BMI and performance results using regression, structural equation modeling, and multivariate analysis. Qualitative approaches: In the literature on BMI, qualitative methods have also been frequently employed, especially when examining the causes and effects of the concept (Björkdahl *et al.*, 2022). These studies investigated BMI in firms using qualitative methods, including case study research, content analysis, and interviews. Mixed techniques: The effect of BMI on organizational performance has also been explored in considerable research using mixed methods (Schlüter *et al.*, 2023). This research employed quantitative and qualitative methodologies to better understand the concept and its effects on organizational performance. Longitudinal research: Several studies have examined BMI's progression and its effects on organizational performance (Schlüter *et al.*, 2023). Surveys, interviews, and case studies have been utilized to gather data several times in these investigations. Comparison research: Several studies have examined the effects of BMI in various organizational settings, industries, and countries using comparative methodologies (Björkdahl *et al.*, 2022). Cross-sectional surveys and case studies have been used to compare BMI's effects in different organizational environments. The preliminary analysis of the BMI literature examined the central tenets of the concept and its effects on organizational performance. BMI has been found to improve organizational sustainability and performance. Also, the approaches used in the earlier literature analysis on BMI varied and changed over time. Several tech-

niques have made it possible to grasp better the concept and how it affects organizational sustainability. Organizational sustainability (OS) incorporates environmental, social, and economic elements to guarantee sustainable operations and activities and contribute to long-term success (Hale, 2021). Recent years have seen a rise in the importance of studies on organizational sustainability as organizations attempt to cut down on carbon emissions and promote sustainable growth. These works demonstrate the relevance of organizational sustainability and its effects on many performance facets via literature reviews, empirical investigations, and research approaches (Hermundsdottir & Aspelund, 2021). Organizational sustainability has been compared to other characteristics, including business performance, risk management, and organizational learning, using quantitative research methods like surveys and econometric analysis (Chang & Chen, 2021; Du & Zhu, 2021). Nonetheless, qualitative research methods have been utilized to study organizational resilience, including case studies, interviews, and ethnographic observation (Chang & Chen, 2021). Many studies have also used quantitative and qualitative methods to examine organizational sustainability and other factors (Chen et al., 2021). Longitudinal studies have examined organizational sustainability (Maletić et al., 2018). Experimental and simulation studies have been employed to study the effects of different treatments and factors on organizational resilience (Pfeffer, 2017). The grounded theory research technique has been utilized to study organizational performance development in sustainability (Qu & Liu, 2022), while content analysis has been used to study organizational resilience and its environmental impact (Braun et al., 2022). However, the research topic, the setting of the study, and the researcher's resources all play a role in the choice of research method. OS is crucial, and these studies provide insightful information on how businesses may improve their sustainability and support sustainable growth. Companies must actively consider sustainability and include it in their decision-making procedures to achieve long-term development and success. To gain a deeper understanding of these dynamics, structural equation modeling based on partial least squares (PLS-SEM) was employed to analyze data collected from a survey of 448 SME owners and managers in residential areas of Dhaka, Bangladesh, between January 2024 and February 2025.

Theoretical background and hypothesis development

In the previous literature study regarding the topic of DC, this phenomenon became recognized and clarified using a variety of academic theories and definitions. The firm's RBV is among the most often employed ideas and concepts. According to this view, a firm's talents and resources give it a competitive edge (Chaudhuri et al., 2022). DC is a firm's ability to adjust its resources and capabilities to suit market needs. Strategic Renewal: This idea defines DC as an organization's ability to renew and adapt its strategy to changing market circumstances (Wilson and Daniel, 2007). Ambidexterity: This concept states that firms must balance exploration and exploitation to succeed in the short-term and long-term (Hughes et al., 2019). An organization's capacity to balance these operations and react to changing situations is called DC. Dynamic Capabilities Framework (DCF) posits that a firm's adaptive capacity relies on three distinct yet interconnected micro-foundations: Sensing (identifying and assessing opportunities and threats), Seizing (mobilizing resources to address opportunities and threats) and Transforming (continuous renewal of resources and structures to maintain competitiveness) (Tran et al., 2019). Our study's six indicators for DC, adapted from Kump et al. (2019), successfully capture these three dimensions (Sensing: dc1-dc3; Seizing: dc4; Reconfiguring: dc5-dc6), establishing strong theoretical alignment with the DCF (Tran et al., 2019). DC as a Process: This view sees DC as a continual process of learning, adaptation, and change that is essential to organizational success (Hunt and Madhavaram, 2020). Studies indicate that DC can lead to increased profitability through new products or services (Foss & Saebi, 2016), improved resource efficiency (Liao et al., 2018), better market positioning (Kumar et al., 2019), enhanced customer satisfaction (Chang et al., 2020), and decreased environmental impact (Müller & Kolk, 2017). In addition, dynamic capacity may positively contribute to social goals, such as increased staff engagement (Kang et al., 2018) and consumer loyalty (Chowdhury & Haggerty 2015). Evidence shows that DC favors organizational sustainability's economic, environmental, and social components. According to Marques and Simon (2020), "DC allows businesses to produce sustained economic value by discovering new growth possibilities, generating new goods and services, and improving their processes to cut costs."

In addition, DC enables businesses to lessen their environmental impact by adopting sustainable practices and minimizing waste. Lastly, DC allows businesses to produce social value by creating new goods and services that satisfy societal requirements and contribute to social causes. These theoretical ideas and concepts provide the groundwork for understanding DC and its usefulness for organizational agility and competitiveness. In this study, DC is the firm's ability to dynamically build, integrate, and reconfigure its internal and external competencies to respond to changing market and environmental situations. It encompasses skills, procedures, and practices that help companies grow and change. DC helps firms stay competitive and succeed. They help firms to build and exploit new resources, talents, and capacities to generate new value and adapt to market and environmental changes. DC includes the capacity to innovate, establish new business models, deploy new technology, and build and sustain connections with stakeholders. Organizational sustainability (OS) is a set of ideas and theories that help a firm stay in business and do well even when it faces challenges. One crucial element of organizational sustainability is environmental sustainability, which means a company can reduce its environmental impact and use resources responsibly (Hermundsdottir & Aspelund, 2021). Another essential component of OS is social sustainability, which focuses on a company's interactions with its stakeholders, including its workers, clients, and local communities (Schlüter et al., 2023). Lastly, economic sustainability defines a company's capacity to profit while producing long-term value for its stakeholders (Tseng et al., 2013). Firms must participate in various initiatives that foster adaptation and resilience to achieve OS. The adaptive cycle is crucial because organizations create, conserve, release, and reorganize in response to disturbances (Qu & Liu, 2022). Complexity theory recognizes that organizations are complex systems with many interwoven aspects that are hard to anticipate or manage, which is why it is linked to OS (Song & Yu, 2018). OS is also affected by numerous distinct ideas. The resource-based approach stresses that firms have the resources, competencies, and capacities to react and recover from shocks (Aboelmaged & Hashem, 2019). The social capital theory emphasizes how social networks and connections help firms adapt and recover from

shocks (Lian et al., 2022). Risk management theory highlights identifying, analyzing, and reacting to hazards, whereas business continuity management emphasizes having the resources and competence to respond to and recover from disruptions (Maletič et al., 2018). Eventually, crisis management and resilience engineering value firms' ability to react to and recover from disasters (Hermundsdottir & Aspelund, 2021). In the current study shown in (Fig. 1), this study has framed the term OS as the ability of an organization to quickly and efficiently respond to changes in the internal and external environment, including market demands, technology advancements, and competition. It involves recognizing and capitalizing on opportunities, adapting processes and strategies, and maintaining resilience amid uncertainty and disruption. OS is essential in achieving and maintaining competitiveness and success in today's rapidly changing business environment. It involves a combination of processes, systems, and structures that allow an organization to be flexible, responsive, and adaptive to changing conditions. However, understanding the OS from a TBL approach, which acknowledges that firms must balance economic, environmental, and social factors, is crucial (Tseng et al., 2013). Organizations may strive toward long-term prosperity while fostering a more sustainable future for everybody by considering sustainability from all three angles. Organizational Environmental Sustainability (OES) is its capability to continue operations while preserving the natural environment for future generations (Bansal and Roth, 2000). It means putting sustainable principles into how an organization works and makes decisions. Bansal and Roth (2000) examined the relationship between environmental activities and financial performance at 49 prominent U.S. firms. The authors found that companies with proactive environmental programs did better financially than those with reactive or no plans. This suggests that integrating OES into a company's strategy may result in positive financial outcomes. Chen et al. (2021) examined the association between environmental management strategies and supply chain management and found that supply chains using environmental management concepts performed better. This shows the importance of OES across the supply chain, from raw materials to final items. Müller & Kolk (2017) explored food supply chain sustainability issues and stated that the food

supply chain's complexity and stakeholder participation hinder sustainable methods. However, sustainable supply chain management improved environmental, social, and financial performance. OES in companies involves integrating sustainable practices into strategy and decision-making. According to the study, integrating environmental sustainability into the supply chain may boost efficiency (Gallagher & Mahoney, 2021). Sustainable supply chain management may have significant organizational and environmental benefits despite inherent obstacles. Organizational social sustainability (OSS) is an organization's capacity to maintain excellent and equitable connections with its internal and external stakeholders throughout time (Chen *et al.*, 2021). A socially sustainable business fosters solid social relationships with its employees, customers, suppliers, and community. Chen and colleagues' 2021 research suggests that leaders prioritizing social responsibility and morality may develop a social sustainability culture. A socially sustainable organization prioritizes social justice, employee welfare, and environmental sustainability. According to Song *et al.* (2021), socially sustainable companies are more likely to develop financially. To make an organization socially sustainable, managers must put strategies that prioritize employee well-being and community involvement. Social sustainability is intimately associated with social responsibility and ethical conduct. OES refers to a company's capacity to maintain financial stability and development while limiting negative environmental and societal consequences. Achieving OES necessitates striking a balance between profitability, social responsibility, and environmental preservation. Several studies have examined how organizational variables affect economic sustainability. Du and Zhu (2021) discovered that absorptive capacity might improve OES by encouraging green innovation. Sharma and Vredenburg (2019) also stressed the need for green innovation and corporate social responsibility for long-term economic health. Corporate culture and leadership are also influential OES factors. (Aboelmaged & Hashem, 2019) showed that leadership commitment and a supportive culture are necessary for sustainable economic practices. Taken together, these studies show that for organizations to be economically sustainable, they need to take a holistic approach that looks at both financial success

and social and environmental responsibility. However, the ability to adapt quickly to changing external situations is essential for the sustainability of organizations, both from environmental and social perspectives, as well as economic ones. DC allows organizations to anticipate, analyze and promptly respond to changes, thus enabling them to maintain competitiveness while reducing their environmental impact. Additionally, these capabilities facilitate the identification and adoption of sustainable practices and help companies adjust to new regulations and market demands for sustainability. To remain viable in a rapidly changing market, firms require DC that can uncover new growth opportunities and adapt quickly to unforeseen challenges such as increased competition or changes in consumer demand. Organizations can manage risk more effectively and maintain profitability by staying ahead of the curve. Finally, from a social standpoint, DC enables organizations to consider stakeholders such as workers and consumers when making strategic and operational decisions, allowing them to meet societal expectations on issues like diversity, inclusion, and workplace safety while also ensuring that their operations are ethical and competitive over the long term. Thus, we propose the following hypothesis.

H1: *Dynamic capability positively affects organizational sustainability.*

BMI is developing and implementing a new way to run a business that is good for both the organization and its clients (Osievskyy & Dewald, 2020). It is essential to the success of any firm because it allows it to remain ahead of rivals and react to market changes. Chen *et al.*, (2020) describe BMI as "the introduction of a novel method of structuring a firm's resources and capabilities to produce value for stakeholders." Furthermore, BMI creates development potential and reduces environmental impact, which improves organizational sustainability. According to Osievskyy & Dewald (2020), "BMI may lead to the establishment of sustainable company models that are more robust and adaptive to market fluctuations." The company's power to adapt to market changes mediates the impact of dynamic capability on organizational sustainability (Liao S-C *et al.*, 2018). However, BMI has a favorable effect on the sustainability of an organization that can reinvent its business models and cultivate dynamic capacities. It is more likely to generate long-term economic, environmental,

and social value and achieve long-term success. In the current study, this study has framed the term BMI is framed as creating and implementing new or significantly improved ways of conducting business to better meet the needs of customers, stakeholders, and the organization. It involves rethinking and transforming the core elements of a business, such as the value proposition, revenue streams, and customer segments, to create new sources of value. BMI can result in improved performance, increased competitiveness, and tremendous organizational success. It can involve changes to how goods or services are delivered, the distribution channels used, the customer experience, or how the organization generates revenue. BMI is an essential component of organizational agility, as it allows organizations to respond to changes in the market and adapt to new opportunities. However, BMI creates innovative, sustainable company models. This comprises finding new value sources, enhancing operational efficiency, using technology for competitive advantage, and mediating dynamic capacities' environmental, social, and economic sustainability (Osievskyy & Dewald, 2020). Dynamic capabilities are an organization's capacity to build new competencies to adapt to environmental changes continually. Organizations may boost performance and reduce environmental impact by adapting their business strategies to these developments. BMI helps organizations achieve sustainability by optimizing operations for financial and social/environmental goals. Innovative business strategies that include all three dimensions—environmental, social, and economic—can lower expenses while still achieving value-added benefits. In an increasingly complex environment, doing so will retain their competitive edge. Thus, the study posits the following hypothesis:

H2: *The presence of dynamic capability is positively associated with the level of business model innovation.*

H3: *Business model innovation is positively associated with the degree of organizational sustainability across environmental, economic, and social dimensions.*

H4: *Business model innovation plays a significant mediating role in the relationship between dynamic capability and organizational sustainability, specifically in terms of environmental, economic, and social dimensions.*

MATERIALS AND METHODS

This study used well-known and empirically validated measures from prior research. This methodology yields more trustworthy and accurate findings. The study tested DC with six items from Kump et al., (2019). These indicators reflect the firm's ability to notice, digest, and utilize new information, adapt to change, and create new ideas. The study measured the BMI with three sub-constructs: a) Value Creation (VC), b) Value Proposition (VP), and c) Value Capture (Vcap); each of them has been measured with three items adapted from Spieth & Schneider (2016) to assess creating value for customers, differentiating from competitors, and maximizing profits. This study also included four items from Hadi & Baskaran (2021) to assess an organization's Sustainable Economic Performance (SEP), emphasizing local economies and distinctive assets to overcome economic challenges and create long-term financial stability. SEP is measured using four items adapted from Hadi & Baskaran (2021) that quantify environmental performance for countries, environmental sustainability, and future generations' health and well-being. Lastly, four items (adapted from Hadi & Baskaran, 2021) evaluate how



Fig. 1: The role of DC and business model innovation on organizational sustainability.

an organization operates and engages in activities that help its personnel, clients, suppliers, neighbors, and society (see [Table 1](#)). Following the hierarchical component modeling approach for complex constructs ([Hair et al., 2017](#)), the study operationalized BMI and OrgSus as second-order formative constructs. BMI was quantified by aggregating the dimensions of VC, Value Proposition VP, and Vcap. OrgSus was quantified by aggregating the dimensions of SEP, SSP, and ENP. This approach ensures that the overall theoretical constructs are accurately represented by their constitutive sub-dimensions. This study examined all the components using a Likert scale ranging from 1 to 7, where 1 indicates “strongly disagree,” and 7 indicates “strongly agree.” A 7-point Likert scale was specifically chosen over a 5-point scale to maximize the variance captured in the respondents’ attitudes and reduce the potential for central tendency bias, thereby improving the sensitivity and academic accuracy of the psychometric measurements ([Richter et al., 2015](#)). This study also verified the structure and usefulness of the constructs using a pilot panel of 6 management professors, 12 SME managers, and 35 postgraduate students. The pilot panel proposed removing a few components and making minor changes to ensure that the constructs are well-structured, appropriately capture significant aspects, and are articulated and translated. The respondents’ demographic information is supplied in the second part of the questionnaire.

Data collection

This study was conducted between [January 2024 and February 2025](#) with several small and medium-sized (SME) companies starting up in Bangladesh. This study used a questionnaire to get quantitative data. SMEs from Bangladesh are chosen based on several different reasons. Bangladesh is a perfect choice to examine how small firms work in an emerging economy since it has many relatives in its population. Scholars and local stakeholders may also engage since many Bangladeshi SMEs depend on international organizations and donor governments for financing. Nonetheless, the surveys were distributed online through Google Docs, emails, Facebook, and WhatsApp, and offline via human visits with a cover letter describing the study’s objective and protecting respondents’ data confidentiality. This study contacted upper, medium, and entry-level staff mem-

bers from agro and agro-processing, manufacturing, wholesale and retail, services, computer hardware and software, construction and real estate, packaging and paper, power and energy, oil and gas, health care, utilities, apparel, pharmaceuticals, banks, broadcasting and entertainment, insurance, furnishings, food and beverage, logistics, printing, and publishing firms to get the responses. To boost response rates, respondents received reminders and follow-up inquiries. The study received 448 functional responses from 990 questionnaires issued to 399 industrial sites in Bangladesh.

This results in a response rate of 45.25%. These responses reflect the organization. Academics typically have low survey response rates due to respondents’ lack of internet access and busy schedules ([Hair et al., 2017](#)). This study’s response rate was above average. Nonetheless, all these enterprises were listed in the “Dhaka Stock Exchange (DSE),” the country’s largest stock market, and registered with the “Securities and Exchange Commission of Bangladesh (BSEC). 33% of respondents were supervisors, 40% were responsible for executing organizational plans, and 26% for implementing policies. 69% of respondents were male (see [Table 2](#)). However, [Hair et al., \(2017\)](#) used the 10x rule (10 times the most significant number of structural pathways oriented towards a specific latent component in a structural model) to calculate the study’s sample size. To ensure the sample’s compatibility in this study, this study used the G*Power software to calculate the sample size ([Hair et al., 2017](#)). Several power analyses showed that this study’s sample is suitable for further analysis.

Common method bias

[Podsakoff et al. \(2003\)](#) define “Common Method Bias” (CMB) as “variance attributable to the measuring procedure rather than the constructs that the measures represent.” Employing several respondents effectively decreases common method bias in research since it provides more data to make conclusions, and a bigger sample size helps offset biases in one respondent’s replies ([Harman, 1976](#)). Also, having multiple raters or coders look over the collected data and evaluate it can help find and fix any sources of bias by ensuring that all responses are coded correctly and consistently ([Podsakoff et al., 2003](#)). This study gathered data from top, mid, and bottom-level executives from 19 industries at various time frames.

Table 1: Measurement of constructs and items

Constructs	Items	Reference
Dynamic capability (Dcap)		
	• dc1: As a company, we know how to access new information. • dc2: Our company always has an eye on our competitors' activities. • dc3: Our company can quickly relate to new knowledge from the outside. • dc4: Our company is capable of turning new technological knowledge into process and product innovation. • dc5: In our company, change projects can be put into practice alongside the daily business. • dc6: In our company, plans for change can be flexibly adapted to the current situation. ^d	Kump et al. (2019)
Business model innovation (BMI)		
Value creation (VC)	• vc1: Value offering: Target customers: Target customers have changed. • vc2: Value offering: Product and service offering: The product and service offering has changed. • vc3: Value offering: Firm's competitive positioning: The firm's positioning in the market has changed.	Spieth & Schneider, (2016)
Value capture (Vcap)	• vcap1: Value architecture: Core competencies and resources: The firm's core competencies and resources have changed. • vcap2: Value architecture: Internal value creation: Internal value creation activities have changed. • vcap3: Partners in value creation: Role and involvement of partners in the value creation process have changed.	Spieth & Schneider, (2015)
Value proposition (VP)	• vp1: Distribution: Distribution has changed. • vp2: Revenue mechanisms: Revenue mechanisms have changed. • vp3: Revenue model: Cost mechanisms: Cost mechanisms have changed.	Spieth & Schneider, (2016)
Organizational sustainability (OrgSus)		
Sustainable economic performance (SEP)	• EP1: My company's profit increases every year. • EP2: My company's return on investment (ROI) is improving every year. ^d • EP3: My company's sales volume increases every year. • EP4: My company increases shareholder value. • EP5: My company increases productivity.	Hadi & Baskaran, (2021)
Sustainable social performance (SSP)	• SP1: Stakeholders are satisfied with my company's sustainable business practices. • SP2: My company reduces social and reputation risks to the general public. • SP3: My company improves employee health and safety. • SP4: My company is aware of the community's needs and rights. • SP5: My company always tries to comply with any legal requirement. ^d	Hadi & Baskaran, (2021)
Sustainable environmental performance (ENP)	• ENP1. My company reduces the emission of greenhouse gases. • ENP2. My company reduces waste generation. ^d • ENP3. My company decreases environmental incidents. Examples: oil spill, release of gas, loss of primary containment. • ENP4. My company reduces the consumption of hazardous materials. • ENP5. My company makes more careful and efficient use of natural resources, e.g., water.	Hadi & Baskaran, (2021)

Note: ^d indicates deleted items with a consultation with the academic experts and the corporate executives.

Table 2: Demographic details

Particulars (<i>N</i> =448)		Frequency	Percent
Gender	Male	304	67.9
	Female	144	32.1
Industry	Agro and agro-processing	6	1.3
	Manufacturing	7	1.6
	Wholesale & retail	32	7.1
	Services	7	1.6
	Computer Hardware & Software	10	2.2
	Construction & Real Estate	54	12.1
	Packaging & Paper	17	3.8
	Power & Energy	6	1.3
	Oil & gas	32	7.1
	Health care	25	5.6
	Utilities	38	8.5
	Apparel	29	6.5
	Pharmaceuticals	40	8.9
	Banks	25	5.6
	Broadcasting & Entertainment	8	1.8
	Insurance	25	5.6
	Furnishings	22	4.9
	Food and Beverage	31	6.9
	Logistics, Printing & Publishing	34	7.6
Firm size	Less than 10 employees	53	11.8
	11-50 employees	84	18.8
	51–100 employees	217	48.4
	101–150 employees	92	20.5
	150+ employees	2	0.4
Position	Head	146	32.6
	Manager	178	39.7
	Executive	124	27.7
Firm age	1–2 years	98	21.9
	3–4 years	155	34.6
	5–6 years	139	31
	More than 6 years	56	12.5

Also, this study calculated the CMB using Harman's single factor, in which the first factor had a cut-off value of less than 50% (Harman, 1976). In this study, that value was 35.03%. Considering these results, CMB is not likely to give this study any significant reasons to worry.

RESULTS AND DISCUSSION

This study uses PLS-SEM with SmartPLS (version 3.2.9) and IBM SPSS Statistics (ver. 26). PLS-SEM is recommended for exploratory and predictive studies and may work with a small sample size and does not need a normal distribution (Hair et al., 2017). This study utilized the one-sample Kolmogorov-Smirnov test to determine whether the distribution was normal. All p-values are less than 0.05, indicating that the data is not normally distributed. Since the distribution was abnormal, this study utilized variance-based Structural Equation Modeling (SEM) using partial least squares (PLS) instead of covariance-based SEM. Because variance-based SEM resists non-normal distribution better (Richter et al., 2015), the PLS-SEM may test a sophisticated model without deleting model variables and analyze all causal linkages. PLS-SEM works well under all these conditions (Hair et al., 2017). Hence, this study tested hypotheses and evaluated variables using PLS-SEM. Hair et al. (2017) stated that a model is evaluated in two steps: (External) measurement and (Internal) structural model.

Analysis of the measurement model

The measurement model's validity and reliability were assessed by examining Composite Reliability (CR), Average Variance Extracted (AVE) for convergent validity, and the Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT) for discriminant validity, adhering to recommended statistical procedures (Fornell & Larcker, 1981; Henseler et al., 2015). To estimate the measurement model, this study used the construct reliability method (also known as Cronbach's Alpha (CA), rho_A, and composite reliability (CR)) and validity (also known as discriminant and convergent validity) following the work of Hair et al., (2017). Table 3 shows that the CA score varies from 0.817 to 0.996, rho_A ranges from 0.819 to 0.966, and CR ranges from 0.885 to 0.975. As every statistic is more than 0.70, this study may infer that the construct is reliable (Cohen, 1988; Hair et al., 2017). To determine Convergent Validity (CV), this study exam-

ined item loading and "Average Variance Extracted" (AVE). These data exceeded the 0.50 criterion of Hair et al.'s (2017). The Discriminant Validity (DV) is also confirmed using a time-tested and widely used method, Fornell-Larcker criteria, cross-loading, and a cutting-edge method, HTMT ratio (Henseler et al., 2015; Fornell and Larcker, 1981). In the first technique, the square root of the AVE must exceed the correlation among the targeted components. The second HTMT cycle asserts 0.85 as the cut-off number (Hair et al., 2017). Tables 4, 5, and 6 confirm both DV criteria except ENP, VC, and VP in the HTMT, which is not considered an issue in this study. The asterisks (*) in the discriminant validity tables (Tables 4, 5, and 6) indicate that the corresponding correlations or cross-loadings involve the second-order formative constructs (BMI and OrgSus), where the measurement approach differs from first-order constructs. These are presented differently in the Fornell-Larcker and HTMT displays of SmartPLS, and this structural approach is consistent with the rigorous two-stage modeling technique applied in this study (Hair et al., 2017).

Analysis of the structural model

After evaluating the outer model, this study examined the structural model to verify the hypotheses, shown in Fig. 2. Bootstrapping was used to test the hypotheses (5000 resamples). The model's results showed that Dcap>OrgSus (H1: β value=0.423; $p<0.000$), Dcap >BMI (H2: β value=-0.133; $p<0.001$), BMI>OrgSus (H3: β value=0.385; $p<0.000$). Based on the results of the control variables, this study found that none significantly affected the OrgSus. Table 7 lists the results of the hypotheses.

The mediation analysis

Using a bootstrapping two-step approach, this study examined the BMI's mediating effect in a series of steps in the PLS-SEM technique (Preacher and Hayes, 2008). First, this study examined how DC indirectly affected OrgSus via BMI. this study found a minimal but significant mediation impact, with β values of -0.051. This study also assessed the direct impact of DC in the next step without removing the mediator (BMI). It had substantial positive results, with β values of 0.423. As a result of this study's observation of indirect and direct effects (see Table 7), the signs are in the inverse direction. This study

Table 3: Reliability and validity

Constructs	Mean	SD	Kurtosis	Skewness	Factor loadings	CA	rho_A	CR	AVE
Dynamic Capacity (Dcap)						0.927	0.937	0.944	0.772
dc1	5.56	1.53	0.72	-1.17	0.86				
dc2	5.77	1.54	0.80	-1.32	0.88				
dc3	5.68	1.53	0.74	-1.24	0.89				
dc4	5.73	1.55	1.37	-1.41	0.88				
dc5	5.93	1.63	1.76	-1.65	0.88				
Value Proposition (VP)						0.902	0.902	0.938	0.835
vp1	5.824	1.341	0.453	-1.053	0.911				
vp2	5.788	1.380	0.485	-1.104	0.923				
vp3	5.757	1.286	0.315	-0.955	0.908				
Value Creation (VC)						0.819	0.819	0.892	0.734
vc1	5.612	1.355	0.522	-0.977	0.869				
vc2	5.712	1.361	0.944	-1.142	0.841				
vc3	5.654	1.375	1.095	-1.137	0.860				
Value Capturing (Vcap)						0.844	0.845	0.906	0.762
vcap1	5.824	1.349	0.842	-1.171	0.871				
vcap2	5.790	1.325	0.455	-1.055	0.857				
vcap3	6.018	1.346	1.042	-1.377	0.891				
Sustainable Environmental Performance (ENP)						0.966	0.966	0.975	0.908
ENP1	4.924	1.862	-0.957	-0.597	0.947				
ENP2	4.933	1.968	-1.035	-0.583	0.959				
ENP3	4.998	1.988	-0.978	-0.626	0.954				
ENP4	4.962	1.941	-0.945	-0.615	0.951				
Sustainable Social Performance (SSP)						0.962	0.962	0.972	0.898
SP1	5.279	1.931	-0.681	-0.855	0.952				
SP2	5.257	1.955	-0.727	-0.824	0.951				
SP3	5.116	1.885	-0.695	-0.758	0.939				
SP4	5.272	1.900	-0.705	-0.824	0.948				
Sustainable Economic Performance (SEP)						0.966	0.966	0.975	0.907
EP1	4.786	1.966	-1.334	-0.332	0.957				
EP2	4.868	2.072	-1.313	-0.423	0.957				
EP3	4.768	2.038	-1.218	-0.417	0.947				
EP4	4.643	2.008	-1.272	-0.331	0.948				
Business Model Innovation (BMI)*						0.913	0.917	0.945	0.852
VP*	0.000	1.000	1.235	-1.318	0.908				
VC*	0.000	1.000	1.976	-1.614	0.926				
Vcap*	0.000	1.000	2.075	-1.683	0.935				
Organizational Sustainability (OrgSus)*						0.817	0.960	0.885	0.726
SENP*	0.000	1.000	-1.044	-0.706	0.940				
SEP*	0.000	1.000	-1.434	-0.461	0.618				
SSP*	0.000	1.000	-0.766	-0.909	0.955				

Note: * indicates constructs/items extracted from the two-stage approach.

Table 4: Discriminant validity (Fornell-Lacker Criteria)

	BMI	Dcap	ENP	EP	Firm age	Firm size	Industry	OrgSus	Position	SP	VC	VP	Vcap
BMI	0.923												
Dcap	-0.130	0.879											
ENP	0.455	0.302	0.953										
EP	0.023	0.212	0.400	0.952									
Firm age	-0.080	0.113	0.058	0.098	1.000								
Firm size	-0.226	-0.244	-0.125	-0.182	0.028	1.000							
Industry	-0.001	0.052	0.017	-0.015	0.045	-0.001	1.000						
OrgSus	0.275	0.374	*	*	0.101	-0.180	0.005	0.852					
Position	-0.013	0.027	0.054	0.032	0.146	-0.062	0.000	0.063	1.000				
SP	0.186	0.427	0.833	0.560	0.109	-0.167	0.007	*	0.073	0.948			
VC	*	-0.182	0.404	-0.005	-0.087	-0.133	0.014	0.225	-0.020	0.138	0.857		
VP	*	-0.065	0.416	0.014	-0.038	-0.266	0.001	0.258	-0.011	0.191	0.758	0.914	
Vcap	*	-0.118	0.440	0.054	-0.101	-0.220	-0.017	0.278	-0.006	0.184	0.807	0.771	0.873

Note: * indicates constructs/items extracted from the two-stage approach.

Table 5: Discriminant validity HTMT

	BMI	Dcap	ENP	EP	Firm age	Firm size	Industry	OrgSus	Position	SP	VC	VP	Vcap
BMI													
Dcap	0.142												
ENP	0.479	0.313											
EP	0.042	0.217	0.414										
Firm age	0.085	0.119	0.059	0.100									
Firm size	0.234	0.256	0.127	0.185	0.028								
Industry	0.012	0.052	0.017	0.015	0.045	0.001							
OrgSus	0.301	0.412	*	*	0.114	0.204	0.017						
Position	0.014	0.027	0.055	0.032	0.146	0.062	0.000	0.063					
SP	0.196	0.444	0.864	0.580	0.111	0.170	0.013	*	0.074				
VC	*	0.208	0.455	0.027	0.096	0.147	0.036	0.250	0.038	0.156			
VP	*	0.074	0.446	0.032	0.040	0.280	0.018	0.268	0.012	0.205	0.881		
Vcap	*	0.147	0.488	0.063	0.109	0.238	0.019	0.296	0.028	0.204	0.971	0.883	

Note: * indicates constructs/items extracted from the two-stage approach.

Table 6: Cross-loading

	BMI	Dcap	ENP	EP	Firm age	Firm size	Industry	OrgSus	Position	SP	VC	VP	Vcap
ENP1	0.408	0.283	0.947	0.370	0.062	-0.042	0.015	0.848	0.056	0.796	0.373	0.353	0.405
ENP2	0.450	0.285	0.959	0.370	0.043	-0.143	0.004	0.850	0.046	0.789	0.403	0.411	0.431
ENP3	0.446	0.288	0.954	0.374	0.064	-0.146	0.013	0.848	0.043	0.788	0.389	0.423	0.421
ENP4	0.432	0.296	0.951	0.409	0.052	-0.144	0.031	0.865	0.061	0.803	0.375	0.399	0.422
EP1	-0.001	0.198	0.398	0.957	0.092	-0.110	-0.012	0.701	0.044	0.553	-0.015	-0.022	0.034
EP2	0.040	0.216	0.384	0.957	0.092	-0.219	-0.024	0.693	0.022	0.548	0.005	0.034	0.070
EP3	0.034	0.210	0.359	0.947	0.087	-0.230	-0.001	0.668	0.020	0.519	-0.005	0.036	0.062
EP4	0.014	0.181	0.381	0.948	0.102	-0.134	-0.020	0.672	0.033	0.509	-0.004	0.005	0.038
Firm age	-0.083	0.113	0.058	0.098	1.000	0.028	0.045	0.094	0.146	0.109	-0.087	-0.038	-0.101
Firm size	-0.223	-0.244	-0.125	-0.182	0.028	1.000	-0.001	-0.167	-0.062	-0.167	-0.133	-0.266	-0.220
Industry	-0.001	0.052	0.017	-0.015	0.045	-0.001	1.000	0.009	0.000	0.007	0.014	0.001	-0.017
Position	-0.013	0.027	0.054	0.032	0.146	-0.062	0.000	0.065	1.000	0.073	-0.020	-0.011	-0.006
SP1	0.184	0.409	0.790	0.547	0.108	-0.179	-0.010	0.905	0.087	0.952	0.135	0.183	0.188
SP2	0.181	0.423	0.781	0.555	0.098	-0.199	0.000	0.903	0.067	0.951	0.133	0.188	0.178
SP3	0.155	0.398	0.783	0.504	0.096	-0.110	0.034	0.883	0.054	0.939	0.118	0.163	0.146
SP4	0.186	0.388	0.805	0.516	0.112	-0.144	0.003	0.899	0.067	0.948	0.138	0.189	0.185
dc1	-0.125	0.863	0.179	0.098	0.115	-0.222	0.034	0.227	0.001	0.286	-0.178	-0.041	-0.134
dc2	-0.107	0.878	0.262	0.169	0.128	-0.200	0.045	0.315	0.052	0.361	-0.171	-0.028	-0.105
dc3	-0.149	0.894	0.286	0.209	0.088	-0.177	0.053	0.362	0.034	0.417	-0.170	-0.097	-0.148
dc4	-0.143	0.883	0.288	0.218	0.107	-0.186	0.063	0.361	0.028	0.407	-0.190	-0.092	-0.119
dc5	-0.040	0.876	0.287	0.208	0.065	-0.299	0.027	0.344	0.001	0.374	-0.089	-0.014	-0.011
vc1	0.810	-0.172	0.332	-0.014	-0.094	-0.100	0.027	0.176	-0.037	0.099	0.869	0.704	0.678
vc2	0.773	-0.150	0.361	0.024	-0.087	-0.084	-0.024	0.215	-0.032	0.135	0.841	0.611	0.700
vc3	0.785	-0.145	0.347	-0.023	-0.041	-0.157	0.032	0.188	0.020	0.121	0.860	0.630	0.697
vcap1	0.807	-0.134	0.383	0.000	-0.073	-0.100	-0.039	0.226	0.024	0.158	0.722	0.647	0.871
vcap2	0.786	-0.137	0.390	0.065	-0.069	-0.193	0.001	0.253	-0.043	0.168	0.673	0.650	0.857
vcap3	0.840	-0.041	0.381	0.074	-0.121	-0.279	-0.005	0.248	0.001	0.157	0.718	0.720	0.891
vp1	0.828	-0.046	0.355	-0.006	-0.026	-0.268	-0.001	0.211	0.000	0.153	0.677	0.911	0.693
vp2	0.863	-0.027	0.384	0.043	-0.053	-0.261	0.023	0.250	-0.012	0.181	0.716	0.923	0.738
vp3	0.826	-0.107	0.401	0.000	-0.023	-0.201	-0.021	0.247	-0.019	0.189	0.684	0.908	0.681
ENP	0.455	0.302	*	*	0.058	-0.125	0.017	0.940	0.054	*	*	*	*
EP	0.023	0.211	*	*	0.098	-0.182	-0.015	0.618	0.032	*	*	*	*
SP	0.185	0.426	*	*	0.109	-0.167	0.007	0.955	0.073	*	*	*	*
VC	0.926	-0.182	*	*	-0.087	-0.133	0.014	0.266	-0.020	*	*	*	*
VP	0.908	-0.065	*	*	-0.038	-0.266	0.001	0.298	-0.011	*	*	*	*
Vcap	0.935	-0.118	*	*	-0.101	-0.220	-0.017	0.314	-0.006	*	*	*	*

Note: * indicates constructs/items extracted from the two-stage approach.

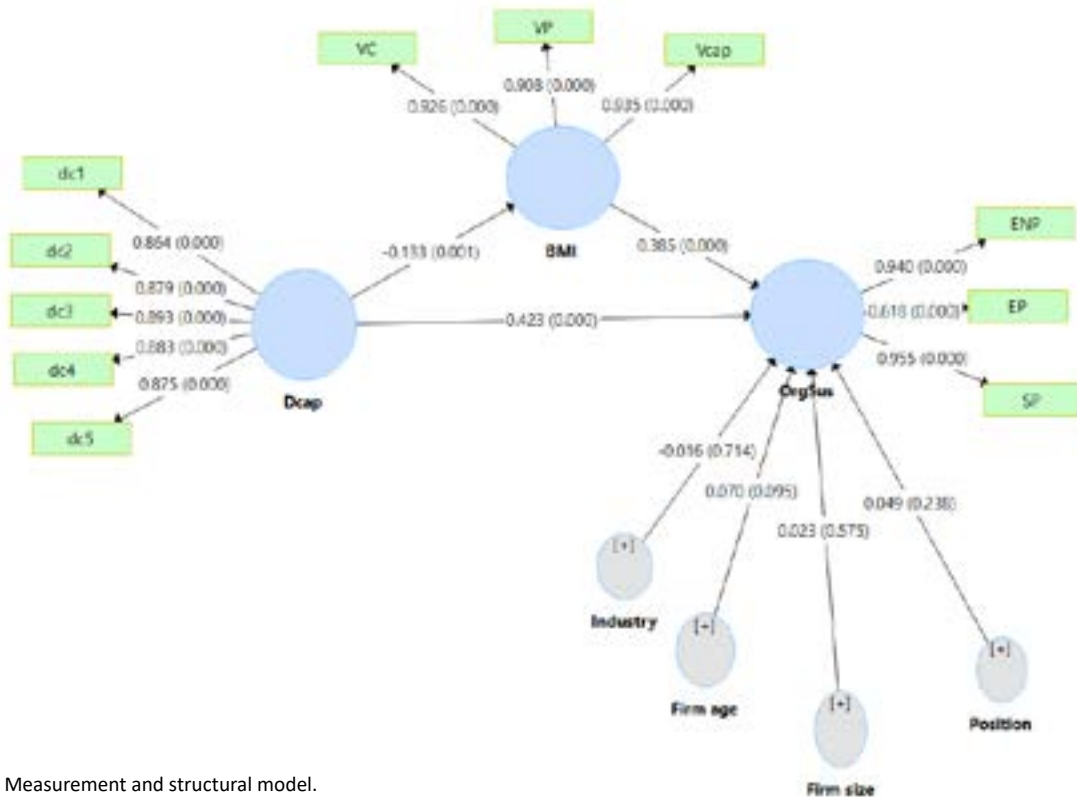


Fig. 2: Measurement and structural model.

Table 7: Hypothesis testing

Key	Relationship Paths	β -values	T-values	p-values	Decision
H1	Dcap -> OrgSus	0.423	8.018	0.000	Supported
H2	Dcap -> BMI	-0.133	3.426	0.001	Supported
H3	BMI -> OrgSus	0.385	6.618	0.000	Supported
Mediation analysis (Indirect effects)					
H4	Dcap -> BMI -> OrgSus	-0.051	2.550	0.011	Supported (Inconsistent partial mediation)
Control Variables					
	Firm size -> OrgSus	0.023	0.540	0.590	
	Firm age -> OrgSus	0.070	1.760	0.079	
	Industry -> OrgSus	-0.016	0.366	0.715	
	Position -> OrgSus	0.049	1.269	0.205	

concluded that the BMI possesses inconsistent partial mediation (Hair *et al.*, 2017). Based on the result, we concluded that there is an inconsistent partial mediation because the direct effect of Dcap on OrgSus (beta = 0.423, $p < 0.001$) remains significant even after controlling for the mediating variable BMI (beta = -0.051, $p = 0.011$). However, it is essential to note that inconsistent partial mediation does not necessarily mean that the mediating variable is unimportant or does not affect the relationship between the independent and dependent variables. It simply means that the mediating variable does not fully explain the relationship between the independent and dependent variables (Hair *et al.*, 2017). In this case, BMI may still partially mediate, but other factors may also influence the relationship between Dcap and OrgSus. Hence, H4 is supported.

The goodness of fit (GOF) Indexes

Hair *et al.* (2017) used the “standardized root mean square residual” (SRMR) to establish the model’s fit, and they specified that its value should be less than 0.08. This study showed that the SRMR value

was 0.059 (Table 9), indicating that this study model performed well. Besides, this study also examined the F2 (effect size), Q2 (predictive relevance), and R2 (coefficient of determination) in Table 8, which were within a reasonable range (Hair *et al.*, 2017).

Robustness check

Assessment of nonlinear effects

Following Sarstedt *et al.*, (2020), this study ran two tests to identify possible nonlinearities in the structural model’s interactions. This study initially used Ramsey’s RESET on the latent variable scores retrieved after the convergence of the PLS-SEM method of the original model. We find that the partial regression of BMI on Dcap ($F=6.4049$, $p=0.002$) and the partial regression of OrgSus on Dcap and BMI ($F=32.082$, $p=0.000$) is nonlinear. Next, interaction variables were inserted to indicate the quadratic impacts of (1) Dcap on BMI and (2) Dcap and BMI on OrgSus. The findings of bootstrapping with 5000 samples and the changes show that all the nonlinear effects are statistically significant (Table 10). This study concludes that this study’s model lacks linear effects and is hence

Table 8: R2, Q2, and Effect size

Endogenous variables	R2	Q2	Exogenous variables	F2
BMI	0.018	0.014	Dcap>BMI	0.018
OrgSus	0.286	0.126	Dcap>OrgSus	0.223
			BMI>OrgSus	0.189
			Firm Size>OrgSus	0.001
			Firm age>OrgSus	0.007
			Industry>OrgSus	0.000
			Position>OrgSus	0.003

Table 9: Goodness of fit index.

	Saturated model	Estimated model
SRMR	0.059	0.072
d_ ULS	0.413	0.626
d_ G	0.205	0.229
Chi-Square	556.286	614.382
NFI	0.855	0.84

Table 10: Assessment of nonlinear effects.

Nonlinear relationship	Coefficient	P-value	Ramsey's RESET		
Dcap*Dcap>BMI	0.115	0.003	F= 6.4049	p=	0.002
DCap*DCap>OrgSus	-0.283	0.000	F=32.082	p=	0.000
BMI*BMI>OrgSus	-0.175	0.000			

Table 11: Assessment of endogeneity test using the Gaussian Copula approach.

Test	Constructs	Coefficient	p-value
Gaussian copula of model 1 (endogenous variables; Dcap)	Dcap	0.79316	0.000
	BMI	0.37838	0.000
	^c Dcap	-0.46025	0.000
Gaussian copula of model 2 (endogenous variables: BMI)	Dcap	0.41111	0.000
	BMI	0.84224	0.000
	^c BMI	-0.56724	0.000
Gaussian copula of model 3 (endogenous variables: Dcap, BMI)	Dcap	0.64549	0.000
	BMI	0.74369	0.000
	^c BMI	-0.44421	0.000
	^c Dcap	-0.28903	0.000

Note: ^c indicates the Gaussian Copula.

weak in robustness.

Assessment of endogeneity

The research evaluation of possible endogeneity follows the method laid out by [Sarstedt et al. \(2020\)](#). This study started by using [Park and Gupta's \(2012\)](#) Gaussian copula approach with the scores of the latent variables from the original model estimation. This study first checks to see if the variables, which could be endogenous, are not distributed normally. This study did this by running the Kolmogorov–Smirnov test with Lilliefors correction ([Sarstedt et al., 2020](#)) on the latent variable scores of Dcap and BMI, which serve as independent variables in the PLS path model's partial regressions. The results show that none of the constructs usually have distributed scores, so this study can use the Gaussian copula method from [Park and Gupta \(2012\)](#). Table 11 shows that the Gaussian copula for Dcap is significant (p-value < 0.05) in model 1. On the other hand, in model 2, the Gaussian copula for BMI is significant (p-value < 0.05). However, in model 3, the Gaussian copula for BMI is also significant (p-value < 0.05), as well as for Dcap, which is significant (p-value < 0.05). This study has also checked all

the other Gaussian copulas in the model and found that BMI and Dcap are significant (Table 11). So, this study can say that the effect of endogeneity in this study is an issue that backs up the analysis results as a whole, and the structural model is weak ([Sarstedt et al., 2020](#)).

Assessment of unobserved heterogeneity

Following ([Sarstedt et al., 2020](#)), to find unobserved heterogeneity in PLS path models and, if necessary, deal with it, this study did this by running the Kolmogorov–Smirnov test with Lilliefors correction, first running the FIMIX-PLS procedure on the data. Post-hoc power analysis in G* Power shows that the study needs at least 55 samples to get a maximum of eight segments if the effect size is 0.15 and the power level is 80%. So, this study did this by running the Kolmogorov–Smirnov test with Lilliefors correction, reran FIMIX-PLS for two to eight segments with the same settings as the first time, using the default values for the stop condition (1010141.0E10), the maximum number of iterations (5000), and the number of repetitions (10). First, the smallest number of

samples that could be used to estimate each segment was found. This helped determine how many parts could be cut (Sarstedt *et al.*, 2020). It is hard to understand the results of the fit indices for solutions with one to eight segments (Table 11). Sarstedt *et al.* (2020) showed that when AIC3 and CAIC have the same number of segments, that number is probably correct. Sarstedt *et al.* (2020) also say that AIC4 and BIC are good ways to determine how many segments are in an FIMIX-PLS model. The MDL5 points to a solution with two segments (Table 12). It has been shown that this criterion drastically underestimates the number of segments. So, researchers often have to take out more segments than MDL5 suggests (Hair *et al.*, 2016). Because (1) AIC3 and CAIC point to different numbers of segments and (2) MDL5 points to the same number of segments as AIC4 and BIC, the studies do not point to a sure way to split up the data. This research shows that none of the criteria suggest finding the correct number of segments, while EN value > .50 suggests a solution with two segments

(Hair *et al.*, 2016). However, in this study, the unobserved heterogeneity level is an issue that backs up the analysis results (Table 13).

The strong reliability of the DC construct $CA > 0.92$ confirms the theoretical integrity of the individual dimensions (sensing, seizing, and reconfiguring). The empirical findings showing a significant direct path from DC to OrgSus ($\beta = 0.423$, $p < 0.000$) suggest that the SMEs' ability to sense new market demands (consumer preference for sustainable products), seize the opportunity to embed new green technologies, and reconfigure their internal processes accordingly, are direct and powerful drivers of their overall sustainability performance. This directly supports the core tenet of the DCF, which posits that adaptive capabilities are essential for securing sustainable competitive advantage (Teece, 2016). This finding is consistent with prior research that has highlighted the benefits of dynamic capability in organizational sustainability in the areas of firm economics (Sharma & Vredenburg, 2019), environmental performance

Table 12: Fit indices for the one-to eight-segment solutions.

Criteria	Number of segments							
	1	2	3	4	5	6	7	8
AIC (Akaike's Information Criterion)	2275.891	1827.416	1627.045	1558.22	1537.782	1523.406	1507.824	1477.682
AIC3 (Modified AIC with Factor 3)	2284.891	1846.416	1656.045	1597.22	1586.782	1582.406	1576.824	1556.682
AIC4 (Modified AIC with Factor 4)	2293.891	1865.416	1685.045	1636.22	1635.782	1641.406	1645.824	1635.682
BIC (Bayesian Information Criteria)	2312.834	1905.407	1746.084	1718.307	1738.917	1765.588	1791.055	1801.961
CAIC (Consistent AIC)	2321.834	1924.407	1775.084	1757.307	1787.917	1824.588	1860.055	1880.961
HQ (Hannan Quinn Criterion)	2290.454	1858.161	1673.971	1621.328	1617.072	1618.876	1619.476	1605.516
MDL5 (Minimum Description Length with Factor 5)	2532.607	2369.372	2454.24	2670.655	2935.457	3206.32	3475.978	3731.076
LnL (LogLikelihood)	-1128.945	-894.708	-784.522	-740.11	-719.891	-702.703	-684.912	-659.841
EN (Entropy Statistic (Normed))	na	0.865	0.813	0.8	0.807	0.813	0.756	0.715
NFI (Non-Fuzzy Index)	na	0.892	0.822	0.791	0.776	0.765	0.677	0.621
NEC (Normalized Entropy Criterion)	na	60.644	83.708	89.563	86.587	83.59	109.228	127.654

Note: AIC: Akaike's information criterion; AIC3: modified AIC with factor 3; AIC4: modified AIC with factor 4; BIC: Bayesian information criteria; CAIC: consistent AIC; HQ: Hannan Quinn criterion; MDL5: minimum description length with factor 5; LnL: Log Likelihood; EN: entropy statistic; NFI: non-fuzzy index; NEC: normalized entropy criterion; na: not available; numbers in bold indicate the best outcome per segment retention criterion.

Table 13: Unobserved heterogeneity effect.

	Total (N=448)		Segment 1 (N=325)		Segment 2 (N=123)	
	β -values	p-values	β -values	p-values	β -values	p-values
BMI -> OrgSus	0.385	0.000	0.185	0.244	0.900	0.000
Dcap -> BMI	-0.133	0.001	0.823	0.000	-0.772	0.000
Dcap -> OrgSus	0.423	0.000	-0.060	0.622	0.924	0.000
Firm age -> OrgSus	0.070	0.092	-0.039	0.617	-0.033	0.609
Firm size -> OrgSus	0.023	0.577	0.219	0.164	-0.176	0.007
Industry -> OrgSus	-0.016	0.708	0.064	0.352	-0.179	0.010
Position -> OrgSus	0.049	0.238	0.087	0.317	-0.003	0.964
Indirect effect						
Dcap -> BMI -> OrgSus	-0.051	0.012	0.153	0.24	-0.695	0.000
Reflective measures						
CA	*		na		*	
rho_A	*		na		*	
CR	*		na		*	
AVE	*		na		*	
R Square						
BMI	0.018		0.677		0.597	
OrgSus	0.286		0.065		0.506	

Note: * indicates the values are in the acceptable range; na: not available.

(Song & Yu, 2018), and social performance (Schlüter et al., 2023). As predicted, the findings showed the importance of dynamic capability in boosting SMEs' sustainability. Business model innovation typically mediates the relationship between organizational sustainability and dynamic capability. The results in this study support prior research that links a firm's dynamic capability to business model innovation and firms' sustainable performance (Tseng et al., 2013; Qu & Liu, 2022; Pfeffer et al., 2010; Du et al., 2021). A critical finding of this study is the unexpected, yet statistically significant, negative relationship between dynamic capability and business model innovation uptake (H2: $\beta = -0.133$, $p < 0.001$). This contradicts the hypothesized positive relationship and established literature (e.g., Foss & Saebi, 2016). This negative path is the reason for the inconsistent partial mediation observed for H4, where the indirect effect is negative ($\beta = -0.051$) but the direct effect is positive ($\beta = 0.423$). We interpret this counter-intuitive result within the context of resource-constrained SMEs in a developing economy (Bangladesh). High

levels of dynamic capability may not lead to positive BMI uptake because SME managers may prioritize using their limited adaptive resources (DC) on direct operational survival and incremental resource reconfiguration rather than on the costly, disruptive, and uncertain process of large-scale business model innovation (Schulze & Brusoni, 2022). In essence, high DC in this context is a signal of organizational pressure and volatility, leading to a conservative, rather than transformative, approach to BMI. This finding provides a novel, context-specific boundary condition for the DC-BMI relationship. Hence, SME managers should consider that internal knowledge is insufficient to generate environmentally friendly products or processes across several operating divisions. Several authors argue that SMEs can better utilize external knowledge to boost innovation performance due to their dynamic management techniques and the presence of regulation (Song & Yu, 2018; Gallagher & Mahoney, 2021). However, this endeavor should be backed by the firm's straightforward, sustainable approach. SME managers should start by recognizing

sustainability challenges and creating long-term sustainable strategies that maximize stakeholders' environmental behaviors. The dynamic capability allows SMEs to be more ecologically innovative if a proactive environmental strategy anticipates and analyses future environmental changes (Hermundsdottir & Aspelund, 2021). Managers must shift organizational resources, change services, and commodity activities, and reform work structures and procedures to emphasize sustainability. Managers may also use change management approaches, including environmental socialization, education, and training, formal and informal environmental information exchange, progressive activation of environmental objectives, policies, and practices, and designing a reward structure that considers environmental contribution to introduce this attitude. A top-level organizational unit with apparent authority to promote strategic changes toward sustainability may help SMEs make the environmental shift (Aboelmaged & Hashem, 2019; Santos *et al.*, 2021). The results of this study also show that business model innovation, which substantially mediates the relationship between dynamic capability and organizational sustainability, affects a firm's economic, environmental, and social sustainability. This validates Aboelmaged & Hashem's (2019) results and emphasizes the need for stakeholder collaboration in environmentally friendly activities like eco-design and eco-efficiency for new goods and waste-reduction operating processes. Therefore, instead of depending on "transactional" or "one-time" interactions or just coordinating common operational concerns (such as product quality or packaging requirements), which represent a weak tie with the supplier and rarely affect tangible green solutions, SMEs could improve their market-facing operations by strengthening formal and informal networks with upstream and downstream value chain partners. These activities include discussions, formal agreements, information sharing, supply chain partnerships, and product development. Managers may maximize profits and market share by employing organizational processes and resources ecologically collaboratively with their partners (Schulze & Brusoni, 2022). Nonetheless, it is surprising that absorptive capability has had little influence on the firm's sustainability in this study. Contrary to past studies (Marques & Simon, 2020; Osiyevskyy & Dewald, 2020; Müller & Kolk, 2017) that indicated

the favorable impact of dynamic capability on firm sustainable performance, the mechanism by which business model innovation might enhance organizational sustainability in SMEs remains unclear. Most of this research was done in a developed economy where dynamic capability is typically targeted for developing business model innovation supported by an appropriate organizational environment and confidence. The dynamic capability may become more apparent in multinational companies, where CEOs' environmental actions are extensively monitored and business model innovation leadership is needed (Reyes-Santiago *et al.*, 2019). However, managers of SMEs in developing economies may actively urge their employees to engage in tailored business model innovation training and instantaneous learning programs. This will enable them to lead enterprise-specific sustainability and adapt to inevitable technological changes, customer preferences, and market situations.

CONCLUSION

The research examined the impact of dynamic capability on organizational sustainability through the mediating role of business model innovation, leveraging the Triple Bottom Line and Natural Resource-Based View (NRBV) frameworks in the context of Bangladeshi SMEs. This is the first study to investigate how business model innovation mediates the contract of dynamic capability and organizational sustainability. The study also contributes to the scarce empirical research on organizational sustainability in developing nations by investigating these links in the context of SMEs. According to data, dynamic capability predicts sustainable capabilities and business model innovation uptake. Business model innovation also drives and mediates dynamic capability's impact on organizational sustainability uptake, but in a negative way. The study successfully addressed all objectives by providing three key empirical findings. First, Dynamic Capability has a significant, positive direct influence on Organizational Sustainability, confirming that the internal adaptive capacity of sensing, seizing, and reconfiguring is a primary driver of TBL performance. Second, BMI is a strong, positive predictor of OS, validating its necessity for achieving economic, social, and environmental goals. Third, BMI plays a significant, albeit inconsistent, partial mediating role in the DC-OS. Critically, the pathway from DC

to BMI was found to be negative, suggesting that in resource-constrained contexts, high DC capacity is diverted towards direct operational survival rather than disruptive business model transformation. The dynamic capability has a surprising impact on business model innovation and organizational sustainability. Notwithstanding this study's relevance and implications, generalizing or interpreting the results in other circumstances must be done carefully. These findings contribute to the NRBV by specifying how adaptive resources translate into market outcomes, providing a context-specific boundary condition for the DCF in emerging markets. For SME managers, the primary implication is the need to decouple immediate DC use from BMI. Managers should allocate resources to separate teams: one focused on urgent, high-DC operational stability, and another, protected team dedicated to long-term, high-risk BMI projects for future sustainability. First, the survey findings show how dynamic capability may, directly and indirectly, affect business model innovation adoption and organizational sustainability. So, future research may employ qualitative methods like action research, grounded theory, or case studies to obtain more detailed data in a specific industrial or service sector. Moreover, longitudinal research would allow for a more dynamic evaluation of these connections. Second, as self-reported data have been used in prior research, this study quantified absorptive potential using it. Although the primary linear paths remain statistically significant, these findings suggest that the relationships among Dynamic Capability, Business Model Innovation, and Organizational Sustainability are more complex than captured by a simple linear model. Future research should prioritize the use of advanced econometric methods, such as Generalized Method of Moments (GMM) or sophisticated modeling techniques that account for unobserved heterogeneity and nonlinear effects, to provide a more definitive and robust confirmation of these dynamic interactions. The current study employed a realized perspective on dynamic capability, which may not effectively portray SMEs' anticipated reaction to dynamic and continual environmental changes. Considering this, future research may use the prospective and actual absorptive capacity to analyze their correlations with business model innovation and organizational sustainability.

AUTHOR CONTRIBUTIONS

Md Abid Hasan: Conceptualization, Methodology, Formal Analysis, Visualization, And Writing – Original Draft Preparation. Yin Xiang: Methodology, Investigation, Formal Analysis and Writing – Original Draft Preparation. Mohammad Mesba Ul Hoque: Methodology, Software, Formal Analysis, Data Curation, And Writing – Original Draft Preparation. Xinli Zhang: Investigation, Methodology, Resources, Visualization, and Writing – Original Draft Preparation. Md Jahir Uddin: Methodology, Resources and Writing – Original Draft Preparation. M Samiul Hasnat: Editing, Software, Data Curation, Review and Editing.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy, have been completely witnessed by the authors.

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ABBREVIATIONS (NOMENCLATURE)

<i>AVE</i>	Average Variance Extracted
<i>BIC</i>	Bayesian Information Criteria
<i>BMI</i>	Business Model Innovation
<i>CA</i>	Cronbach's Alpha
<i>CAIC</i>	Consistent Akaike Information Criterion
<i>CMB</i>	Common Method Bias
<i>CR</i>	Composite Reliability
<i>Dcap / DC</i>	Dynamic Capability
<i>DCF</i>	Dynamic Capabilities Framework
<i>ENP</i>	Sustainable Environmental Performance
<i>EP</i>	Sustainable Economic Performance
<i>GOF</i>	Goodness of Fit
<i>HQ</i>	Hannan–Quinn Criterion
<i>HTMT</i>	Heterotrait-Monotrait Ratio
<i>MDL5</i>	Minimum Description Length with Factor 5
<i>NEC</i>	Normalized Entropy Criterion
<i>NFI</i>	Non-Fuzzy Index
<i>NRBV</i>	Natural Resource-Based View
<i>OES</i>	Organizational Environmental Sustainability
<i>OrgSus / OS</i>	Organizational Sustainability
<i>PLS-SEM</i>	Partial Least Squares Structural Equation Modeling
<i>RBV</i>	Resource-Based View
<i>RESET</i>	Ramsey Regression Equation Specification Error Test
<i>ROI</i>	Return on Investment

<i>SEP</i>	Sustainable Economic Performance
<i>SSP</i>	Sustainable Social Performance
<i>SRMR</i>	Standardized Root Mean Square Residual
<i>TBL</i>	Triple Bottom Line
<i>VC</i>	Value Creation
<i>Vcap</i>	Value Capture
<i>VP</i>	Value Proposition

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