

ENHANCING ENTREPRENEURIAL PERFORMANCE THROUGH DIGITAL CAPABILITY AND SUSTAINABILITY PRACTICES: THE MEDIATING ROLE OF INNOVATION ORIENTATION AND THE MODERATING INFLUENCE OF FINANCIAL INCLUSION IN BANGLADESH



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ABSTRACT

This paper examines the impact of digital capability and sustainability practices on the performance of entrepreneurs in Bangladesh, and the moderating influence of innovation orientation and financial inclusion. The use of digital technologies and sustainable practices poses a challenge for entrepreneurs in emerging economies, and it is necessary to understand how these resources and capabilities affect a firm's performance. The sample consists of registered SMEs in Bangladesh, with owners or managers sampled using stratified random sampling by industry and firm size. A sample size of 400 is used. Structural equation modelling (SEM) is used to analyze data, whereas reliability and validity are evaluated using SPSS 25 and SmartPLS 4. The SEM-PLS analysis demonstrated robust measurement model properties. Indicator loadings ranged from 0.836 to 0.946, confirming strong item reliability. Internal consistency was supported by Cronbach's alpha (0.927–0.947) and composite reliability (0.945–0.959). Convergent validity was established, with AVE values ranging from 0.774 to 0.825. Model fit was acceptable (SRMR = 0.088; NFI = 0.919–0.928). Discriminant validity was confirmed via HTMT and Fornell-Larcker criteria. VIF values (1.0–4.026) indicated no multicollinearity concerns. Structural model results showed that Digital Capability ($\beta = 0.312, p < 0.001$) and Sustainable Practices ($\beta = 0.412, p < 0.001$) positively influenced Innovation Orientation. However, direct effects on Entrepreneurial Performance were insignificant for Digital Capability ($\beta = 0.041$), Sustainable Practices ($\beta = -0.077$), and Innovation Orientation ($\beta = -0.009$). Mediation effects were not supported. Importantly, Financial Inclusion significantly moderated the Sustainable Practices–Entrepreneurial Performance relationship ($\beta = 0.105, p = 0.046$), while no significant moderation was found for Digital Capability. The research has theoretical value, as it provides a comprehensive framework linking digital capabilities, sustainability practices, innovation orientation, and financial inclusion to entrepreneurial performance. In practical terms, it offers entrepreneurs, managers, and policymakers considerations for promoting innovation, embracing sustainable practices, and enhancing financial accessibility, thereby fostering entrepreneurial growth and competitiveness in developing economies such as Bangladesh.

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INTRODUCTION

Digital capabilities and sustainable practices are becoming central to entrepreneurship in developing economies to enhance firm performance. Digitalization, inclusive finance, and sustainability transformation converge in Bangladesh to drive entrepreneurship. The central resources that enable firms to leverage digital technologies to create social and environmental value are digital capability (DC) and digital innovation orientation (DIO), even though financial inclusion (FI) predisposes entrepreneurial risk-taking and scale. For example, the study found that digital capability has a positive impact on digital sustainable entrepreneurship, with digital innovation orientation mediating and managerial cognition of sustainable opportunities moderating, revealing the correlation between DC, DIO, and sustainable outcomes (Xu et al., 2022). In the same vein, the literature at large links DC to innovation, entrepreneurship, and sustainability by adopting mechanisms such as mediating EO dimensions and moderating effects of contextual factors, including FI, digital

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leadership, and knowledge sharing, across a variety of contexts (Su et al., 2022). Research on money flows, inclusion, and digital adoption (e.g., textile SMEs and broader SME ecosystems) in Bangladesh has demonstrated the practicality of using FI and digital capabilities for sustainable performance and entrepreneurial growth (Hossain et al., 2024; Mollah et al., 2024).

Digital innovation orientation is usually a major facilitator of DC toward sustainable deliverables, meaning that the transformation of capabilities into sustainable performance is influenced by how firms invest in digital innovations (Xu et al., 2022). One of these streams demonstrates that DC and EO mediate the outcomes of social innovation performance and BMI, and that the entrepreneurial orientation dimension mediates these outcomes through the influence of digital transformation capabilities (Satar et al., 2024).

Several studies recognize innovation-oriented behaviours as key mediating variables between digital capabilities and performance. Indicatively, the effect of digital capabilities on the performance of social innovations can be mediated by entrepreneurial orientation, suggesting a route from DC to EO to SIP (Satar et al., 2024). Other studies indicate that innovation mediates the relationship between entrepreneurial culture and sustainable competitive performance, and thus mediation is an effective tool in digital entrepreneurial contexts (Koliby et al., 2024).

Financial inclusion tends to amplify the impact of digital and entrepreneurial projects by enabling appropriate funding, reducing financing frictions, and facilitating scale. Emerging literature suggests that FI is a mediator in digital-finance-entrepreneurship relationships, and similar research indicates that FI can partly mediate or moderate the association between sustainability-focused financial literacy and entrepreneurial intentions (Mishra & Sahoo, 2025). The context of Bangladesh provides evidence of textile SMEs and, more broadly, SME ecosystems, suggesting that an important enabler of digital adoption and sustainable performance is the role of FI. However, few studies systematically combine the concept of FI with DC, sustainability practices, and an innovation orientation (Mollah et al., 2024).

Bangladesh-specific setting: Bangladesh is an active experimenter in digital payments, fintech inclusion, and SME digital adoption, and therefore an appropriate place to implement moderated mediation models involving DC, DIO/EO, innovation outcomes, and FI. Previous work on sustainable performance in Bangladesh focuses on resource-limited contexts in the textile sector and on leadership styles, suggesting the usefulness of digital technologies and organizational practices for sustainability in Bangladeshi SMEs (Hossain et al., 2024). At the same time, regional and global studies offer broader theoretical frameworks for examining the interactions among digital capabilities, innovation orientation, and FI to determine the outcomes of entrepreneurial performance and sustainability (Magableh et al., 2024; Satar et al., 2024). Although there is the evidence on the individual roles of DC, DIO/EO, innovation, and FI working in different contexts, there are very few integrative models that explicitly investigate: (a) how DC is transformed to entrepreneurial performance in Bangladeshi firms via an innovation orientation mediator, (b) how sustainability practices (in a broad sense) mediate between DC and EO to improve performance, and (c) the conditional role of the FI as a moderator in this mediate way. It can be seen that this gap is reflected in the fact that few studies focusing on Bangladesh specifically test DC - DIO/EO - entrepreneurial performance, with FI modifying the indirect influence of it, especially in the context of sustainability-oriented outcomes (Hossain et al., 2024; Mollah et al., 2024).

To test the hypothesis of how Enhancing Entrepreneurial Performance among Bangladeshi firms could be realized through Digital Capability through Innovation Orientation with Sustainability Practices, and the moderating role of Financial Inclusion in the context of Bangladesh. Specific objectives: 1) To examine the direct impact of Digital Capability on the Entrepreneurial Performance of Bangladesh firms. 2) To determine the mediating role of Innovation Orientation in the Digital Capability and Entrepreneurial Performance. 3) To explore the effects of Sustainability Practices on the DC-Entrepreneurial Performance relationship as a moderator or part of the integrative mechanism in the mediation process. 4) To test the hypothesis of whether Financial Inclusion is a moderating factor in the indirect relationship between Digital Capability and Entrepreneurial Performance through Innovation Orientation, and to determine cases where a moderated relationship is explored when Financial Inclusion strengthens/weakens the mediating relationship.

The results provide practical advice to the managers and policymakers. In case of linking between FI and the DC-DIO-Entrepreneurial Performance pathway, there may be development-oriented interventions from FI, digital financial literacy, and inclusive fintech policy to improve SME performance and sustainability indicators in Bangladesh. Digital strategy, organizational learning practices, and sustainability implementation in Bangladeshi SMEs (Mollah et al., 2024) would also be informed by the results.

The rest of the paper is structured in the following way: Section 2 is the literature review, theoretical framework and the formulation of the research hypotheses, Section 3 involves the research methods, data collection methods, and methods of data analysis, Section 4 reports on the empirical findings, Section 5 is discussion and finally, Section 6 gives the conclusion of the study based on its contributions, limitations, and future research directions.

LITERATURE REVIEW

The four theoretical lenses used in the study in the context of Bangladesh include the Resource-based View (RBV), Diffusion of Innovation (DOI), Entrepreneurial Orientation (EO), and Financial Inclusion, which are incorporated in this section. Based on the literature, we generalize the interaction among resources, capabilities, and institutional conditions to determine entrepreneurial performance, considering the specific cases of digital capability, sustainability practices, innovation orientation, and financial inclusion as constraints.

RBV is the umbrella concept that explains how a firm's internal resources and capabilities create competitive advantage and affect performance. According to RBV, valuable, rare, inimitable, and non-substitutable (VRIN)

resources help companies to implement differentiating strategies and attain high performance (Barney, 1991). In the Bangladeshi small and medium-enterprise (SME) environment, there is a set of resources (including tangible resources, human capital, and organizational routines) that interact with strategic orientations (e.g., EO, innovation capabilities) to achieve performance outcomes due to the constraints of the resources (Khan et al., 2021; Mozumdar et al., 2020). Several studies incorporate EO and innovation as internal resources or capabilities to convert resource endowments into performance benefits, in line with RBV descriptions that organizational innovativeness mediates the EO-performance relationship (Abid et al., 2023). RBV extensions have focused on dynamic capabilities, that is, how firms reorganize resources (including digital capabilities) in response to changing environments, an especially relevant argument in resource-constrained emerging markets (Abid et al., 2023; Dias et al., 2021). RBV can also be applied in the context of Bangladesh to substantiate the thesis that improving digital capability and sustainability practices are strategic resources that lead to improved performance when applied to processes, with innovation orientation serving as a mediating mechanism (Dias et al., 2021; Mostafiz et al., 2022).

DOI provides a process by which digital practices, both in capabilities and sustainability, vertically and horizontally spread to other firms, enabling the adoption of an innovation that enhances performance. Perceived relative advantage, compatibility, complexity, trialability, and observability affect the diffusion process by influencing adoption rates of digital tools and sustainable practices. Resource constraints and social capital shape diffusion in the Bangladeshi SME context; innovation orientation and EO catalyze adoption and alter firm routines and risk-taking behaviour (Khan et al., 2021; Budiati et al., 2022). The research analyzing the intersection of the RBV and the DOI indicates that internal resources (e.g., innovativeness, digital capabilities) increase firms' ability to assimilate and adopt external innovations. In contrast, organizational processes and leadership determine the rate and extent of diffusion's influence on performance (Shahzad et al., 2021). There is context-dependent diffusion; some of the literature observes that, though internal drivers are strong, environmental dynamism and institutional constraints may moderate the diffusion-performance relationship (Andersén, 2022; Sengura et al., 2024).

EO is considered an organizational capability that influences the behaviour of seeking opportunities and renewing strategies. In RBV, EO is a resource that facilitates exploitation and exploration, leading to improved performance in combination with other complementary resources, such as innovation orientation and digital capability (Khattak & Ullah, 2021; Kaushik & Dangwal, 2023). Empirical data from Bangladesh, a developing country, show that EO dimensions, particularly innovativeness and proactive involvement, positively impact performance and innovation success. Still, other studies warn that context- and resource-specific issues may moderate this effect, underscoring the RBV's concept of contingent resources (Shahzad et al., 2021). The literature also points out that EO can foster organizational innovativeness, which, in turn, mediates the EO-performance relationship, and that environmental dynamism can reinforce the EO-performance linkage through competencies and processes (Hossain et al., 2024; Omri et al., 2018).

Financial inclusion is a key external enabler that can reinforce the EO-innovation orientation-performance chain by enhancing the accessibility of capital, credit, and financial services to SMEs. From an RBV perspective, financial inclusion positively affects the firm's resource base, reducing financing costs and increasing the likelihood of investing in digital capabilities and sustainability programs. Empirical evidence from emerging economies indicates that financial accessibility moderates the pathway from internal asset efficiency to the transformation of EO into performance through innovation and capabilities (Abid et al., 2023). In particular, the moderating effect can be diluted or dependent on the degree of financial inclusion that may exist depending on the level of financial access in an environment, where financial resources are scarce, EO-driven firms are more likely to invest in technology adoption, process innovation, and sustainable practices, which will, in turn, enhance positive performance results (Islam, 2023; Khan et al., 2021).

The current Digital Bangladesh project in Bangladesh provides the country with a strong foundation for understanding the role of digital capability in improving entrepreneurs' performance. Empirical evidence shows that initiatives such as Union Digital Centres (UDCs) and expanded systems of digital service delivery reduce information asymmetry and increase government access to and market-related information, especially in rural areas (Abedin et al., 2021; Rahaman et al., 2024). UDCs provide people with the knowledge and resources to become entrepreneurs by enhancing service accessibility and reducing social inequality. This facilitated access to information and services helps entrepreneurs make better decisions, discover opportunities, and engage more effectively in economic activities, thereby increasing overall performance (Abedin et al., 2021). Also, the growth of digital platforms and e-government services facilitated the adoption of ICT, enhanced connectivity, and lowered operational costs, providing an enabling environment for entrepreneurs to innovate and expand their businesses (Ahmed et al., 2023; Huang, 2017). The literature indicates that the potential of digital platforms improves networking, market access, and innovation, which subsequently translates into better firm performance, especially for SMEs and microenterprises operating in digital marketplaces (Banu & Suresh, 2023; Halim et al., 2023). Such results suggest that digital capability, or the combination of ICT adoption, digital literacy, and platform-based engagement, is an important way to make entrepreneurs successful, provided supportive policies and financial systems accompany it (Amit et al., 2024). Digital illiteracy, poor infrastructure, poor network connectivity, and misalignment between digital services and local needs are among the barriers that may contribute to the ineffectiveness of digital initiatives (Hossain, 2018). Furthermore, even the presence of digital infrastructure does not guarantee better performance; to fully utilize digital resources, entrepreneurs need skills in other areas, such as financial literacy, marketing, and knowledge-sharing behaviours (Halim et al., 2022).

Green entrepreneurial orientation (GEO) and sustainable entrepreneurship are emerging as new perspectives on the relationship between sustainability practices and entrepreneurial performance in Bangladesh. Empirical research indicates that GEO, when combined with strategic and market orientations, has a significant impact on environmental

and firm performance. More specifically, Peris et al. (2020) identify the mediating effect of green market orientation, showing that the competitive advantage gained by firms practising environmentally oriented strategies is consistent with the resource-based perspective. On the same note, Habib et al. (2021) demonstrate that GEO and market orientation positively impact green supply chain management (GSCM) practices, thereby contributing to better sustainable performance of firms in the Bangladesh textile industry. Research indicates that sustainability-focused practices can not only improve firm performance but also social well-being at a larger scale (Hossain et al., 2024). Moreover, subjective government support, the availability of finance, and a good policy environment are also factors that will have a major impact on the adoption and effectiveness of sustainable practices among cottage, micro, small, and medium enterprises (CMSMEs) (Aktar & Kabir, 2024; Chowdhury, 2017). The role of environmental sustainability orientation (ESO) is often described as a mediator between entrepreneurial orientation and performance, meaning that the stronger a firm's entrepreneurial orientation, the greater the likelihood it will adopt sustainability practices to improve outcomes (Mishra & Sahoo, 2025). Furthermore, entrepreneurial education, the development of human capital, and the availability of funds are complementary factors that enhance the effectiveness of sustainability-oriented strategies (Talukder et al., 2025; Ullah et al., 2024).

An emerging body of literature examines digital capability as a determinant of innovation orientation among Bangladeshi entrepreneurs. It has always been evident that people and companies who are more digitally literate, technologically skilled, and have access to digital tools can invest more effectively in innovative products, services, and business models. Research on digital entrepreneurship education in Bangladesh indicates that digital capability increases entrepreneurial intention and the capacity to engage in digital entrepreneurship, thereby supporting the link between digital capability and innovation-oriented behaviour (Samsudin et al., 2024). In addition, research on digital transformation underscores that digital capabilities enhance organizational learning, knowledge sharing, and process reconfiguration, all of which help foster a more innovation-oriented posture (Monira et al., 2025). The connection between entrepreneurial orientation (EO) and innovation orientation is also well established in the Bangladeshi context. EO is an innovative, proactive, and risk-taking leadership style that positively impacts innovation outcomes, especially when using digital technologies and platforms (Maharjan et al., 2024; Razzak et al., 2023). Digitalization can be used to augment this relationship, enabling firms to leverage online platforms, social media, and e-commerce to innovate and expand into the market. Integrating this process is likely to be limited by skill gaps, insufficient infrastructure, and organizational inertia, and supportive policies, digital training, and ecosystem development are essential (Shahmohammadi, 2022).

The overlap between sustainability practices and the innovation orientation of Bangladeshi entrepreneurs is now considered synergistic, and the two factors mutually support each other in determining entrepreneurial performance. Empirical data indicate that sustainability-focused values influence decision-making by promoting the use of resources for environmental and socially responsible practices, which, in turn, lead to the creation of new business models and increased innovative problem-solving. For example, Chowdhury et al. (2024) show that sustainability influences strategic decisions and entry modes among Bangladeshi entrepreneurs, indicating that a sustainability orientation serves as the prism through which innovation is framed. Equally, Mozumdar et al. (2020) find that the business performance of women-led businesses is promoted by an innovative and proactive entrepreneurial orientation, facilitated by training and positive social settings, and consistent with awareness of sustainability and the capability for innovation. Expansive research also highlights that innovation is one of the primary processes by which Bangladeshi entrepreneurs generate competitive advantage, even in resource-bounded settings (Rahman et al., 2021). Innovative intentions and abilities are promoted by sustainability-oriented education and training and are ingrained in sustainability in entrepreneurial activities (Rahman et al., 2024; Talukder et al., 2024). However, the relationship between sustainability and innovation is not always positive. Other reports indicate that the sustainability aspect can introduce limitations, especially when it raises compliance costs or induces risk-averse behaviours, thus buffering the relationship between innovativeness and performance (Moral et al., 2024; Tu et al., 2021).

Entrepreneurial performance and entrepreneurial orientation (EO) are closely correlated concepts that have been extensively studied in emerging economies, and the role of innovativeness in promoting firm performance under dynamic conditions is highly valued. There are always empirical findings of a positive relationship between EO and performance, especially in situations like Bangladesh. Innovativeness and proactiveness are the most powerful, whereas the effects of competitive aggressiveness tend to be weaker or contingent on the situation (Islam et al., 2024). The systematic reviews also show that innovativeness is likely to have the greatest influence on performance, and proactiveness and risk-taking can support internationalization, market responsiveness, and export performance (Cheng et al., 2025; Irawan et al., 2023). Mediating and moderating mechanisms are often used to define the EO-performance relationship in Bangladesh. The mediating role of market orientation is essential, as it converts entrepreneurial capabilities into high-performance outcomes, especially in SMEs and export-driven industries (Faroque et al., 2021; Mostafiz et al., 2022). Nevertheless, variations in context are also found in the literature. Under certain conditions, EO affects performance indirectly, through innovation outputs or differentiation strategies (Chowdhury, 2017).

Digital capability (DC) is a well-known key facilitator of entrepreneurship in emerging economies, especially as countries such as Bangladesh rapidly digitalize, transforming the business environment. DC improves opportunities sensing, resource reconfiguration, and the implementation of digital-driven strategies, which enable firms to create value and develop ventures (Abaddi, 2023; Satar et al., 2024). Opportunity recognition and faster innovation rates can be achieved through the effective use of digital technologies, data analytics, and online platforms to enhance recognition and accelerate the process (Hakim et al., 2022). Digital capabilities are also believed to have a significant positive impact on performance when properly combined with strong EO, as companies will be better positioned to experiment, venture

into new markets, and redesign business models (Baawain et al., 2025). However, EO success can also be determined by situational factors, including cultural aspects, strategic responsiveness, and knowledge-sharing cultures (Suder et al., 2022). Moreover, the evidence from the practice in Bangladesh shows that the DC-performance relationship is partially mediated by digital innovation orientation, which emphasizes that capabilities are not sufficient without an effective innovation focus (Abaddi, 2023).

Innovation orientation has become a key process in linking sustainability practices to entrepreneurial performance, especially in developing economies like Bangladesh. The existing literature suggests that sustainability practices, including environmental management, corporate social responsibility (CSR), and governance, can strengthen firms' innovation and opportunity recognition capabilities, which, in turn, lead to better performance outcomes (Aktar & Kabir, 2024; Hossain et al., 2024). The concept of sustainable entrepreneurship is increasingly influencing the Bangladeshi context, where environmental and social concerns are integrated into business models, and innovation-driven behaviour enables firms to turn sustainability programs into competitive advantages. Research indicates that the effectiveness of sustainability efforts is enhanced by innovativeness, entrepreneurial self-efficacy, and organizational capabilities to develop innovative products, improve processes, and respond to market demands (Talukder et al., 2025). Moreover, sustainable entrepreneurship and sustainability-related intentions serve as valuable intermediaries that influence the transformation of sustainability values and intentions into entrepreneurial behaviours (Chowdhury et al., 2024).

The idea of digital capability (DC) has already begun to be adopted as a prism for studying the performance of entrepreneurship in Bangladesh, as a measure of the entrepreneurial capacity to utilize digital tools, platforms, and data-driven processes to add value. Empirical studies indicate that DC can enhance information, networks, and markets, and, consequently, entrepreneurial performance in resource-constrained settings (Nahar et al., 2025; Rahman et al., 2023). In practice, digital solutions such as mobile banking, marketplaces, and social messaging can enable an entrepreneur to connect with customers, manage supplier relationships, and reduce overheads. These abilities result in increased sales, stronger market position, and greater resistance to economic shocks (Tabassum, 2019). Consequently, the digital capability has the potential to become a driver of productivity and competitive edge of the evolving Bangladesh digital economy (Bhuiyan et al., 2023; Mpofu, 2024). However, it needs additional financial and institutional support systems to enable it to work digitally and access capital (Ali, 2025). The moderating influence of financial inclusion on the relationship between DC and entrepreneurial performance is also strong. Access to financial services helps eliminate liquidity constraints and enables entrepreneurs to invest in digital technologies, marketing, and business expansion (Mukit et al., 2020; Ma et al., 2025). This, however, is a moderating effect; one that depends on the situation. The impact of financial literacy, trust, and institutional quality on the effectiveness of financial resource use is evident in some cases. Still, this effect can be reduced by barriers such as high interest rates or collateral requirements (Ali, 2025).

The literature on financial inclusion and financial literacy as significant entrepreneurial activity impetuses in the institutionally restrictive Bangladesh is extensive. Financial inclusion, most often understood as access to banking services, credit, and microfinance, enhances entrepreneurs' resource mobilization. Still, financial literacy improves their ability to make effective financial decisions and achieve long-term development (Zafarullah & Nawaz, 2019). Microfinance in Bangladesh has been significant in promoting entrepreneurship, particularly among women, thereby empowering them and reducing poverty despite the ever-present cultural and structural challenges (Rana et al., 2021). The relationship between sustainability practices and entrepreneurs' performance in emerging economies, as examined in parallel studies, is found to be positive. With the integration of environmental and social components into business operations, efficiency, brand image, and profitability increase (Hossain et al., 2024; Talukder et al., 2025). Innovativeness and proactiveness as part of entrepreneurial orientation (EO) have been introduced to improve this relationship in Bangladesh. However, the lack of financial and information resources is likely to mediate the performance of sustainability practices (Mozumdar et al., 2020; Monira et al., 2025; Hammad et al., 2025; Ferli et al., 2025; Nagi et al., 2025; Nourin et al., 2025).

The interaction between digital capability and sustainability practices on entrepreneurial performance, focusing on innovation orientation, and with financial inclusion as a pivotal boundary condition. Although the three dimensions of digital adoption, microfinance, and sustainability have been discussed in separate organizations, they do not fundamentally relate to one another, which is why they have not been deemed interdependent aspects of a single value-generation process (Amit et al., 2024; Gao et al., 2023). The resulting fragmentation prevents understanding of how digital capability contributes to the innovation orientation and translates into higher performance for sustainability-oriented enterprises, and it constrains understanding of how the state of financial inclusion conditions these connections (Khaled et al., 2023; Rana et al., 2021). In addition, the literature is constrained by methodological limitations, with most studies relying on cross-sectional designs and geographically specific samples, thereby limiting the ability to generalize to the heterogeneous entrepreneurial environment in Bangladesh. Sealing these gaps would enhance theoretical understanding of capability-based value creation in developing economies and offer practical recommendations to promote inclusive, innovation-based entrepreneurial development (Sarker et al., 2025).

This study develops a conceptual framework to explain how digital capability and sustainability practices enhance entrepreneurial performance in Bangladesh, with innovation orientation acting as a mediator and financial inclusion serving as a moderator.

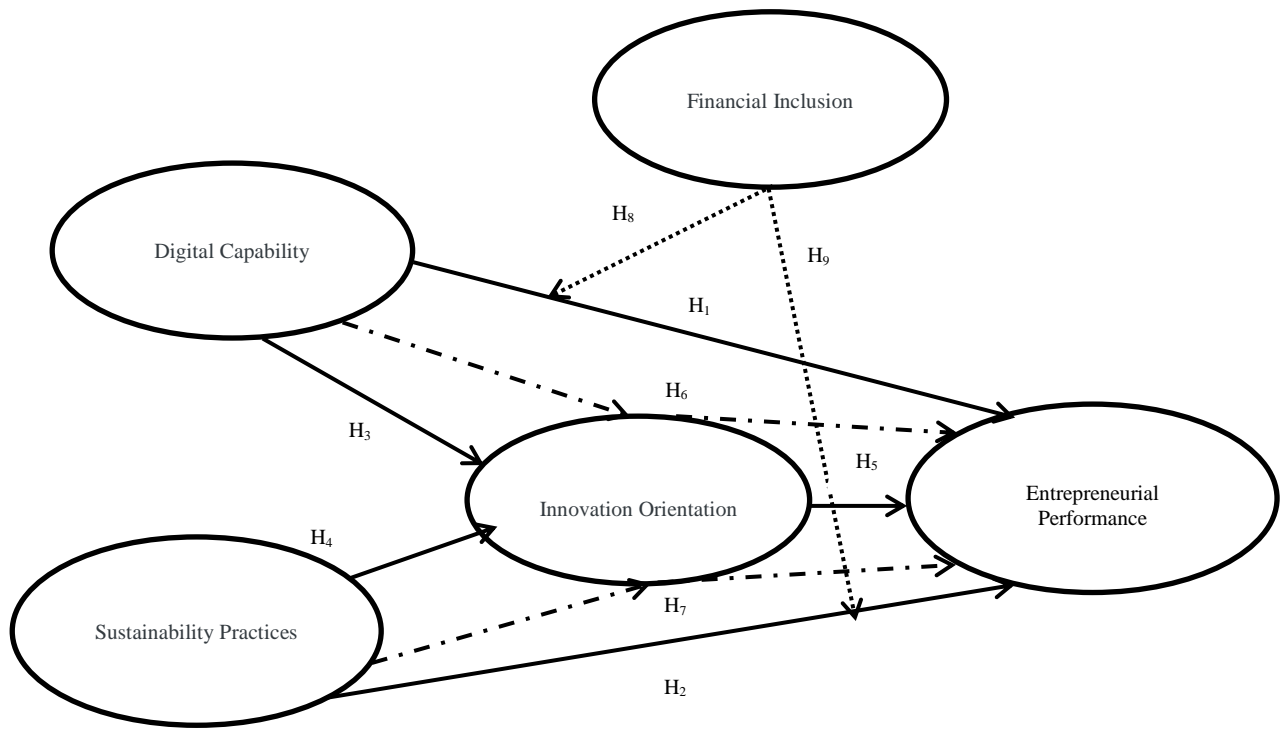


Figure 1. Conceptual Framework

MATERIALS AND METHODS

The research philosophy used in this study is positivism, as it seeks to establish relationships among digital capability, sustainability practices, innovation orientation, financial inclusion, and entrepreneurial performance. The proposed hypotheses are tested using a quantitative, cross-sectional, correlational research design to measure the mediating and moderating effects of the conceptual framework.

The research design of this study follows the dynamic capabilities perspective and the resource-based view. It employs a quantitative, cross-sectional design to examine how digital capability and sustainability practices relate to entrepreneurial performance, focusing on the mediating role of innovation orientation and the moderating role of financial inclusion. In this study, deductive research is used. Such a strategy aligns with the research's aim to test existing theories and hypotheses grounded in the resource-based view (RBV), dynamic capabilities theory, and institutional theory (Saunders et al., 2019). The quantitative research approach is used because it can statistically quantify these correlations and generalize the results to the entire population of entrepreneurs in Bangladesh (Creswell & Creswell, 2018).

Every registered small and medium-sized enterprise (SME) in Bangladesh would be the targeted population of this study. SMEs are the backbone of the Bangladeshi economy, contributing significantly to GDP and employing the majority of the population. However, they face specific challenges and opportunities related to digitalization, sustainability, and finance (Bangladesh Bureau of Statistics, 2020). The firm is the unit of analysis, and data are gathered from owners, founders, or top managers who have in-depth knowledge of their firm's strategies, operations, or performance.

The stratified random sampling method is used to ensure the sample is representative of diverse SMEs in Bangladesh. Bangladesh Bank (2021) defines population stratification by two critical factors: industry sector (manufacturing, services, agriculture, and information technology) and firm size (small vs medium). Such stratification can be useful for managing potential differences in entrepreneurs' performance and in the availability of resources across industries and firms. Simple random sampling is then used within each stratum to select the respondents, with each eligible SME owner/manager having an equal and independent opportunity of being selected (Taherdoost, 2016).

Determining the appropriate sample size is important for the strength of the structural equation modelling (SEM) analysis to be performed in this study. The minimum sample size suggested by Hair et al. (2019) for SEM is 200. According to this criterion, a preliminary sample of 400 respondents is established. It is also sufficient to have a statistical power of 0.80 at the 0.05 level of significance to detect medium effect sizes in complex models with this sample size (Cohen, 1988; Kock & Hadaya, 2018).

The information was gathered using a self-administered, structured questionnaire. The questionnaire was created under a cross-sectional time horizon; that is, data were collected at a single point in time (Saunders et al., 2019). A combination of modes was used during data collection to achieve the highest response rate. The following methods were used to administer the questionnaire: For SMEs in large industrial areas such as Dhaka, Chattogram, and Narayanganj, research assistants delivered the questionnaires, and they were collected later. To the technologically inclined and those in far-off areas, an online version of the questionnaire was sent through email and social media (e.g., through Google Forms).

To test the associations among the latent constructs, this study used Structural Equation Modeling (SEM). To ensure the soundness of the measurement model, reliability and validity assessments were conducted in IBM SPSS Statistics 25 and SmartPLS 4.

Each study construct was operationalized using existing, validated scales from previous studies. The constructs were measured with multi-item scales using a five-point Likert scale, with 1 (Strongly Disagree) and 5 (Strongly Agree) as the scale values (Likert, 1932). The digital capability scale was a 6-item scale that included digital infrastructure, digital skills of employees, and digital integration (Li et al., 2018). A 9-item scale was used to measure sustainability practices across the economic, social, and environmental dimensions (Elkington, 1997; Marshall et al., 2010). A 7-item scale was used to measure innovation orientation, defined as openness to new ideas and a preference for creativity (Siguaw et al., 2006). The scale of financial inclusion comprised 5 items that evaluated access to credit, affordability, and the use of digital financial services (Klapper & Singer, 2014). A 6-item scale based on the objective and subjective measures to measure entrepreneurial performance (Wiklund & Shepherd, 2005).

RESULTS

Demographical Analysis

Table 1. Demographic Profile of the Respondents

Description	Frequency	Percentage
Gender		
Male	187	46.8
Female	213	53.3
Designation		
Owner	119	29.8
Manager	134	35.5
Key Personnel	147	36.8
Age		
Below 20	83	20.8
21-30	90	22.5
31-40	77	19.3
41-50	79	19.8
Above 50	71	17.8
Income		
Less than 20000	83	20.8
20000-30000	72	18.0
30000-40000	83	20.8
40000-50000	74	18.5
More than 50000	88	22.0
Business Experience		
Up to 5	91	22.8
6-10	87	21.8
11-15	113	28.3
16-20	109	27.3

Source: Primary data

It has a good representation of individuals across various age groups and sexes, as shown in the demographic profile, which increases the study's reliability. There is also a slight imbalance in favour of females (53.3) over males (46.8). The largest group (36.8 percent) includes key personnel; then there are managers (33.5 percent) and owners (29.8 percent), which ensures inclusion of all organizational levels. There is a rather balanced age structure, with the highest level in the 21-30 age group (22.5%). The income distribution is also distributed well, with 22.0 percent earning above 50,000. The respondents are mostly experienced, especially in the 11-15 years (28.30) and 16-20 years (27.30) categories, which underpin the strength and the exteriority of the findings.

Assessment of Measurement Model

This research was extremely rigorous in evaluating the measurement model to establish the reliability and validity of the measurement scales used to determine the key variables. Measurement model assessment has now become an important process in structural equation modeling (SEM) and other latent-variable assessments, necessary to estimate the measurement instrument's validity and reliability (Hair et al., 2019).

Table 2. Analysis of Indicators' and Constructs' Reliability and Convergent Validity

Constructs	Items	Loading	Cronbach's Alpha	rho_A	CR	AVE
Digital Capability (DC)	DC1	0.909	0.947	0.948	0.959	0.825
	DC2	0.904				
	DC3	0.904				
	DC4	0.915				
	DC5	0.910				
Sustainable Practices (SP)	SP1	0.882	0.934	0.936	0.95	0.792
	SP2	0.895				
	SP3	0.915				
	SP4	0.886				

	SP5	0.872				
Innovation Orientation (IO)	IO1	0.871	0.927	0.929	0.945	0.774
	IO2	0.876				
	IO3	0.878				
	IO4	0.897				
	IO5	0.878				
Financial Inclusion (FI)	FI1	0.843	0.942	1.252	0.95	0.794
	FI2	0.946				
	FI3	0.916				
	FI4	0.868				
	FI5	0.877				
Entrepreneurial Performance (EP)	EP1	0.912	0.927	1.007	0.947	0.816
	EP2	0.916				
	EP3	0.836				
	EP4	0.946				

Source: Field Survey

Indicators Reliability

The indicators' reliability is determined, and the measurement items demonstrate loadings above the suggested value of 0.70. Digital Capability Items (0.904-0.915) and Sustainable Practices Items (0.872-0.915) exhibit high reliability. There is also consistency in measuring Innovation Orientation (indicators 0.871-0.897) and strong contributions to the construct, in terms of Financial Inclusion (indicators 0.843-0.946). On the same note, high loadings are observed in Entrepreneurial Performance items (0.836-0.946). All in all, the findings endorse high indicator reliability, indicating that all measurement items in the study are highly representative and capable of depicting their respective latent constructs.

Constructs' Reliability

The construct reliability assessment indicates high internal consistency across all variables. Cronbach's Alpha, rhoA, and Composite Reliability (CR) are used to measure reliability, with a threshold of 0.70. All Cronbach's alphas range from 0.927 to 0.947, indicating high internal consistency. Likewise, CR values range from 0.945 to 0.959, exceeding the recommended threshold and indicating accurate measurement. Even though the rhoA values for Financial Inclusion (1.252) and Entrepreneurial Performance (1.007) are slightly above the upper limit, the overall reliability is decent, as Alpha and CR values are high. Altogether, the constructs exhibit satisfactory reliability, indicating a stable and reliable measurement model.

Convergent Validity

Convergent validity is assessed by determining whether each construct adequately explains the variance in its indicators. Convergent validity is evaluated using Average Variance Extracted (AVE), with a threshold of 0.50 or higher. The findings show that all constructs have higher values than this, indicating satisfactory convergent validity. In particular, Digital Capability (AVE=0.825), Sustainable Practices (AVE=0.792), Innovation Orientation (AVE=0.774), Financial Inclusion (AVE=0.794), and Entrepreneurial Performance (AVE=0.816) have AVE values of 0.825, 0.792, 0.774, 0.794, and 0.816, respectively. Because all AVE values are well above the minimum required, one can conclude that the indicators can be combined into a single factor to reflect the corresponding latent constructs. Overall, these results demonstrate that the measurement model has high convergent validity, indicating that the constructs are well-established and theoretically valid.

Discrimination Validity (HTMT)

To determine whether the measurement scales are working to differentiate the constructs they are intended to measure, I examined discriminant validity. Specifically, I hypothesized that the correlations among these constructs were smaller than the square root of each construct's average variance extracted (Fornell & Larcker, 1981).

Table 3. Discrimination Validity (HTMT)

Constructs	DC	EP	FI	IO	SP	FI x DC	FI x SP
Digital Capability (DC)		0.041	0.072	0.567	0.568	0.02	0.278
Entrepreneurial Performance (EP)	0.041		0.057	0.033	0.085	0.072	0.145
Financial Inclusion (FI)	0.072	0.057		0.488	0.252	0.073	0.052
Innovation Orientation (IO)	0.567	0.033	0.488		0.619	0.268	0.216
Sustainable Practices (SP)	0.568	0.085	0.252	0.619		0.335	0.372
FI x DC	0.02	0.072	0.073	0.268	0.335		0.465
FI x SP	0.278	0.145	0.052	0.216	0.372	0.465	

Source: Field Survey

Discriminant validity, evaluated using the Heterotrait-Monotrait ratio (HTMT), is used to demonstrate that all constructs are empirically unique. The values for all the HTMTs are below the conservative threshold of 0.85, indicating sufficient discriminant validity. The largest values are observed between Innovation Orientation and Sustainable Practices (0.619) and between Digital Capability and Innovation Orientation (0.567) and Sustainable Practices (0.568), but these values are below acceptable limits. Strong distinction is also supported by lower scores, including Digital Capability with

Entrepreneurial Performance (0.041) and Financial Inclusion (0.072). Low HTMT values are also observed for the interaction terms FI x DC (0.020) and FI x SP, which are specific to them. Overall, the findings show that the constructs evaluate distinct concepts with little overlap.

Table 4. Discrimination Validity (Fornell & Larcker Criterion)

Constructs	DC	EP	FI	IO	SP
Digital Capability (DC)	0.908	-0.03	0.059	0.532	0.536
Entrepreneurial Performance (EP)	-0.03	0.904	0.076	-0.017	-0.08
Financial Inclusion (FI)	0.059	0.076	0.891	0.445	0.222
Innovation Orientation (IO)	0.532	-0.017	0.445	0.88	0.579
Sustainable Practices (SP)	0.536	-0.08	0.222	0.579	0.89

Source: Field Survey

Fornell and Larcker's criterion establishes discriminant validity by indicating that each construct's AVE is more strongly correlated with its own indicators than with those of other constructs. Digital Capability (0.908) has a higher value than its correlations with Entrepreneurial Performance (-0.030), Financial Inclusion (0.059), Innovation Orientation (0.532), and Sustainable Practices (0.536). On the same note, the Entrepreneurial Performance (0.904), Financial Inclusion (0.891), Innovation Orientation (0.880), and Sustainable Practices (0.890) are all above their inter-construct correlation. Some correlations are even slightly higher than the diagonal, such as Innovation Orientation and Sustainable Practices (0.579), although they remain below the diagonal values. In sum, the findings support adequate discriminant validity, meaning that all the constructs are unique and measure distinct concepts.

Model Fit

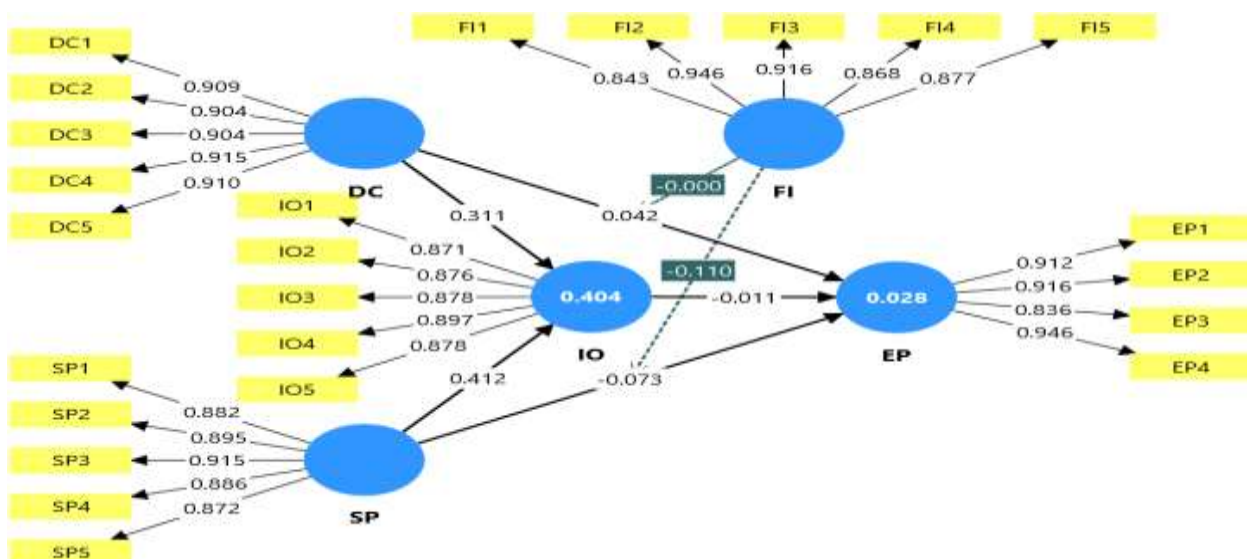
Model fit assessment is an integral part of structural equation modelling (SEM) to determine whether the proposed theoretical model is well supported by the data (Hair et al., 2019). SRMR is used to quantify the average of the observed and the model-implied differences of correlation. A value below 0.08 indicates an acceptable fit (Hu & Bentler, 1999).

Table 5. Model Fit

Fit Index	Saturated Model	Estimated Model
SRMR	0.037	0.088
d_ ULS	0.41	2.31
d_ G	0.26	0.309
Chi-square	629.033	713.13
NFI	0.928	0.919

Source: Field Survey

The model fit is satisfactory, indicating that the proposed structural model adequately describes the observed data. The SRMR value of the estimated model (0.088) is slightly higher than 0.08, though acceptable in complex PLS-SEM models, whereas the saturated model (0.037) shows excellent fit. The discrepancy measures (dULS = 2.31; dG = 0.309) are larger than the saturated ones, but not by much. The model also has a higher Chi-square value, which is characteristic of PLS-SEM. The NFI values (0.928 and 0.919) are above 0.90, indicating a good fit of the model and allowing the structural analysis to be extended.



Source: Measurement Model

Assessment of Structural Model

Coefficient of Determination (R^2)

R^2 is an important statistical measure used to assess the goodness-of-fit of a regression model. It indicates the proportion of variance in the dependent variable explained by the independent variables, ranging from 0 to 1, with higher values indicating stronger model explanatory power.

Table 6. Result of R^2 (Prediction Power)

Constructs	R-square	R-square adjusted
Entrepreneurial Performance (EP)	0.028	0.013
Innovation Orientation (IO)	0.404	0.401

Source: Field Survey

The R^2 values determine the explanatory/predictive power of the independent variables on the endogenous constructs of the model. Entrepreneurial Performance (EP) has an adjusted R^2 of 0.013 and an R^2 of 0.028; this is because only 2.8 percent of the variance is accounted for by it, indicating that other factors determine entrepreneurial performance. Conversely, the Innovation Orientation (IO) has a higher R^2 of 0.404 and an adjusted R^2 of 0.401, indicating that approximately 40.4 per cent of its variance is accounted for by the predictors, including Digital Capability, Sustainable Practices, and Financial Inclusion, and thus has strong predictive power. Altogether, the model predicts Innovation Orientation rather well. In contrast, the explanatory power of Innovation Orientation for Entrepreneurial Performance is low and requires supplementary variables to provide a more accurate account.

Effect Size (F^2)

F^2 is used to measure the level of effect of each independent variable on the variance of the dependent variable. Higher F^2 values indicate stronger effects, whereas lower F^2 values indicate weaker effects, allowing the practical meaning of the observed relationships to be determined (Cohen, 1988).

Table 7. Result of F^2

Items	DC	EP	FI	IO	SP	FI x DC	FI x SP
Digital Capability (DC)		0.001		0.116			
Entrepreneurial Performance (EP)							
Financial Inclusion (FI)		0.006					
Innovation Orientation (IO)		0					
Sustainable Practices (SP)		0.003		0.203			
FI x DC		0					
FI x SP		0.01					

Source: Field Survey

The effect size (f^2) will examine the effect of each independent construct on the endogenous variables by assessing the difference in f^2 when the predictor is absent. Cohen said that f^2 values of 0.02, 0.15, and 0.35 are small, medium, and large effects, respectively. Digital Capability in this paper affects Entrepreneurial Performance ($f^2 = 0.001$) and Innovation Orientation ($f^2 = 0.116$) in a small and medium way, respectively. Sustainable Practices have a small impact on Entrepreneurial Performance ($f^2 = 0.003$) and a medium impact on Innovation Orientation ($f^2 = 0.203$), indicating their contribution to innovation. There are very limited influences of Financial Inclusion, and interaction terms (FI x DC, FI x SP) are insignificant. In general, the most direct impact on Innovation Orientation is exerted by Sustainable Practices and Digital Capability. In contrast, the least significant impact on Entrepreneurial Performance is exerted by Sustainable Practices and Digital Capability.

Multicollinearity (VIF)

Variance Inflation Factor (VIF) was used to evaluate multicollinearity among predictors, as high correlations among indicators in the model may skew regression estimates. Thresholds for VIF are commonly 5 or more, conservatively 3.3. The VIF values in this study range from 2.453 (EP3) to 4.026 (EP4), and the other significant values are DC4 (3.96) and SP3 (3.876). The interaction terms (FI x DC and FI x SP) have VIF values of 1, indicating no multicollinearity. Because no values exceed the critical point, multicollinearity should not be an issue. This establishes that the predictor variables are sufficiently independent, ensuring that the structural relationships are reliably estimated and that the indicators of the model are specified adequately.

Assessment of Path Coefficient

Path coefficients in structural equation modeling (SEM) play a critical role in understanding the strength and direction of the relationship between latent constructs and observed variables. Their effects quantify the influence of one variable on another in the model. Path coefficients' importance is determined using p-values; values below 0.05 indicate that the relationship is unlikely to occur by chance (Hair et al., 2019). Path analysis enables researchers to identify statistically significant relationships, providing a sound foundation for explaining effects and interactions among the constructs in the structural equation (Hair et al., 2010).

Table 8. Outcome of the Structure Model

Hypothesis	Path	β	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
H ₁	DC -> EP	0.041	0.069	0.607	0.544	Not Supported
H ₂	SP -> EP	-0.077	0.068	1.078	0.281	Not Supported
H ₃	DC -> IO	0.312	0.044	7.03	0.000	Supported
H ₄	SP -> IO	0.412	0.047	8.725	0.000	Supported
H ₅	IO -> EP	-0.009	0.08	0.141	0.888	Not Supported

Source: Field Survey

According to the structural model analysis, two of the five hypotheses put forward have been supported. The path from Digital Capability to Entrepreneurial Performance (H₁: $\beta = 0.041$, $p = 0.544$) is not significant and is not direct. On the same note, the association between Sustainable Practices and Entrepreneurial Performance ($\beta = -0.077$, $p = 0.281$), as expressed in H₂, is also not supported. By contrast, H₃, which suggests a positive influence of Digital Capability on Innovation Orientation, was supported with a medium effect ($\beta = 0.312$, $p < 0.001$), and H₄, which suggests a positive influence of Sustainable Practices on Innovation Orientation, was supported with a high one ($\beta = 0.412$, $p < 0.001$). H₅, the Innovation Orientation influence on Entrepreneurial Performance ($\beta = -0.009$, $p = 0.888$) is not significant. Generally, Digital Capability and Sustainable Practices play a significant role in shaping Innovation Orientation, but these two factors do not, directly or indirectly, improve Entrepreneurial Performance in this model, indicating the challenges in translating the entrepreneurial focus on innovation into real entrepreneurial performance.

Mediating Effect

To investigate the mediating effect, the mediating effect was examined to determine whether a mediator accounts for the relationship between the independent and dependent variables. Mediation analysis was carried out using standard procedures, such as bootstrapping, to estimate the effect of the independent variable on the dependent variable via the mediator (Preacher & Hayes, 2008).

Table 9. Outcome of Mediation Effect

Hypothesis	Path	β	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
H ₆	DC -> IO -> EP	0.003	0.025	0.14	0.889	Not Supported
H ₇	SP -> IO -> EP	0.004	0.033	0.14	0.889	Not Supported

Source: Field Survey

The mediation analysis fails to support both proposed indirect effects. H₆, the effect of Digital Capability on Entrepreneurial Performance through Innovation Orientation ($\beta = 0.003$, $p = 0.889$) is not significant, nor is H₇, which is the effect of Sustainable Practices on Entrepreneurial Performance through Innovation Orientation ($\beta = 0.004$, $p = 0.889$). Both p-values are greater than 0.05, and the t-statistics are very low, indicating no significant mediation. The direct path findings indicate that Innovation Orientation does not significantly contribute to Entrepreneurial Performance ($\beta = -0.009$, $p = 0.888$), suggesting that it does not mediate the relationships between Digital Capability, Sustainable Practices, and Entrepreneurial Performance in this model.

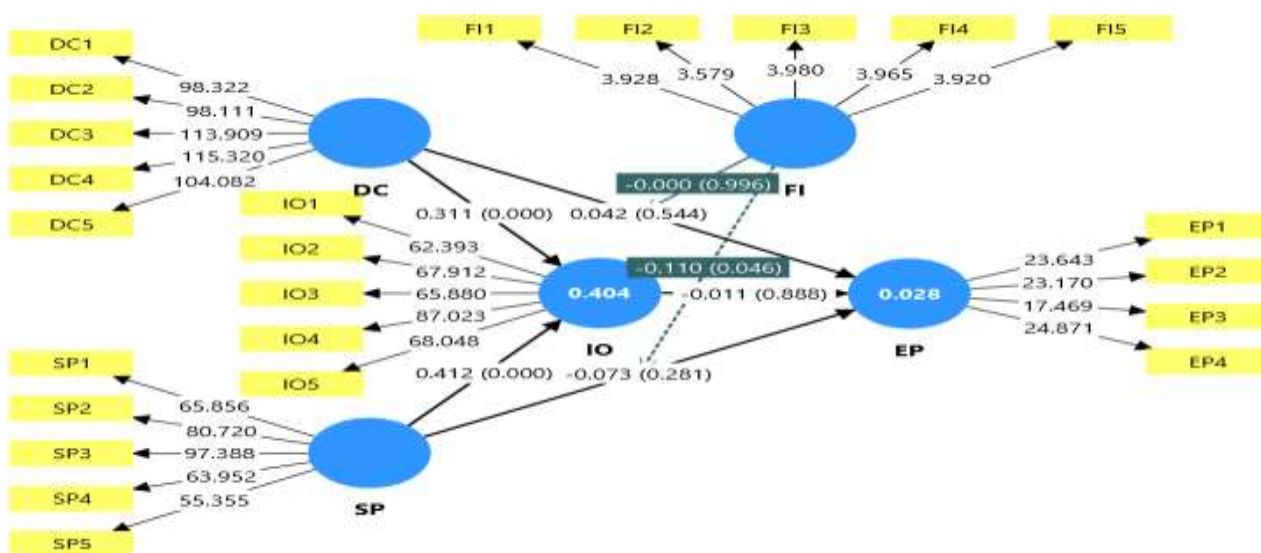
Moderating Effect

Table 10. Outcome of the Moderating Effect

Hypothesis	Path	β	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
H ₈	FI x DC -> EP	0.007	0.065	0.005	0.996	Not Supported
H ₉	FI x SP -> EP	0.105	0.055	1.992	0.046	Supported

Source: Field Survey

The moderating effect analysis does not give consistent results. The interaction between Financial Inclusion and Digital Capability on Entrepreneurial Performance (H₈: $\beta = 0.007$, $p = 0.996$) is not significant, indicating that it is not moderated, and the t-statistic for this effect is extremely small ($\beta = 0.005$). In its turn, H₉, the correlation between Financial Inclusion and Sustainable Practices on Entrepreneurial Performance ($\beta = 0.105$, $p = 0.046$) is accepted, as Financial Inclusion reinforces the impact of Sustainable Practices on Entrepreneurial Performance. The positive beta depicts that increased Financial Inclusion increases the effect of Sustainable Practices. The effect size (0.010) is insignificant. Still, it demonstrates a strong moderating effect and underscores that Financial Inclusion is a precondition for the effectiveness of sustainability initiatives on entrepreneurial outcomes.



Source: Structural Model

DISCUSSIONS

This research explored the relationship between digital capability and sustainability practices with entrepreneurial performance of Bangladeshi SMEs, with innovation orientation as a mediator and financial inclusion as a moderator. The results present a complex scenario that both confirms and refutes the literature and offers theoretical and practical insights into entrepreneurship in developing economies.

The findings strongly support the hypotheses that digital capability and sustainability practices have a positive effect on innovation orientation ($\beta = 0.312, p < 0.001$; $\beta = 0.412, p < 0.001$, respectively). These results support the Resource-Based View (RBV), which holds that sources of competitive advantage lie in internal organisational resources and capabilities that are leveraged strategically (Barney, 1991). The findings show that digital skills and sustainable practices in the context of Bangladeshi SMEs are strategic resources that enable an innovation-oriented organizational attitude. This aligns with Xu et al. (2022), who found that digital capability can positively influence digital sustainable entrepreneurship through digital innovation orientation. Likewise, the results confirm Satar et al. (2024), who showed that the dimensions of entrepreneurial orientation mediate the relationship between digital capabilities and social innovation performance. The relationship between sustainability practices and innovation orientation is particularly strong ($\beta = 0.412$), a finding that aligns with nascent research on 'Green Entrepreneurial Orientation (GEO)'. In the textile industry, as Habib et al. (2021) showed in the Bangladesh context, sustainability-oriented strategies are also associated with improved sustainable performance when implemented through innovative approaches. The results also corroborate those of Chowdhury et al. (2024), who found that sustainability orientation serves as the filter through which entrepreneurs in Bangladesh direct their innovation focus. The correlation is robust, indicating that sustainability-minded companies in Bangladesh are not just about meeting regulatory standards but also about fostering a culture of innovation, developing new business models, and solving problems through their environmental and social actions. The R^2 for innovation orientation is 0.404, suggesting that a high level of innovation orientation can be explained by a combination of digital capability and sustainability practices; this indicates that these two factors are important predictors for innovation orientation.

A key finding that differs significantly from theory is that there are no significant direct or mediated effects on entrepreneurial performance. The direct paths between the variables digital capability, sustainability practices, and innovation orientation were all non-significant, which conflicts with the literature's findings of positive connections among these constructs (Cheng et al., 2025; Islam et al., 2024). Numerous explanations are suggested that are specific to the context. Structural barriers, including a lack of digital literacy, inadequate infrastructure, and mismatches between innovations and local needs, can constrain commercialization (Hossain, 2018). Further, sustainability practices can increase compliance costs and may lead to risk-averse behaviours, thereby mitigating the link between innovativeness and performance (Moral et al., 2024). Second, the low R^2 value (0.028) suggests that 97.2% of the variance in entrepreneurial performance is not explained by the model, indicating that important factors such as human capital, market orientation, and institutional support are not accounted for (Faroque et al., 2021). Third, f^2 effect sizes indicate that digital capability and sustainability practices have medium effects on innovation orientation ($f^2 = 0.116$ and 0.203) but negligible effects on performance ($f^2 = 0.001$ and 0.003), suggesting a maturity gap: Innovative mindsets are formed without the accompanying infrastructure for commercial success.

The moderating analysis yielded a significant result. The moderation of the sustainability practices-entrepreneurial performance relationship was statistically significant in the moderation of financial inclusion (H9: $\beta = 0.105, p = 0.046$), and the moderation of the digital capability-performance relation was non-significant (H8: $\beta = 0.007, p = 0.996$). The large moderation effect validates that financial services enhance the performance impact of sustainability efforts. These findings align with those of Hossain et al. (2024), who showed that financial resources are essential for textile SMEs to invest in sustainable technologies, and with those of Aktar and Kabir (2024), who highlighted the availability of financial resources as the key factor in the adoption of sustainable practices by CMSMEs. The positive beta

indicates that inclusive financial services can provide capital to transform sustainability strategies into competitive advantages, consistent with RBV extensions (Abid et al., 2023). In contrast, the lack of a significant moderation for digital capability suggests digital tools can boost performance beyond the financial inclusion channel. For instance, Bangladeshi entrepreneurs use social media and digital marketplaces, which require less startup capital and bypass formal banking channels, as documented by Rahman et al. (2023) and Tabassum (2019).

Several contextual factors can explain the study's results, indicating that Digital Capability and Sustainability Practices have a strong effect on Innovation Orientation. However, the same is not true when predicting Entrepreneurial Performance. One is that new ideas are unlikely to turn a profit due to commercialization obstacles. Hossain (2018) noted that digital illiteracy, infrastructure issues, and a mismatch between digital services and local needs were constraints. Second, the relationship between innovation and performance might be moderated by institutional and resource factors. This path was found to be moderated by environmental dynamism and institutional constraints in resource-constrained emerging markets by Abid et al. (2023), and by beyond-innovation in the face of resource limitations, as noted by Khan et al. (2021). Thirdly, sustainability measures can have both positive and negative implications. The negative coefficient could be due to compliance costs and risk-averse behaviours that mitigate the innovativeness-performance relationship as reported by Moral et al. (2024). Fourth, the differential moderation by Financial Inclusion stems from differences in resource needs. Access to finance is crucial for sustainability efforts, as they require significant funding for green technologies and certifications (Aktar & Kabir, 2024). On the other hand, the use of digital skills via social media and mobile devices requires little investment, making formal financial inclusion less relevant (Tabassum, 2019). Lastly, the findings indicate a maturity deficit in Bangladesh's entrepreneurial ecosystem, as entrepreneurial culture grows without the necessary complement of infrastructure, markets, and institutions that enable entrepreneurial success.

CONCLUSIONS

This paper investigated the relationship between Digital Capability and Sustainable Practices, and the performance of the entrepreneurs in Bangladesh, in terms of the mediating effect of Innovation Orientation and the moderating effect of Financial Inclusion. The analysis of structural, mediating, and moderating relationships yielded both anticipated and unexpected results, providing a new understanding of entrepreneurship in developing economies.

Findings suggest that Digital Capability and Sustainable Practices are highly influential in promoting the Innovation Orientation and, therefore, have the potential to shape entrepreneurs' innovative thinking. However, in a surprising twist, there was no strong, direct, or indirect impact of the Innovation Orientation on Entrepreneurial Performance, suggesting that the relationship between the two may be situational and depend on other factors, such as human capital, infrastructure, or institutional support.

Financial Inclusion was identified as playing a significant role in moderating the relationship between Sustainable Practices and Entrepreneurial Performance, with the positive effect of sustainability enhanced when inclusive financial services are available to entrepreneurs. Conversely, Financial Inclusion failed to undermine the Digital Capability-Entrepreneurial Performance connection, meaning that digital capabilities can enhance entrepreneurial performance even when alternative sources of digital finance are used, rather than conventional financial access. Theoretically, the research extends the resource-based perspective and contingency theory by showing that the value of organizational resources, such as digital capability and sustainability, depends on situational variables, including financial inclusion. It also advances the literature on entrepreneurship by identifying constraints on the Innovation Orientation as a mediator in the developing-country setting, underscoring the need to investigate other mechanisms.

In practice, the results guide entrepreneurs, managers, policymakers, and financial institutions. Business owners and administrators are advised to invest in digital capabilities and sustainability, as these create complementary mechanisms to convert innovation into performance. Financial inclusion policies need to be integrated with sustainability initiatives to optimize policymakers' performance. Financial institutions can develop tailored products and services to support sustainability-oriented business ventures through inclusive financial arrangements. The cross-sectional study design, which prevents causal conclusions, and the specific one-country setting are limitations that limit generalizability. Future studies would use longitudinal and cross-country designs and test additional mediators, such as entrepreneurial bricolage, absorptive capacity, human capital, and organizational agility.

To sum up, the paper enhances understanding of the role of digital capability and sustainable practices in entrepreneurial performance in Bangladesh, with an emphasis on the situational circumstances under which the relationship can be established. The results support the idea that the performance contribution of organisational resources is contingent on the broader financial ecosystem and other facilitating mechanisms, insights that are insightful to stakeholders in the context of emerging markets.

The research contributes to knowledge about the effectiveness of entrepreneurial performance in emerging markets by incorporating digital capability and sustainability practices, as prior research has not separately considered these aspects. The study opens the way to converting digital and sustainable resources into innovative processes that facilitate firm performance by treating innovation orientation as an intervening variable between the two forms of resources. Moreover, including financial inclusion as a modulator demonstrates that access to financial resources can amplify or limit the effectiveness of digital and sustainability programs on an entrepreneurial venture's economic performance, providing a comprehensive model of interrelated technological, environmental, and financial factors for the success of consumer entrepreneurship in Bangladesh.

The results give practical suggestions to entrepreneurs, managers, and policymakers. They emphasize building digital capabilities and integrating sustainability practices to enhance performance. There is a need to create a culture of innovation that translates these resources into a competitive advantage. Moreover, the effects can be reinforced by

improving financial inclusion, e.g., through credit, digital finance, and accessible services. Policymakers can use these insights to facilitate digital adoption, sustainable entrepreneurship, and SME growth, thereby stimulating economic growth in Bangladesh.

This study has several limitations, despite its contributions. First, it is carried out only in Bangladesh, and this might not be generalizable to other emerging or developed markets with different institutional, cultural, and economic environments. Second, cross-sectional data capture relationships at a single point in time, which may not reveal much about causal or dynamic relationships; longitudinal studies may fill this gap. Third, the use of self-reported data by entrepreneurs can introduce biases, such as social desirability or response bias. Fourth, the research fails to consider other factors that may affect outcomes, such as leadership style, organizational culture, market competition, and the regulatory environment. Lastly, the quantitative method limits insights into the experience and challenges of implementing digital and sustainable practices, suggesting that future studies employ a qualitative or mixed-methods research design.

This study can be developed in several ways in the future. To begin with, the generalizability of the association between digital capability, sustainability practices, innovation orientation, financial inclusion, and entrepreneurial performance would be tested by exploring the framework across varied geographical and cultural settings. Second, longitudinal research could measure the dynamic effects of digital capability and sustainability practices on an entrepreneur's performance over the long run. Third, more mediators or moderators, e.g., leadership style, organizational culture, market competition, or support from the regulatory environment, would help expand knowledge of entrepreneurial success. Fourth, fieldwork or mixed-methods studies can be used to identify situational processes and barriers to implementing digital and sustainable practices. Lastly, the investigation of new technologies, such as AI, blockchain, and digital finance, has the potential to advance innovation, financial inclusion, and the work of entrepreneurs in developing markets.

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