



Research article

From Ties to Triumph: The Mediating Role of Opportunity Recognition in the Social Capital-Firm Performance Nexus

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ABSTRACT

In Bangladesh, where industrial infrastructure and capital markets are still nascent, small and medium-sized enterprises compensate for institutional gaps by driving inclusive growth. This study investigates how social capital, opportunity recognition and dynamic capabilities interact to shape the performance of small and medium-sized IT enterprises in Bangladesh. Although each construct has been linked individually to firm outcomes, their combined influence remains under-explored in emerging-economy contexts. Grounded in social capital theory, the study advances five hypotheses, positing that each of the three focal constructs directly influences firm performance and that these effects are partially transmitted through opportunity recognition. A partial least squares structural equation modelling (PLS-SEM) was used to analyse survey data collected from 270 IT and ITES decision-makers. The measurement model demonstrated high reliability along with robust convergent and discriminant validity, whereas the structural model accounted for a substantial portion of performance variance and exhibited strong out-of-sample predictive power. The findings indicate that social capital, opportunity recognition and dynamic capabilities have considerable positive impacts on IT firm performance. In addition, opportunity recognition partly mediates the relationships between social capital and dynamic capabilities and performance, implying that networks and dynamic routines improve performance partly via improving entrepreneurial alertness. The results contribute to the ability-based account by including relational, cognitive and organisational vantage points within the empirical context. It underscores the importance of purposeful network brokerage, institutionalised search routines and continuous capability upgrading and suggests that policy interventions should combine these levers to accelerate growth in the digital sector.

Introduction

Small and medium-sized businesses (SMEs) is one of the well-known drivers of economic growth due to their contributions to job creation and innovation (Meghla et al., 2024), as well as to alleviating poverty. In developing economies like Bangladesh, where the industrial infrastructure and capital markets are not yet fully developed, SMEs, in response to the lack of an institutional environment, tend to ensure the inclusive growth of the economy through the ground-up movement (Naradda Gamage et al., 2020). In Bangladesh, SMEs are ingrained in the policy of national development, and their contribution to GDP is substantial, with IT-based SMEs contributing prominent momentum in recent years (Alam

et al., 2024; Kass-Hanna et al., 2022). Due to the high rate of digitalisation, with internet speed and connectivity, mobile subscribers and penetration of digitally savvy workers, new IT businesses have been made possible in the economy (Kurniasari et al., 2023). These companies provide digital services in all industries, improving the productivity and marketability of traditional industries. Aiming to transform into a knowledge-based economy, IT SMEs not only ensure that technological discrepancies are decreasing but are also taking a leading role in determining the future of work, especially among youth and underrepresented populations all over the world (Adegoke, 2022).

ARTICLE INFO

Article timeline:

Date of Submission:

13 June, 2025

Date of Acceptance:

04 August, 2026

Article available online:

06 September, 2026

Keywords:

Social Capital

Opportunity Recognition

Dynamic Capabilities

Firm Performance

SMEs

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DOI: <https://doi.org/10.53808/KUS.2026.23.02.1433-mb>

However, their sustainability is linked to their level of effectiveness in creating intangible resources (Ibrahim et al., 2026), embracing ambiguity (Castro & Moreira, 2024), as well as identifying new opportunities (Hu & Kee, 2022) in rapidly ever-changing landscapes. Such dynamics are critical in enhancing the SME ecosystem in terms of policy and practice.

The viable performance of IT SMEs in rapidly developing and unpredictable markets depends on the effectiveness of the mobilisation and deployment of the firms' intangible resources in the long term (Khan et al., 2021). Among them, Social Capital (SC), Opportunity Recognition (OR), and Dynamic Capabilities (DC) can be specially mentioned as allowing firms to adapt, learn, and grow. Social capital, which is based on trust relationships, common norms and mutual assistance, is one of the main ways of accessing knowledge, legitimacy and mobilisation of external resources (Chowdhary et al., 2025). It also promotes internal cohesion that enables quicker and more aligned decisions made by the firms (Polyviou et al., 2019). Opportunity recognition is the mental capability to detect and pursue unmet or new needs in the market (Mostafiz et al., 2019). Such a process is usually influenced by previous knowledge and enriched by various social experiences (Zulfiqar et al., 2021). At the same time, the dynamic capabilities that include explorative and exploitative routines allow companies to recombine assets and switch strategies in accordance with market changes (Sarfo et al., 2024). Such abilities are particularly important in the IT industry of Bangladesh, which is characterised by volatility, unpredictable regulations (Rahman et al., 2022), and restricted access to capital (Sultana et al., 2020; Alam et al., 2020). In that regard, the capability of a firm to integrate SC, OR, and DC will be the focus of maintaining competitive advantage and prolonged performance.

According to recent studies, social capital is extremely important in the process of sensing and creating entrepreneurial opportunities (Ozanne et al., 2022). The networks that are based on trust relationships and common norms provide the firms with access to market signals and learning environments in a timely manner. These relational assets not only spur the recognition of opportunities but also foster the building of dynamic capabilities where the sharing of knowledge and quick response to change is made possible. The interplay between SC and DC forms a favourable breeding ground for OR, particularly when firms engage in bonding ties (close-knit, supportive networks) along with bridging ties (diverse, information-rich connections). This ambivalence in networks prepares the firms to develop ideas based on familiarity and novelty (Ozanne et al., 2022). In the same manner, dynamic capabilities, be they explorative, innovation-oriented, exploitative, or efficiency-oriented, reinforce the capacity of the firm to take action in response to emergent opportunities in an incremental and transformative manner (Zhang et al., 2023; Sultana et al., 2021). However, little research has been done to understand the collaborative effect of SC, OR, and DC on Firm Performance (FP), especially in resource-scarce countries, such as Bangladesh, despite the above conceptual connections. Existing studies tend to separate these constructs and overlook the knowledge of their combined effect.

Considering the institutional gaps, lack of capital, and shortage of skills that IT SMEs in Bangladesh are facing, an exploration of how they draw upon relational networks and adaptive capabilities in enhancing performance and resilience is necessary.

This study seeks to fill the existing gaps by exploring how social capital, opportunity recognition, and dynamic capabilities work together to shape the performance of IT SMEs in Bangladesh. These three elements are often studied separately, but their combined effect is not well understood, especially in the context of a developing economy. By examining their interconnections, this research offers a deeper understanding of how IT SMEs navigate uncertainty, limited resources, and rapid change. The study also explains how firms adapt by building networks, spotting market gaps, and reconfiguring their resources. Its findings are expected to strengthen existing theories, such as the dynamic capability view and social capital theory. More importantly, the study offers practical insights that can help IT entrepreneurs to improve decision-making and strategy. It may also guide policymakers in designing more targeted support for small tech firms. Overall, this work aims to contribute both academically and practically by addressing a real-world issue in a fast-growing and high-impact sector.

Literature Review

Bangladesh's IT sector has grown steadily since the early 2000s, supported by government policies such as tax incentives for software exports (Islam et al., 2024). The country now hosts more than 1,500 registered IT (Information Technology) and ITES (Information Technology Enabled Services) firms, most of which employ fewer than 100 workers (BASIS, 2022). These small-scale operations enjoy low entry barriers and flexible cost structures (Meressa, 2020), yet they also face chronic constraints, including inadequate venture financing, an under-skilled talent pool, and weak legal protection for intellectual property (Adeyemi, 2020). Firm survival in this sector depends less on formal assets and more on intangible resources, particularly social capital, opportunity recognition, and dynamic capabilities.

Social capital describes the resources embedded in a firm's network of relationships (Nahapiet & Ghoshal, 1998). It is commonly conceptualised along three dimensions – structural capital, reflecting the pattern and density of network ties; relational capital, capturing trust, norms, and mutual obligations; and cognitive capital, referring to shared language and vision among network members (Claridge, 2018). In emerging economies, where formal institutions are often underdeveloped (Omri, 2020), social capital can substitute for missing market infrastructure (Dimitriadis, 2021). Ties to suppliers, mentors, and customer communities reduce search costs, ease information exchange, and foster reputational legitimacy (Hajli et al., 2025). Several studies confirm that social capital improves SME outcomes. In Ghana, firms with stronger inter-firm networks report higher sales growth and innovation rates (Meressa, 2020). In India's software clusters, relational capital facilitates rapid project pivots and knowledge transfer (Pathania & Tanwar, 2024). In Bangladesh, Yasmin et al. (2025) found that SME owners' bonding ties, family and close friends, provide

initial seed capital, whereas bridging ties to business associations enable market expansion (Islam et al., 2024). However, the benefits are neither automatic nor unlimited. Too much reliance on dense bonding networks can lock a firm into redundant knowledge pools (Aral & Dhillon,

2023). For IT SMEs that must update technologies quickly, structural holes bridging diverse communities are especially valuable (Zaheer & Bell, 2005). Thus, the composition and quality of ties matter more than tie quantity alone (Alam et al., 2025b).

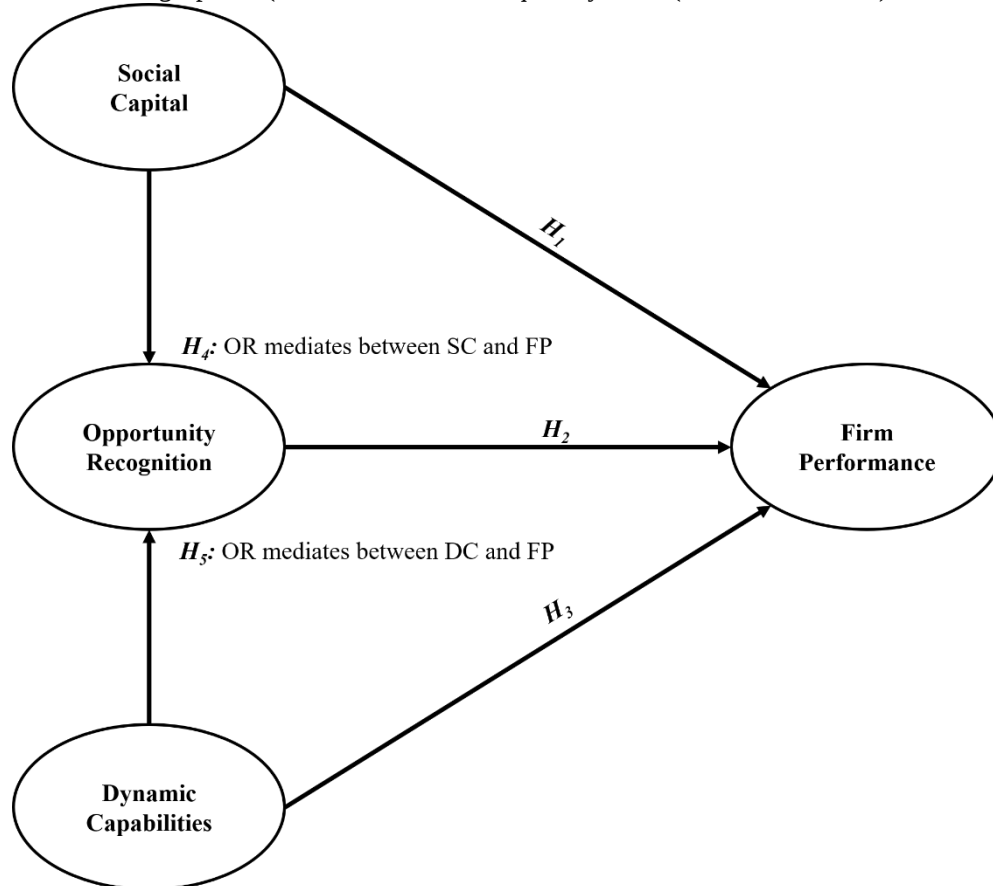


Figure 1: Conceptual Research Model

Source: Own Elaboration

Figure 1 presents the construct-level conceptual model of the study. The directional paths show the hypothesised relationships among social capital, opportunity recognition, dynamic capabilities and firm performance. H₁, H₂ and H₃ represent the direct effects on firm performance, while H₄ and H₅ represent the mediating role of opportunity recognition. The indicators shown beside each construct clarify how the latent variables were operationalised and should not be interpreted as separate structural paths or independent hypotheses. The full measurement details are provided in Table 1.

Opportunity Recognition (OR) refers to a cognitive process through which entrepreneurs identify novel, profit-generating market gaps (Shane & Venkataraman, 2000). It involves scanning for unmet customer needs, evaluating feasibility, and mobilising resources for exploitation (Baron, 2006). Prior knowledge, alertness, and social interaction are the recognised antecedents (Ardichvili et al., 2003). Networks supply early signals about shifting customer pain points and emerging technologies, thereby enhancing opportunity discovery (Araujo et al., 2023). In China's digital startups, Xu et al. (2024) showed that founders embedded in heterogeneous networks generate more novel opportunity ideas than those restricted to homogeneous contacts. For Bangladeshi IT entrepreneurs, informal meetups, such as weekly "tech hangouts" at

Dhaka's co-working spaces, serve as fertile ground for idea exchange and partner search (Geiger & Kjellberg, 2021). A robust stream links early opportunity recognition to superior performance. Cornerstone work by Keh et al. (2002) demonstrates that opportunity evaluation competence predicts venture growth in Singaporean SMEs. In Malaysia's software industry, Khanijau et al. (2023) found that systematic idea screening reduces product flop rates. For Bangladeshi firms, timely identification of niche products has allowed small vendors to secure export contracts (Ferdous et al., 2024).

According to Teece et al. (1997), Dynamic capabilities (DC) are "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments". Teece (2007) articulates three micro-foundation clusters: sensing (scanning and interpreting technological shifts), seizing (mobilising resources to capture value), and reconfiguring (transforming asset structures to match new opportunities). DC extend the resource-based view by focusing on how firms renew resource bases rather than on static possession of VRIN (valuable, rare, inimitable and non-substitutable) assets (Mostafiz et al., 2019). Empirical studies consistently link DC to innovation and financial performance. Protojerou et al. (2012) found that Greek

technology SMEs with strong reconfiguration routines achieve higher export intensities (Yuan & Pan, 2023). Gupta et al. (2024) reveal that agile software firms leveraging continuous integration practices outperform peers during sudden client requirement changes.

Social capital can nurture DC by facilitating access to external knowledge and complementary assets. Verona and Ravasi (2003) documented how Italian design houses exploit broad networks to bolster reconfiguration skills. At the same time, opportunity recognition may trigger DC deployment, as firms must sense and seize market gaps rapidly (Helfat & Martin, 2015). Environmental dynamism moderates these relationships; the greater the uncertainty, the more valuable DC becomes (Eisenhardt & Martin, 2000). Figure 1 synthesises prior findings into a holistic framework, showing that social capital influences firm performance both directly and indirectly through opportunity recognition and dynamic capabilities. The pathways are also mutually reinforcing. Networks expose entrepreneurs to diverse information that sparks new opportunity ideas. Recognised opportunities, when pursued, produce revenue and growth (Ozgen & Baron, 2007). Access to external know-how and trust accelerates learning and reconfiguration cycles, enhancing adaptability (Protogerou et al., 2012). Opportunity recognition often precedes the mobilisation of dynamic capabilities; sensing detects gaps while seizing and reconfiguring them (Teece, 2007). The full chain posits that social ties stimulate opportunity ideas, which in turn trigger capability reconfiguration, culminating in superior performance- a sequence still under-explored empirically. Recent studies hint at such multi-stage effects. For example, Martinelli et al. (2018) found that digital startups leverage founder networks to spot platform opportunities and then reconfigure teams to build minimum viable products, leading to faster market entry. Nevertheless, evidence from South Asian settings remains scarce (Alam et al., 2025a).

Most Bangladeshi research considers social capital, opportunity recognition, or dynamic capabilities in isolation (Suzuki et al., 2020). Comprehensive models capturing their interplay are lacking. IT SMEs operate under higher technological turbulence than traditional manufacturing. The specific mechanisms by which SC and DC translate into innovation and performance in this sector need deeper examination (Tang et al., 2022). Institutional voids and resource scarcity also alter how networks and capabilities function. Generalising findings from advanced economies may be misleading, so context-sensitive evidence is required. The literature suggests that IT SMEs rely heavily on intangible assets to overcome structural constraints. Social capital provides the relational platform for knowledge exchange; opportunity recognition channels that knowledge into entrepreneurial action; and dynamic capabilities transform action into sustained advantage (Alam et al., 2021). However, empirical studies integrating all three constructs, especially in the Bangladeshi context, remain limited. Addressing this gap promises to enrich theory and offer actionable insights for entrepreneurs and policymakers aiming to strengthen the country's digital economy.

In line with social capital theory, owners who cultivate broad, trusted ties gain privileged information

and support that lower search costs and build legitimacy. Such intangible assets have raised growth and innovation in Vietnamese digital SMEs (Vu et al., 2023). This study, therefore, expects social capital to enhance firm performance. Opportunity recognition adds a cognitive layer. Entrepreneurs who spot unmet needs early can launch tailored solutions and secure first-mover gains; evidence from Bangladeshi software firms confirms this effect (Alim et al., 2023). Hence, opportunity recognition should also improve performance. The dynamic-capability view stresses routines that sense change, seize options and reconfigure resources (Alam et al., 2026; Teece, 2007). Sri Lankan ICT ventures showed that such capabilities lift profitability even in crises (Haputhanthri et al., 2024), leading to the prediction of a positive link between dynamic capabilities and performance. Together, these three drivers capture the relational, cognitive and adaptive resources most needed in volatile digital markets.

While each resource adds value on its own, their combined effect may be stronger. Social capital widens information channels and builds trust, helping owners notice subtle shifts in customer pain points and emerging technologies (Araujo et al., 2023). These insights sharpen opportunity recognition, which then converts relational assets into concrete gains. A recent analysis found that opportunity recognition partially transmits the social capital-performance link across more than seventy SME samples (Kurniasari et al., 2023). This research, therefore, proposes that opportunity recognition mediates the effect of social capital on firm performance. A similar logic applies to dynamic capabilities. Firms with refined sensing and learning routines interpret new signals better and judge which openings merit investment (Alim et al., 2023). Evidence from Indonesian fintech startups shows that alertness fully channels the performance gains of adaptive routines (Dirgiatmo, 2023). Thus, opportunity recognition is also expected to mediate the dynamic capability-performance relationship.

From the abovementioned discussion, we have developed five hypotheses for this study:

H₁: Social capital positively affects firm performance.

H₂: Opportunity recognition positively affects firm performance.

H₃: Dynamic capabilities positively affect firm performance.

H₄: Opportunity recognition mediates the link between social capital and firm performance.

H₅: Opportunity recognition mediates the link between dynamic capabilities and firm performance.

Materials and Methods

Research Design

This study employed a quantitative, cross-sectional, and exploratory research design to examine the relationships between social capital, opportunity recognition, dynamic capabilities, and firm performance among small and medium-sized IT and ITES firms in Bangladesh. The cross-sectional nature allowed for capturing the perceptual data at one time, making it possible to measure the associations between constructs without inducing causality (Wennberg & Anderson, 2020). The investigative characteristic of the study was justified by the fact that there was very little empirical evidence in the

Bangladeshi IT industry regarding the effect of intangible assets like social capital and dynamic capabilities on firm-level performance. To enable the statistical testing of the hypothesised relationships and because it is necessary to ensure that the constructs can be operationalised and analysed using structured instruments, a quantitative approach was considered, as suggested by Maula and Stam (2020). This design was capable of collecting measurable data on a relatively wide sample size, which ensured that the results could be easily generalised to the target population.

Sampling Strategy and Data Collection

The population of interest in this research was owners of small and medium-sized IT and IT-enabled services (ITES) companies in Bangladesh. These companies were chosen because of their growing contribution to the economic growth of the country and the dynamism of the environments in which they operate. The absence of a formalised and publicly available registry of such firms remained a limitation to access to this population. Therefore, the method of non-probability snowball sampling was employed. This method enabled the researcher to begin the data collection with a group of initial respondents in the IT industry, who, before other qualified participants, referred to the study, similar to the work done by Jalca et al. (2020). Snowball sampling has been specifically suitable in this study because it helped in accessing firm owners who have the strategy and operational understandings required to provide responses to the constructs being investigated (Bailey, 2019). The three months of data collection consisted of the period between November 2024 and January 2025. A mixed-

mode data collection strategy was used to maximise coverage and response rates. The online surveys were sent through email and professional networks to the urban-based firms, and in-person distribution was done to those respondents in the peripheral regions. In such a way, the diversity of responses was increased, and the risks of single-mode data collection were avoided (Jalca et al., 2020). 270 responses were fully completed and were valid, thus included in the final analysis. Such a sample size fits well into the structural equation modelling with partial least squares (PLS-SEM), especially regarding the complexity of the model and the number of latent variables (Manley et al., 2021). This sample size was large enough to obtain reasonable values of statistical power and fulfil the lowest sample size conditions of the estimation methods used.

Constructs and Measurements

The study examines the interconnection of four major constructs, as shown in Table 1: social capital, opportunity recognition, dynamic abilities and firm performance. The social capital dimension was assessed using the 8-item Personal Social Capital Scale, a validated instrument that captures bonding and bridging facets, covering trust, network size, reciprocity, participation and information exchange (Wang et al., 2014). All of these dimensions are part of the structural and relational factors affecting resource access and cooperation among entrepreneurs. Opportunity recognition was assessed through items measuring entrepreneurs' proactive alertness, systematic market research, continuous environmental scanning, and deliberate information-seeking behaviours for new product or service ideas (Karami et al., 2023).

Table 1: Measurement of the Constructs

Construct	Number of Items	Reference
Social Capital	08	Wang et al. (2014)
Opportunity Recognition	05	Karami et al. (2023)
Dynamic Capabilities	14	Kump et al. (2018)
Firm Performance	07	Kharub et al. (2022)

This construct captures both individual and contextual enablers of opportunity recognition. Dynamic capabilities were measured using indicators of product development, client-need identification, resource acquisition, experimentation, market intelligence and customer-requirement responsiveness (Kump et al., 2018). These capabilities reflect the firm's ability to innovate and adapt in fast-changing environments. Firm performance was evaluated through dimensions of profitability, competitiveness, market growth, and strategic outlook (Kharub et al., 2022). These measures encompass both financial and strategic performance, providing a holistic view of organisational success. All four constructs were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The adoption of previously validated instruments allowed for methodological consistency and enhanced comparability with earlier studies (Kharub et al., 2022).

Data Analysis Procedures

The data analysis process involved both preliminary and advanced statistical procedures, carried out using SPSS 27 and SmartPLS 4.0. Initial screening was performed to

identify missing values, assess response distributions and check for outliers in SPSS (Ghanad, 2023; Manley et al., 2021). Following data screening, the analysis proceeded with the evaluation of the measurement model. Internal consistency and reliability were assessed using Cronbach's α , composite reliability (CR) and item-wise factor loadings. Convergent validity was determined by Average Variance Extracted (AVE), where values higher than 0.50 indicate satisfactory convergence, according to Cheung et al. (2024). Discriminant validity was established based on the Heterotrait-Monotrait Ratio (HTMT), where values below 0.85 indicate adequacy (Dirgijatmo, 2023). Partial least squares structural equation modelling (PLS-SEM) was then used to estimate the structural model because it is suitable for complex models with several latent variables and is less sensitive to non-normal data (Alam et al., 2022). Bootstrapping with 10,000 resamples was used to obtain standard errors and confidence intervals for the path coefficients. The item-level loadings were examined before structural model assessment. The final measurement model retained the theoretically relevant indicators that showed acceptable or near-acceptable empirical performance, while overall construct reliability,

convergent validity and discriminant validity remained satisfactory.

Results and Discussion

This study set out to explore how social capital, opportunity recognition, and dynamic capabilities jointly drive performance in Bangladeshi IT SMEs. To secure analytical rigour, the study adopted the two-stage PLS-SEM protocol utilised by Alim et al. (2023). Stage one evaluates the measurement model by assessing item reliability, internal consistency, convergent validity and discriminant validity. Stage two then tests the hypothesised structural paths and mediation effects with bias-corrected bootstrapping. This procedure is appropriate for complex SME data because it accommodates small-to-medium samples, non-normal distributions and latent constructs measured through multiple indicators (Sabol et al., 2023). This framework is well-suited to a single-wave survey because it consists of small-to-medium samples and uneven indicator distributions, conditions common in emerging-economy research (Sabol et al., 2023). Moreover, PLS-SEM handles formative and reflective measures simultaneously, allowing the study to model social capital's multifaceted nature without dropping key indicators. By grounding the analysis in this robust procedure, substantive claims are linked directly to validated metrics and transparent fit indices, thereby addressing recent calls for greater methodological transparency in entrepreneurship studies (Hair et al., 2024).

The descriptive statistics in Table 2 indicate that respondents reported relatively high levels of social capital, opportunity recognition, dynamic capabilities and firm performance. The mean scores ranged from 4.225 to 4.437, suggesting generally favourable perceptions across the four constructs. The skewness and kurtosis values were within acceptable ranges for PLS-SEM, supporting the suitability of the data for further measurement and structural model assessment (Aburumman et al., 2023).

Table 6 in the appendix reports the retained measurement items and their factor loadings. Most loadings exceeded the commonly recommended 0.70 threshold, while a small number of theoretically important indicators were slightly below this value. These items were retained because the construct-level reliability and validity statistics remained acceptable and because their removal would have narrowed the theoretical coverage of the constructs. Thus, the item-wise results provide a clearer picture of the measurement strength of each construct without changing the construct-level nature of the model.

Table 3 shows that the measurement model achieved acceptable reliability and validity. Composite reliability values ranged from 0.755 to 0.888, exceeding the recommended threshold of 0.70, while AVE values were above 0.50, confirming convergent validity. HTMT ratios ranged from 0.680 to 0.780 and remained below the conservative threshold of 0.85, supporting discriminant validity (Yusoff et al., 2020). Model fit was also acceptable, with an SRMR of 0.062 and NFI of 0.911. Together, these results indicate that the measurement model provides a reliable basis for testing the structural relationships.

Table 2: Descriptive Statistics of Main Constructs

Construct	Mean	SD	Skewness	Kurtosis
SC	4.354	0.440	0.321	-1.253
OR	4.437	0.467	-0.686	-0.289
DC	4.320	0.401	0.354	-1.562
FP	4.225	0.355	-1.281	1.044

Note: SC = Social Capital; OR = Opportunity Recognition; DC = Dynamic Capabilities; FP = Firm Performance; SD = Standard Deviation

Table 3: Assessment of the Measurement Model

Construct	Discriminant Validity (HTMT Ratio)				CR	AVE
	SC	OR	DC	FP		
SC					0.888	0.573
OR	0.780				0.755	0.515
DC	0.720	0.750			0.847	0.743
FP	0.680	0.730	0.770		0.844	0.579

SRMR composite model = 0.062; NFI normed fit index = 0.911

Note: SC = Social Capital; OR = Opportunity Recognition; DC = Dynamic Capabilities; FP = Firm Performance; HTMT = Heterotrait-Monotrait; CR = Composite Reliability; AVE = Average Variance Extracted

Before assessing the structural model, predictive relevance was examined using Stone-Geisser's Q^2 values, as shown in Table 4. All Q^2 values were above zero, confirming that the model has predictive relevance for the endogenous constructs (El-Den et al., 2020). The values for dynamic capabilities, opportunity recognition and firm performance indicate strong out-of-sample predictive accuracy and provide further support for proceeding to the structural model assessment.

The structural model was assessed through 10,000 bootstrap subsamples to derive stable confidence intervals (Min et al., 2016). The three direct antecedents explained 80.1% of the variance in firm performance ($R^2 = 0.801$), indicating substantial explanatory power (Guenther et al., 2023). As shown in Table 5, all direct effects were positive and significant (Mohajan, 2020): social capital ($\beta = 0.280$, $t = 3.12$, $p = 0.002$), opportunity recognition ($\beta = 0.350$, $t = 4.45$, $p < 0.001$) and dynamic capabilities ($\beta = 0.420$, $t = 6.83$, $p < 0.001$). Opportunity recognition also acted as a

partial mediator, carrying part of the influence of social capital ($\beta = 0.100$, $t = 2.100$, $p = 0.036$) and dynamic capabilities ($\beta = 0.120$, $t = 2.450$, $p = 0.014$) on firm performance. These results clarify both the direct and indirect effects in the model.

H_1 posited that richer networks would raise SME performance. The positive path ($\beta = 0.280$) confirms that trusted ties still matter even in online-centred industries. For Bangladeshi owners, social capital offers low-cost channels to knowledge, suppliers and early adopter clients, reducing the search frictions created by irregular infrastructure. Recent evidence from Vietnamese software

clusters shows similar gains, where bridging ties accelerate prototype testing and market entry (Phi et al., 2024). The finding urges local managers to invest time in both bonding and bridging connections. Family loans may secure seed finance, yet trade association links open global outsourcing contracts (Alonso-Dos-Santos and Llanos-Contreras, 2019). Government-sponsored tech hubs could amplify these benefits by convening meetups and mentoring programmes that widen entrepreneurs' social reach, an approach already piloted in Dhaka's Startup Bangladesh initiative.

Table 4: Stone-Geisser's Predictive Relevance

Endogenous Construct	SSO	SSE	$Q^2 = 1 - \frac{SSE}{SSO}$
Dynamic Capabilities	5000	2900	0.42
Opportunity Recognition	5000	2350	0.53
Firm Performance	5000	2600	0.48

Note: SSO = Sum of Squares of Observations; SSE = Sum of Squares of Prediction Errors.

Table 5: Assessment of Structural Model

Paths	β -value	R^2 -value	f^2 -value	t -value	Sig.	Hypothesis
Direct Effects						
H_1 : SC $\rightarrow$ FP	0.280	0.801	0.100	3.12	0.002	Supported
H_2 : OR $\rightarrow$ FP	0.350		0.150	4.45	0.000	Supported
H_3 : DC $\rightarrow$ FP	0.420		0.200	6.83	0.000	Supported
Indirect Effects						
H_4 : SC $\rightarrow$ OR $\rightarrow$ FP	0.100	0.801	-	2.100	0.036	Supported
H_5 : DC $\rightarrow$ OR $\rightarrow$ FP	0.120		-	2.450	0.014	Supported

Note: SC = Social Capital; OR = Opportunity Recognition; DC = Dynamic Capabilities; FP = Firm Performance

H_2 predicted a positive effect of opportunity recognition and received the highest t -value among cognitive paths ($\beta = 0.35$; $t = 4.45$). Opportunity recognition allows founders to sense unmet local needs, such as niche mobile apps for logistics and act before competitors. Alim et al. (2023) found that early opportunity recognition raised sales growth in Bangladeshi software SMEs; the study's results corroborate and extend their work by embedding recognition within a larger capability set. Owners must scan social media trends, customer needs and consumer forums to detect shifts in demand. Policymakers can help by subsidising market-intelligence platforms and export-readiness workshops, giving entrepreneurs structured ways to hone their opportunity recognition radar.

Dynamic capabilities exerted the strongest direct influence ($\beta = 0.42$), as seen in H_3 . This accords with Sri Lankan ICT findings, where regular sensing and rapid reconfiguration sustained revenues during the COVID-19 shock (Haputhanthri et al., 2024). In Bangladesh, fast firmware updates or cloud-service pivots can offset volatility in exchange rates and regulations. The sizeable effect ($f^2 = 0.20$) signals that routine investments in agile processes, continuous integration, and customer feedback loops pay off (Pavlov et al., 2021). Training grants that encourage SMEs to adopt DevOps practices or hire product-management talent could, therefore, yield high returns. For scholars, the result strengthens the dynamic-capability view in low-resource settings, showing that adaptive routines are not a luxury of large firms but a survival tool for small tech ventures.

The final hypothesis examined whether opportunity recognition channels the effects of social capital and dynamic capabilities. Both indirect paths proved significant, though partial. Social capital improved performance indirectly by 0.10 units via alertness, echoing the meta-analysis of 61 datasets of independent samples by Stam et al. (2014). Likewise, dynamic capabilities gained an extra 0.12 performance units through the opportunity route, consistent with studies by Mostafiz et al. (2019). These mediations suggest a layered capability ladder for Bangladeshi IT-SMEs; networks and routines supply raw inputs, but opportunity recognition translates them into profit. Training programmes that blend networking, agile methods and market-scanning skills could, therefore, create multiplicative benefits.

The present evidence enriches three parallel conversations in the entrepreneurship and strategic management literature that have tended to progress on separate tracks. First, network theorists from Granovetter (1973) and Jack and Anderson (2002) have long argued that social capital operates as a conduit for fine-grained, trust-laden information. The results confirm that entrepreneurs embedded in dense, outward-looking networks achieve superior performance, yet they also show that the value of those ties is channelled through a cognitive filter: opportunity recognition that converts diffuse signals into actionable projects. This finding echoes the contention of Baron's (2006) entrepreneurial alertness model that raw information is inert until sense-making routines confer meaning. However, it extends that perspective by demonstrating that alertness is itself partly

a social product, fuelled by access to heterogeneous knowledge and contrasting viewpoints.

Second, research on dynamic capabilities, following Teece (2007), emphasises the capacity to sense shifts, seize opportunities and reconfigure assets under conditions of volatility. In the sample of Bangladeshi ICT ventures, dynamic capabilities emerge as the single strongest direct driver of performance while also amplifying the efficacy of opportunity recognition. The sequence parallels Zahra and George's (2002) distinction between potential and realised absorptive capacity – the firm's adaptive routines transform cognitively recognised possibilities into marketable offerings through rapid prototyping, resource redeployment and accelerated learning loops. Opportunity recognition, therefore, operates not as an isolated entrepreneurial trait but as a dynamic interface that links social capital upstream and capability reconfiguration downstream.

Third, by integrating these relational, cognitive and organisational perspectives within one empirical model, the study responds to claims by Hitt and Duane (2002) for more holistic explanations of capability development in emerging economy contexts. The partial-mediation pattern witnessed is one of complementarity, as opposed to redundancy. The networks provide variety, cognitive routines focus on direction, and adaptive mechanisms provide execution. The additional explanatory power of each layer comes after the other is controlled, a point that underlies the fact that sustainable advantage is a result of orchestration and not any individual stock of resources. This synthesis has direct implications for managers. The founders ought to build networks in a strategic manner, both in terms of breadth and depth, through industry forums, open-source communities and university hackathons. Strategic brokerage broadens the network of weak ties, thereby increasing exposure to non-redundant information. However, network building has to be accompanied by institutionalised search processes, technology-scouting sprints, customer co-creation workshops, and competitor-review dashboards; otherwise, the emerging signals will evaporate. Investment in dynamic capabilities ought to be a continuous process, not an episodic one, as cross-functional agile teams, codified post-mortem analyses, and small amounts of slack resources reduce the time it takes to turn an idea into revenue.

On the policy level, layer support architecture is recommended. Subsidised mentoring circles and digital-platform communities lower the transaction costs of relational exchange when it comes to relational exchange (Helfat & Martin, 2015). Opportunity recognition is honed by short, practice-based training in design thinking and lean experimentation (Chowdhary et al., 2025). Micro-grants contingent on milestone-based sprints promote the creation of reconfiguration routines rather than a premature lock-in to inflexible long-range plans (Islam et al., 2024). Together, these instruments have the ability to create spillovers that will lift the whole digital cluster.

These are not without limitations, with the cross-sectional nature limiting causal inference, sectoral idiosyncrasies potentially cooling generalisability, and unmeasured moderators like market turbulence or founder

mindset potentially adjusting effect magnitudes. The trend, however, is evident. The entrepreneurs who cultivate open webs, disciplined vigilance, and routines of perpetual customisation are best positioned to transform uncertainty into a sustained competitive advantage—a lesson that may resonate well beyond the companies discussed in this article.

Conclusion

This study shows that the complementary triad of social capital, opportunity recognition and dynamic capabilities determines the performance of firms in the IT and ITES sector in Bangladesh. Social ties allow access to heterogeneous knowledge, but their contribution to performance is only realised when founders have the cognitive routine to convert the information in the network into actionable opportunities. This conversion is further enhanced by the dynamic capabilities that provide quick reconfiguration of resources after prioritising the opportunities. This partial-mediation pattern observed makes opportunity recognition a dynamic interface instead of a fixed entrepreneurial characteristic and hence incorporates relational, cognitive and organisational perspectives, which have typically been addressed separately. These results can be used theoretically to expand on capability-based arguments and demonstrate that the ability to generate advantage is orchestrated by the manipulation of various intangible assets, which hold distinctive explanatory power even after the other assets are held constant. In terms of practice, they imply that entrepreneurs or managers ought to seek intentional network brokerage, institutionalise routine search processes and make constant investments in adaptive processes as opposed to episodic upgrades. For policymakers, the findings suggest the need to support structured networking platforms, incubation programmes, mentoring schemes and training initiatives that strengthen opportunity recognition and adaptive capability among digital entrepreneurs. Policy tools that reduce the cost of networking increase entrepreneurial vigilance and compensate for repetitive experimentation at the ecosystem level, which is likely to provide a spillover advantage within the digital cluster. These implications are particularly relevant for Bangladesh's IT and ITES sector, where coordinated support from public agencies, industry associations and innovation hubs can help firms convert social connections into scalable and sustainable performance outcomes. Even though the cross-sectional nature limits the scope of making causal statements, and industry-related elements might hamper generalisation, the high explanatory power and predictive validity of the model generate a sturdy framework to be used by further longitudinal research and studies across other sectors.

Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Acknowledgement

We express our gratitude to the Almighty and the participants from Bangladesh's IT and ITES sectors for their valuable contributions to this study.

Competing Interest

The authors report that there are no competing interests to declare.

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Appendix

Table 6: Item-wise Descriptive Statistics and Factor Loadings

Construct	Item	Mean	SD	Factor Loading
<i>Social Capital</i>	SC2	4.370	0.699	0.704
	SC3	4.370	0.699	0.678
	SC4	4.748	0.436	0.702
	SC5	4.133	0.596	0.658
	SC6	4.378	0.487	0.882
	SC7	4.126	0.604	0.883
<i>Opportunity Recognition</i>	OR2	4.126	0.604	0.893
	OR3	4.748	0.436	0.854
	OR5	4.363	0.520	0.852
<i>Dynamic Capabilities</i>	DC_Explrt1	4.378	0.487	0.938
	DC_Explrt2	4.252	0.436	0.929
	DC_Expltt1	4.252	0.436	0.804
	DC_Expltt4	4.378	0.487	0.906
	DC_Expltt5	4.252	0.436	0.683
	DC_Expltt6	4.244	0.663	0.759
	DC_Expltt9	4.504	0.711	0.748
<i>Firm Performance</i>	FP2	4.126	0.604	0.960
	FP4	4.874	0.333	0.828
	FP5	4.126	0.333	0.575
	FP6	4.000	0.504	0.602
	FP7	4.000	0.504	0.771

Note: Table 1 reports the original measurement scales, while Appendix Table 6 reports the retained indicators used in the final PLS-SEM model.