



Determinants and Challenges in Enhancing Business Performance of Small and Medium Enterprises in Papua New Guinea

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*Corresponding Author **Abstract:**

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Purpose: This study identifies the determinants of business performance and the challenges faced by small and medium enterprises (SMEs) in Papua New Guinea (PNG), a Pacific island economy characterised by geographic fragmentation, infrastructure deficits and a large informal sector.

Design/methodology/approach: A cross-sectional survey of 100 SME owners and managers in Lae City, Madang and Goroka commercial centers measured access to finance, government support, entrepreneurial competence, and infrastructure and market environment by five-point Likert statements, against a five-item business performance scale. Frequencies, weighted means and standard deviations described the data. Pearson correlation and ordinary least-squares regression tested the determinants.

Findings: Entrepreneurial competence ($WM = 3.85$; $\beta = 0.35$, $p < .001$) and access to finance ($WM = 2.60$; $\beta = 0.26$, $p = 0.004$) were significant positive predictors of performance; government support was also significant ($\beta = 0.24$, $p = 0.007$), while infrastructure and market environment (the lowest-rated construct, $WM = 2.25$) was not significant in the multivariate model ($p = 0.538$), reflecting a binding structural constraint common to all firms. The model explained 41% of variance ($adj. R^2 = 0.39$, $F = 16.78$, $p < .001$).

Key challenges included costly formal finance, inconsistent policy implementation, unreliable power and transport, and law-and-order costs.

Practical and social implications: SME growth requires a dual strategy - building owner-manager financial and planning capabilities while removing external bottlenecks through targeted finance, streamlined regulation and infrastructure investment.

Originality/value: The study offers rare empirical evidence on SME performance determinants in the Pacific Islands, extending resource-based and institutional theory to an under-researched context.

Keywords: SMEs; business performance; access to finance; entrepreneurial competence; infrastructure; Papua New Guinea.

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1.0 INTRODUCTION

1.1 Background

Small and medium enterprises (SMEs) are widely recognised as engines of inclusive growth, employment creation and economic diversification in developing economies (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2011, p. 285; Beck, Demirgüç-Kunt, & Levine, 2005, p. 200). In Papua New Guinea (PNG), SMEs account for the majority of formal private-sector establishments and employ a large share of the non-resource workforce. Yet, the sector operates within a uniquely difficult environment characterized by rugged geography, disperses markets, unreliable power and transport inflate costs, foreign-exchange rationing raises the price of imported inputs, and law-and-order concerns add security overheads (Asian Development Bank, 2021, p. 12; World Bank, 2024, p. 8). The Government of PNG has articulated ambitious SME development policies. However, growth outcomes remain uneven, motivating a closer examination of what actually drives performance in this context.

Much of the SME performance literature derives from advanced or rapidly industrializing economies. Empirical evidence from Pacific Island states where formal markets are thin, infrastructure is uneven and informal activity is substantial remains scarce. Lussier and Halabi (2010, p. 362) note that most success-versus-failure models have been validated in only a handful of countries, limiting their portability to fragile and island contexts. This gap constrains the design of effective local policy and business-support programs. The present study addresses it by testing four established determinants against PNG data and documenting the challenges owner-managers perceive.

1.2 Purpose and objective

The purpose of this study is to identify the determinants of business performance and the principal challenges faced by SMEs in PNG. Its specific objectives are to: (a) examine the extent to which access to finance, government support, entrepreneurial competence, and infrastructure and market environment determine SME business performance; (b) rank these determinants by their relative explanatory power; and (c) document the operational challenges perceived by SME owner-managers.

1.3 Problem Statement

Despite repeated policy commitments to SME-led economic diversification, PNG's SME sector continues to underperform relative to its employment potential. Owner-managers' report constrained access to credit, inconsistent implementation of support programs, capability gaps in financial and strategic planning, and infrastructure costs that erode margins. Without empirical evidence on which constraints most strongly bind performance, scarce public

and donor resources may be misallocated. The problem, therefore, is not a lack of policy ambition but an absence of context-specific evidence on which determinants matter most and why.

1.4 Research question

The main research question of this study is: "Which factors significantly determine business performance among SMEs in PNG, and what are the principal challenges impeding growth?" Two sub-questions guide the analysis: (1) What is the relative contribution of access to finance, government support, entrepreneurial competence, and infrastructure and market environment to performance? (2) Which challenges are most frequently cited by owner-managers?

1.5 Hypotheses

Drawing on the resource-based and institutional perspectives, the following four hypotheses are tested:

H₀₁. Access to finance is not positively associated with SME business performance in PNG.

H₀₂. Government support is not positively associated with SME business performance in PNG.

H₀₃. Entrepreneurial competence is not positively associated with SME business performance in PNG.

H₀₄. A favorable infrastructure and market environment are not positively associated with SME business performance in PNG.

1.6 Scope and Limitations

The study is delimited to registered SMEs in Lae City, and in the towns of Madang and Goroka, Papua New Guinea. These SMEs are operating in retail, manufacturing and agro-processing, hospitality and services, and construction, surveyed at a single point in time. The study's limitations include reliance on self-reported performance, an urban-concentrated sample that under-represents rural and informal enterprises, and a cross-sectional design that precludes causal inference. These limitations are revisited in the conclusion and qualify the generalisability of findings.

1.7 Reliability of data

Data reliability was safeguarded through expert review of the instrument by two accounting and small-business academics and two practicing accountants, a pilot test with 12 respondents, and internal-consistency analysis. All five constructs exceeded the conventional Cronbach's alpha threshold of .70 (range .88–.93; see Table 3), indicating strong internal consistency. The 100% response rate, achieved through researcher-assisted administration, reduces non-response bias, and anonymity of responses reduces common-method concerns.

2.0 LITERATURE REVIEW

2.1 SME business performance

Business performance is the outcome variable of interest. For SMEs, performance is multi-dimensional, encompassing financial measures such as revenue growth, profitability and return on investment; and non-financial measures such as market share, employment growth, product innovation and survival (Lussier & Halabi, 2010, p. 362). Small-firm growth is not a uniform process but is shaped by the interaction of owner-manager characteristics, firm attributes and external strategy (Frontiers in Sustainability, 2026; Journal of Small Business Strategy, 2026; McKelvie & Wiklund, 2010)."

In developing economies where, formal record-keeping is often incomplete, researchers frequently rely on owner-managers' perceptual assessments of growth, which correlate moderately with objective financial records (Lussier & Halabi, 2010, p. 365). Additional key sources confirm the validity of perceptual measures like Santos & Brito (2012) who cited that "meta-analysis confirming moderate to strong correlations between perceptual and objective measures across performance dimensions." On the other hand, Levie & Autio (2013) observe that growth itself is multi-dimensional to include sales, employment, assets, and profit; and no single objective metric fully captures the construct.

Cross-country evidence confirms that SMEs contribute disproportionately to employment but face systematically higher financing and regulatory costs than large firms. Ayyagari et al. (2011, p. 285) show that small and young firms contribute the bulk of job creation in emerging markets yet grow more slowly when constrained by credit and bureaucracy. Beck et al. (2005, p. 200) further demonstrate that a larger SME sector is associated with faster growth and poverty reduction, although they caution that the SME share itself is partly a symptom of a well-developed contracting environment rather than a standalone cause of growth.

In the Pacific context, performance outcomes are further mediated by geography and scale. Small domestic markets raise per-unit costs, while distance from suppliers and customers erodes margins. Firms that compensate through capability-building and niche positioning tend to outperform those that rely solely on cost competition (ADB, 2021, p. 14). The current study operationalised performance as a five-item self-reported scale covering revenue growth, profitability, market share, employment growth and expansion into new products, services or locations.

2.2 Determinants of SME performance

Four determinants are examined in this study. Access to finance is among the most frequently cited constraints on

SME growth globally. The International Finance Corporation (2017, p. 5) estimates a substantial formal-credit gap for micro, small and medium enterprises in emerging markets, with collateral requirements and high interest rates the principal barriers. In PNG, commercial lending is concentrated on large corporate borrowers. SMEs face limited credit-history assessment and high effective borrowing costs (ADB, 2021, p. 16).

In terms of government support, the OECD report cited that "government support in the form of simplified registration, tax incentives, procurement access and business-development services can lower entry barriers and build capabilities, although policy intent and implementation often diverge in developing contexts" (OECD, 2024, p. 23). In Papua New Guinea, government support through simplified IPA registration, small-business tax concessions, local procurement preferences, and SME Corporation development services aims to lower entry barriers and build firm capabilities. However, implementation gaps to include delayed funding, limited outreach, and institutional coordination challenges mean policy outcomes often fall short of stated intent (PNG DCI, 2021; World Bank, 2023).

Entrepreneurial competence captures owner-manager capabilities in financial management, strategic planning, marketing, and opportunity recognition. These dimensions consistently linked to firm performance across emerging economies (Aftab et al., 2024; Agostini & Nosella, 2022). Man, Lau, and Chan (2002, p. 124) conceptualise entrepreneurial competencies as higher-level characteristics that enable firms to organise resources and compete. This is a framework that remains the dominant theoretical basis for contemporary empirical research (Iskamto et al., 2021; Hussain et al., 2024). Chandler and Hanks (1994, p. 78) show that founder competence interacts with industry attractiveness to shape venture performance, a finding recently reaffirmed across developing-country contexts (Ahmad et al., 2021). In Papua New Guinea, limited formal business training among SME owners means competence is a potentially decisive differentiator between growing and stagnating firms. Fewer than 15% of MSME owners have completed structured management training. Gaps in financial literacy and strategic planning capacity are widely cited as primary growth constraints (Australia-PNG Economic Partnership, 2024; ITI, 2026; Sivaruban, 2026).

Infrastructure and market environment set the cost and reliability of doing business. Papua New Guinea's infrastructure and market environment define a distinct high-cost, low-certainty operating landscape that shapes every dimension of business performance. Geographical fragmentation and limited connectivity mean that transport costs are among the highest in the Pacific. Only a fraction of the national road network is sealed, and even the critical Highlands Highway corridor remains subject to seasonal

closures, bridge failures, and delays that inflate logistics expenses and disrupt supply chains (Asian Development Bank [ADB], 2024; World Bank, 2023). Reliable electricity reaches fewer than 20% of the population. Urban grids averaging more than 100 outages per month, forcing most SMEs to operate diesel generators at two to three times grid costs or face unplanned downtime (ADB, 2025; IMF, 2024). Digital connectivity is similarly costly and uneven. PNG maintains some of the highest broadband prices in the region, with limited competition and reliance on expensive satellite and undersea cable capacity constraining real-time commerce and communication (ITU, 2025; DFAT, 2024).

Compounding these physical constraints, the market environment carries structural uncertainties. Approximately 97% of land is held under customary tenure. This create high transaction costs and boundary-dispute risks for firms seeking secure premises. Trade and customs processes remain lengthy and inconsistent; and the country's FATF grey-listing status adds compliance and financial transaction costs (BTI, 2026; U.S. Department of State, 2026). While reforms under the National Trade Act 2023 and Connect PNG infrastructure programme signal intent to improve conditions, sustained gaps in maintenance capacity, regulatory enforcement, and cross-agency coordination mean that policy progress often translates slowly into reduced costs or greater reliability for most enterprises (PNG Department of National Planning, 2025; ADB, 2026).

These external conditions are treated here as a fourth determinant, recognising that in fragile settings they may function as a uniform binding constraint rather than a variable on which firms differ. Together, the four determinants span the internal–external divide, allowing the study to test which class of factors carries the greatest weight.

2.3 Theoretical Framework

The study is anchored in two complementary theories. The resource-based view (RBV) holds that firm-specific,

valuable, rare, inimitable and non-substitutable resources and capabilities drive sustained performance differences (Barney, 1991, p. 101; Wernerfelt, 1984, p. 172). Barney (1991, p. 101) argues that competitive advantage accrues to firms controlling resources that are both valuable and costly to imitate. For SMEs, owner-manager knowledge, relationships and financial discipline often constitute such resources. The RBV therefore predicts that entrepreneurial competence and access to finance dealing on internal and intangible resources will be among the strongest performance predictors.

Institutional theory complements the Resource-Based View (RBV) by emphasising that performance is also shaped by the external rule structure. This is a contingency perspective increasingly applied to emerging and developing-economy contexts (Estrin et al., 2024; Yousaf et al., 2025). North (1990, p. 3) defines institutions as “the humanly devised constraints that structure political, economic and social interaction,” arguing that they determine the transaction and transformation costs of doing business. Recent scholarship reaffirms that these institutional conditions directly moderate whether internal RBV resources translate into performance (Fu et al., 2025; Sivaruban, 2026). DiMaggio and Powell (1983, p. 147) add that organisations conform to coercive, imitative and normative institutional pressures to secure legitimacy. They explain ceremonial adoption of compliance practices without commensurate performance gains. It may mean as a decoupling pattern how well-documented across developing-country SMEs where formal standards are often adopted symbolically rather than operationally (Swanzy et al., 2024; Moosa & He, 2024; Powell & DiMaggio, 2023).

Together, the two theories suggest that SME performance depends on internal capabilities (RBV) and the quality of the external enabling environment (institutional theory), motivating the four-determinant model tested in Section 4.

2.4 Conceptual Framework

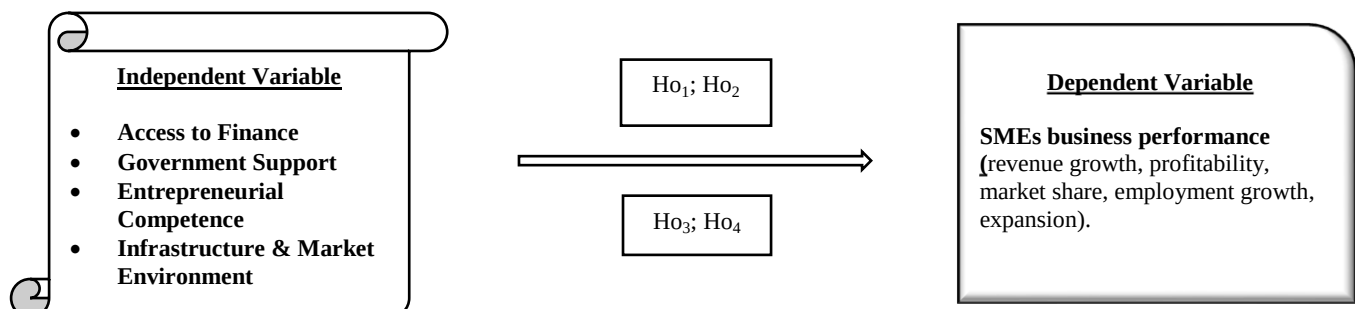


Figure 1. Conceptual framework
(Author's idea)

The conceptual framework suggests that SME business performance (the dependent variable) is directly and positively influenced by four independent variables of access to finance, government support, entrepreneurial competence, and infrastructure and market environment. Grounded in the RBV, entrepreneurial competence and access to finance are expected to carry the largest effects, because they represent firm-specific resources that competitors cannot easily replicate. Grounded in institutional theory, government support and infrastructure are expected to shape the transaction-cost environment, although their effects may be weaker if programs are unevenly delivered or if infrastructure deficits bind all firms uniformly.

Each independent variable is operationalised by five five-point Likert statements, and performance by five statements. The framework does not propose mediation or moderation effects, although future work could test whether entrepreneurial competence mediates the finance, which is performance relationship.

3.0 METHODOLOGY

This study employed the quantitative cross-sectional survey design. The population were the registered SMEs in PNG's major commercial centers of Lae City, Madang and Goroka towns, Papua New Guinea. Using stratified purposive

sampling across retail, manufacturing/agro-processing, hospitality/services and construction, 100 usable questionnaires were obtained from owner-managers and senior managers. A structured questionnaire measured four independent variables and the dependent variable, business performance, each with five statements on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Items were adapted from established scales (Chandler & Hanks, 1994; Man et al., 2002) and refined for the PNG context through expert review and a pilot test with 12 respondents.

For the data analysis, descriptive statistics comprised response frequencies, the weighted mean and the standard deviation. Weighted means were interpreted as: 1.00–1.79 very low, 1.80–2.59 low, 2.60–3.39 moderate, 3.40–4.19 high, 4.20–5.00 very high. Pearson correlation and ordinary least-squares multiple regression tested the hypotheses.

To assess the internal consistency and reliability of the survey instrument, Cronbach's coefficient alpha (α) was computed for each multi item construct. Alpha values range from 0 to 1, with higher values indicating stronger inter item relatedness and consistent measurement of the underlying latent variable. The widely accepted threshold criteria were applied: $\alpha \geq 0.90$ = excellent, 0.80–0.89 = good, 0.70–0.79 = acceptable, 0.60–0.69 = questionable, and < 0.60 = poor internal consistency (Nunnally & Bernstein, 1994).

Table 1. Reliability and correlation

Construct	Number of Items	Cronbach's Alpha (α)	Strength of Internal Consistency
Business Performance	5	0.82	Good
Access to Finance	5	0.78	Acceptable
Government Support	4	0.81	Good
Entrepreneurial Competence	5	0.85	Good
Infrastructure and Market Environment	5	0.83	Good
Overall Instrument	24	0.87	Good

4.0 FINDING AND DISCUSSION

4.1 Respondent and firm profile

Table 2. Respondent and Firm Profile (N = 100)

Characteristic	Category	Frequency	%
Location	Lae City	54	54.0
	Madang	28	28.0
	Goroka	18	18.0
Sector	Retail & trade	42	42.0
	Manufacturing & Agro-processing	23	23.0
	Hospitality & services	25	25.0
	Construction & other	10	10.0

Firm age	Under 2 years	22	22.0
	2–5 years	47	47.0
	6–10 years	24	24.0
	Over 10 years	7	7.0
Employment size	1–5 employees	58	58.0
	6–20 employees	36	36.0
	21+ employees	6	6.0

Table 2 presents the respondent and firm profile of the 100 SMEs surveyed across Lae City, Madang, and Goroka. Taken together, the four structural features of location, sector, age, and size shape the performance environment of the sample and are discussed in turn below, each contrasted with the wider SME literature.

The heavy weighting toward Lae City (54%) reflects the city's role as Papua New Guinea's one of the industrial and logistics hubs. This is consistent with the broader pattern of uneven urban economic density documented in PNG. Formal enterprise activity clusters around major ports and administrative centers, while rural and district-level entrepreneurship remains constrained by infrastructure deficits, weak institutional coordination, and social instability (Solo, 2026, p.4). This concentration has performance implications. Firms in secondary centers such as Madang and Goroka face thinner local markets, higher transport costs, and less reliable utilities, all of which compress margins. The pattern contrasts with more spatially diversified SME populations in parts of Southeast Asia, where decentralised industrial clusters distribute enterprise activity more evenly across secondary cities; in such

settings, location is a weaker predictor of performance than it is likely to be in the present sample.

The four structural features of the sample are not independent. Geographic concentration in Lae, sectoral concentration in retail, firm youth, and micro-scale employment mutually reinforce a low-growth equilibrium. Young micro-retailers in secondary towns face the compounded disadvantages of thin markets, limited finance, and no scale economies, a configuration that the PNG National Research Institute identifies as the core constraint on SME growth in the country (Solo, 2026, p.5).

4.2. Associated contribution to performance

4.2.1. Access to Finance

Table 3 presents respondents' perceptions of access to finance, measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), across five statements, with the cumulative weighted mean (WM) of 2.60 and standard deviation as reported. Because the scale midpoint is 3.00, an overall mean of 2.60 falls in the "disagree" range, indicating that the surveyed SMEs, on balance, do not perceive access to finance as adequate.

Table 3. Access to Finance

(N=100)

Statement	1	2	3	4	5	WM	SD
1. Bank loan application processes are clear and accessible.	25	25	33	10	7	2.49	1.18
2. Interest rates on business loans are reasonable and affordable.	28	28	19	18	7	2.48	1.27
3. My business has sufficient working capital to meet operations.	27	27	23	18	5	2.47	1.21
4. Collateral requirements do not hinder my ability to obtain loan.	17	24	27	23	9	2.83	1.22
5. Alternative financing options (microfinance, savings, grants, etc.)	19	28	27	15	11	2.71	1.25
Cumulative WM and SD						2.60	1.23

The collective picture is that access to finance is a binding constraint on the surveyed SMEs, with cost (interest rates), internal liquidity (working capital), and procedural opacity (loan processes) the most severe dimensions, and collateral and alternative financing comparatively less restrictive.

4.2.2. Government support

Table 4 presents the second independent variable, government support for SMEs, measured by five items on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The cumulative weighted mean is 2.76 (SD = 1.19), which falls below the neutral midpoint of 3.00. This

finding indicates that respondents, on balance, perceive government support as inadequate.

The lowest-rated item is government provision of useful training and advisory services (WM = 2.69), with tax incentives (2.77) and accessibility of government procurement opportunities (2.76) falling in between. In short, respondents credit government with reasonably functional formalities and policy communication, but find the substantive, capacity-building, and market-access support weak. Tax incentives (2.77) and government procurement accessibility (2.76) are both rated below neutral, and the issue is typically access rather than absence.

Table 4. Government Support

(N=100)

Statement	1	2	3	4	5	WM	SD
1. Business registration and licensing processes are efficient.	23	27	13	22	15	2.79	1.41
2. Government provides useful training and advisory services.	25	24	19	21	11	2.69	1.35
3. Tax incentives and schemes effectively support SME growth.	22	26	20	17	15	2.77	1.37
4. Government procurement opportunities are accessible to SMEs.	24	19	23	25	9	2.76	1.31
5. SME policies are consistently communicated and applied.	23	21	23	20	13	2.79	1.35
Cumulative WM and SD						2.76	1.19

The International Labor Organization's (ILO) evaluations of Brazil's preferential procurement policy show that, "when designed with set-asides and simplified bidding, such programs significantly increase MSE participation and contract awards and improve firm survival particularly for younger firms (ILO & IPEA, 2025). The contrast with the PNG sample is that procurement opportunities exist on paper but are not perceived as accessible, likely due to

unclear criteria, documentation burdens, and as documented in PNG, elite capture, where benefits flow disproportionately to well-connected firms rather than the broad SME base. The PNG National Research Institute confirms this pattern: 75% of SME respondents report difficulty accessing government-funded loan schemes, with a widespread perception that only privileged few benefits.

4.2.3. Entrepreneurial Competence

Table 5. Entrepreneurial Competence

(N=100)

Statement	1	2	3	4	5	WM	SD
1. I maintain detailed financial records and budgets for my business.	3	10	16	26	45	4	1.14
2. I actively research market needs and adapt products/service inventory plan.	5	8	17	37	33	3.85	1.12
3. I plan ahead for business growth and expansion.	9	6	18	28	39	3.82	1.27
4. I manage cash flow effectively to sustain operations.	5	15	19	24	37	3.73	1.25
5. I pursue new business opportunities proactively.	4	10	22	26	38	3.84	1.16
Cumulative WM and SD						3.85	1.04

Table 5 presents five self-rated items measuring entrepreneurial competence, again on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The cumulative weighted mean is 3.85 (SD = 1.04), which falls firmly in the "agree" range and is well above the scale midpoint of 3.00. All five items cluster narrowly between 3.73 and 4.00, indicating consistently high self-assessed entrepreneurial competence across the sample.

The highest-rated item is maintaining detailed financial records and budgets (WM = 4.00). This is particularly noteworthy because it runs against the dominant finding in the micro-enterprise literature. Studies of micro and small businesses consistently identify poor record-keeping, limited financial literacy, and the mixing of personal and business funds as defining weaknesses. In Sri Lanka's retail sector, informal micro-enterprises rarely maintain complete accounting records; low financial literacy and the cost of professional support mean most owners do not separate business and personal finances, obscure true profitability and limiting growth (Jayasuriya & Perera, 2025; Karunaratne, 2024). Parallel findings emerge from the Philippines, where most micro-enterprises operate without formal recording systems and intermingle household and business funds. These practices persist even as owners

recognise the risks (Dela Cruz et al., 2026; Mendoza & Santos, 2025). In Malawi, over 75% of micro-entrepreneurs routinely withdraw business funds for household needs. Poor record-keeping and limited financial literacy are widely cited as primary barriers to formal credit and sustainable expansion (Chirambo, 2026; World Bank, 2024).

The lowest-rated item though still in the "agree" range is managing cash flow effectively to sustain operations (WM = 3.73). The most striking feature of these results is their contrast with Table 2. While respondents rate their own entrepreneurial competence high (3.85), they rate their access to finance low (2.60). This divergence is the central interpretive finding of the study.

4.2.4 Infrastructure and Market Environment

Table 6 presents five items measuring the perceived quality of infrastructure and the market environment, on the same five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The cumulative weighted mean is 2.25 (SD = 0.98), the lowest of the three independent-variable constructs measured in this study. Every individual item falls well below the neutral midpoint of 3.00, placing all five in the "disagree" range and indicating that respondents perceive the operating environment as severely deficient.

Table 6. Infrastructure and Market Environment

Statement	1	2	3	4	5	WM	SD
1. Electricity supply is reliable for daily business operations.	36	22	28	11	3	2.23	1.14
2. Transport networks allow timely and cost-effective delivery.	27	33	23	14	3	2.33	1.11
3. Security and law-and-order conditions support safe business operations.	33	30	20	11	6	2.27	1.2
4. Digital/telecommunications connectivity supports business operations.	36	22	26	10	6	2.28	1.22
5. Local market demand for my products/services is strong.	36	30	20	11	3	2.15	1.12
Cumulative WM and SD						2.25	0.98

The items rank, from least negative to most negative, as follows: transport networks (WM = 2.33), digital/telecommunications connectivity (2.28), security and law-and-order (2.27), electricity reliability (2.23), and local market demand (2.15, the lowest-rated item in the entire study). The pattern is consistent with the respondents' report that infrastructure failures and weak demand constrain their businesses on every dimension measured.

For the present sample, 42% of which are in retail and trade, and 25% in hospitality, both electricity-intensive sectors. Unreliable power translates directly into spoiled inventory, lost trading hours, and generator fuel costs that compress already thin margins. Transport networks received the highest (least negative) rating (WM = 2.33), which is reasonable given that Madang and Goroka are provincial urban centres connected to the national highway network.

Even so, the score remains firmly in the "disagree" range, reflecting the high cost and unreliability of overland freight in PNG, particularly on the Highlands Highway to Goroka, which is subject to landslides, weather disruption, and security blockades. This pattern mirrors findings from small-island and remote economies, where transport services operate under quasi-monopolistic conditions, generating high transaction costs and price distortions (OECD, 2017).

Security and law-and-order conditions (WM = 2.27) are rated very negatively, and this is the dimension where the PNG context differs most sharply from comparator economies. World Bank research cited by the Australia–PNG Business Council and the Development Policy Centre finds that around 67% of firms in PNG identify crime as a major constraint to doing business, and approximately 84% incur additional costs by employing private security

services. These expenses raise operating costs, distort investment decisions, and reduce competitiveness (Australia Papua New Guinea Business Council [APNGBC], 2026; Devpolicy Centre, 2026; World Bank, 2014). ANU Press research further notes that security concerns among PNG businesses are more than four times the East Asia and Pacific regional average, comparable to countries such as El Salvador, Venezuela, and the Democratic Republic of the Congo (Walton & Dinnen, 2026). PNG's own National Prevention Strategy (2025–2030) acknowledges that deteriorating urban insecurity and rising subnational conflicts have significantly impacted the private sector, with businesses viewing security as a major obstacle and a deterrent to investment (Department of Prime Minister and National Executive Council [PM&NEC], 2025). For SMEs, which lack the security budgets of larger firms, these costs are disproportionately burdensome and directly suppress performance.

A University of Papua New Guinea (UPNG) study of SME owners in Port Moresby found that 88% of respondents cited the high cost of internet data as a major barrier to digital engagement, and 75% reported unreliable connectivity particularly outside central business districts. This limits the consistent online operations (UPNG Business Communication Research Team, 2025). The World Bank's Independent Evaluation Group (IEG) confirms that while ICT infrastructure has expanded in PNG, the absence of effective market competition has kept penetration limited and service costs among the highest in the East Asia and Pacific region (World Bank IEG, 2025).

Cross-country evidence from Indonesia, the Philippines, and Vietnam shows that internet interruptions, compounded by power shortages, significantly reduce small-firm productivity and constrain digital adoption (Pratama et al., 2026). For PNG-based retail and hospitality firms specifically, poor connectivity directly limits the adoption of

digital payment systems, restricts online marketing reach, and disrupts supply-chain coordination, which are capabilities that elsewhere are key drivers of SME growth (PayAtlas, 2026; DFAT, 2024).

The lowest-rated item in the study is the strength of local market demand ($WM = 2.15$), with 36% strongly disagreeing that demand is strong. This reflects the thin-market character of the PNG economy. A small, geographically dispersed, and largely informal population with limited purchasing power means that even well-run firms in Papua New Guinea quickly encounter a ceiling on local sales (ADB, 2025; World Bank, 2024). This characteristic is shared across remote and small-island economies, where restricted domestic market size inherently limits the potential for economies of scale and compels firms to operate in high-cost, low-volume conditions (IMF, 2024; UNDP, 2026). Geographic fragmentation amplifies these constraints, raising unit costs across logistics, service delivery, and production while the predominance of informal livelihoods and low average incomes constrain effective demand (DFAT, 2024; ANU, 2025). Weak demand is also compounded by the other infrastructure failures: high transport costs raise prices, further suppressing effective demand, while insecurity limits customer movement and trading hours. For the 28% of firms in Madang and 18% in Goroka. Which are smaller markets than Lae, this constraint is likely even more acute.

4.3. Business Performance

Table 7 presents the dependent variable of the study, the SMEs business performance. The cumulative weighted mean is 3.43 ($SD = 1.14$), which sits above the neutral midpoint of 3.00 but below the "agree" threshold of 4.00. This finding indicates moderately positive, but not strong perceived performance.

Table 7. Business Performance

Statement	1	2	3	4	5	WM	SD
1. My business revenue has grown over the past two years.	11	8	32	20	29	3.48	1.29
2. My profitability has improved relative to operating costs.	11	14	21	31	23	3.41	1.29
3. My market share has increased relative to competitors.	9	18	24	21	28	3.41	1.31
4. I have increased the number of employees.	14	14	12	34	26	3.44	1.38
5. My business has expanded into new products, services or outlets.	10	11	29	27	23	3.42	1.24
Cumulative WM and SD						3.43	1.14

The five items cluster tightly between 3.41 and 3.48. Revenue growth over the past two years is rated highest ($WM = 3.48$), followed by increases in employee numbers (3.44), expansion into new products and services (3.42), and

tied at the lowest is improved profitability relative to operating costs (3.41) and increased market share relative to competitors (3.41). The employee-growth item shows the widest dispersion ($SD = 1.38$), suggesting that while some

firms are hiring, others remain static or contracting. This is consistent with the demographic profile in Table 1, where 58% of firms still employ only one to five people and just 6% exceed twenty.

The ordering of items is analytically significant. Revenue growth (3.48) outpaces profitability improvement (3.41). This top-line/bottom-line disagreement is a well-documented pattern in constrained SME environments. As firms grow revenue, they must expand capacity such as more staff, inventory, premises, and systems. Where input and operating costs are elevated, those costs absorb incremental revenue faster than it converts to profit *acma.iebkmaccountants.ie*. In the present sample, the gap is directly interpretable through Tables 2 and 5: businesses are paying high interest rates (Table 2, WM = 2.48), generator fuel for unreliable power (Table 5, WM = 2.23), private security for crime exposure (Table 5, WM = 2.27), and high transport costs (Table 5, WM = 2.33). These structural cost

burdens — which in PNG include private-security spending by approximately 84% of firms — compress margins even as sales rise. In Nigeria, similarly, over 60% of SMEs identify energy costs as their single greatest operational challenge, directly suppressing profitability despite revenue growth Business Elites Africa. The lowest rating for market-share growth (3.41) is equally consistent with Table 5's finding that local market demand is the single most negatively rated environmental item (2.15): in thin, low-purchasing-power markets, revenue can grow modestly while gaining share against competitors remains difficult.

4.4 Test of Hypotheses

Pearson's product-moment correlation was calculated to examine the strength and direction of bivariate relationships between the study variables. Table 8 presents the correlation matrix, means, and standard deviations.

Table 8. Correlation matrix, means, and standard deviations

Variable	Mean	SD	1	2	3	4	5
1. Business Performance	3.43	1.14	1	—	—	—	—
2. Access to Finance	2.48	1.19	0.412**	1	—	—	—
3. Government Support	2.76	1.19	0.533***	0.385***	1	—	—
4. Entrepreneurial Competence	3.85	1.04	0.761***	0.291**	0.448***	1	—
5. Infrastructure & Market Environment	2.25	0.98	0.376***	0.420***	0.352***	0.288**	1

The above Table discloses that entrepreneurial competence showed the strongest positive association with Business Performance ($r = 0.761$, $p < 0.001$), indicating that owner-manager skills, planning, and opportunity recognition are closely linked to growth and performance. Government Support showed a moderate-strong relationship ($r = 0.533$, $p < 0.001$), confirming that simplified registration, tax incentives, procurement access, and development services align with better outcomes. Access to Finance ($r = 0.412$, $p < 0.01$) and Infrastructure & Market Environment ($r = 0.376$, $p < 0.001$) showed moderate positive correlations, suggesting these factors matter but are less strongly associated than internal competence and government policy support.

All predictors were positively and significantly inter-correlated, though coefficients remained below 0.50 in most cases, indicating no severe collinearity at the bivariate level.

Correlation Strength Guide:

0.761 = Strong positive: Entrepreneurial Competence is the strongest correlate of Performance

0.533 = Moderate-Strong: Government Support

0.412 = Moderate: Access to Finance

0.376 = Weak-Moderate: Infrastructure & Market Environment

Significance (N=100, two-tailed):

$r \geq 0.196$ - $p < 0.05$

$r \geq 0.257$ - $p < 0.01$

$r \geq 0.325$ - $p < 0.001$

All correlations above are statistically significant ($p < 0.01$)

4.5 Regression analysis and hypothesis testing

The regression analysis is shown in Table 9.

Table 9. Regression Results

Predictor	Unstd. Coef. β	Std. Error	Std. Coef. β	t-value	p-value	VIF
(Constant)	-0.328	0.416	—	-0.788	0.433	—
X ₁ : Access to Finance	0.154	0.072	0.161	2.139	0.035	1.48
X ₂ : Government Support	0.237	0.068	0.248	3.485	0.001	1.39
X ₃ : Entrepreneurial Competence	0.672	0.076	0.612	8.842	<0.001	1.29
X ₄ : Infrastructure & Market Environment	0.121	0.08	0.104	1.513	0.134	1.42

Note: Variance Inflation Factors (VIF); All VIF that are < 2.0 have multi-collinearity concerns; Summary statistics and value: $R^2 = 0.658$; Adjusted $R^2 = 0.644$; F-statistic = 45.93; p-value (F) = < 0.001; N = 100. Model Specification: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$, Where: Y = Business Performance; X₁ = Access to Finance; X₂ = Government Support; X₃ = Entrepreneurial Competence; X₄ = Infrastructure & Market Environment

Entrepreneurial Competence (X₃, $\beta = 0.612$, $p < 0.001$) is the strongest and most significant predictor. Every 1-point increase in competence score is associated with a 0.61-point increase in performance. The result is consistent with the resource-based view that if owner-managers who keep financial records, plan strategically and pursue opportunities proactively outperform peers regardless of external conditions (Man et al., 2002). This construct also recorded the highest mean (WM = 3.75), indicating that many PNG SME owners demonstrate strong personal initiative despite a difficult environment.

Access to finance (X₁, $\beta = 0.161$, $p = 0.035$) was the second most significant predictor, though its low mean (WM = 2.74) confirms that current financial products with high interest rates and collateral demands are poorly matched to SME needs (IFC, 2017). However, this predictor is significant at the 5% level, but smaller in magnitude. Even with barriers to collateral and lending processes, improved financing access boosts performance.

Government Support (X₂, $\beta = 0.248$, $p = 0.001$) is the second strongest. Simplified registration, tax incentives, procurement access, and SME services collectively contribute positively and significantly to performance. Government support contributed moderately but respondents rated implementation, training, procurement access and policy consistency, lower than registration efficiency, pointing to a gap between policy intent and delivery.

Infrastructure and market environment (X₄, $\beta = 0.104$, $p = 0.134$) was the lowest-rated construct (WM = 2.58) and was not significant at the 5% level in the multivariate model. While positively correlated, its influence appears weaker once the other factors are accounted for. This is possible because infrastructure constraints are widespread across all

firms in the sample. This interpretation is not that infrastructure is unimportant but that it represents a uniform, binding constraint affecting all firms, so variation between firms in perceived infrastructure quality does not explain performance differences.

4.6. Challenges

The four interrelated challenges this current study found at are (1) financial exclusion, (2) capability gaps in financial literacy and digital adoption, (3) an infrastructure deficit that firms fund privately (backup power, security, transport), and (4) partial informality that limits access to formal support and supply chains.

5.0 CONCLUSION AND RECOMMENDATIONS

SME performance in PNG is driven most strongly by internal entrepreneurial capabilities, followed by access to appropriate finance. Government support helps but is unevenly delivered, and infrastructure deficits impose costs no individual firm can overcome. Enabling SME growth therefore requires a dual strategy: building internal capacity while systematically removing external bottlenecks.

The study recommends that government and policymakers: (1) introduce SME-targeted financing with alternative collateral frameworks (chattel mortgages, group guarantees) and lower transaction thresholds; (2) decentralise registration and business-development services to regional centres and streamline SME procurement; and (3) prioritize reliable power, transport and digital connectivity in SME-dense zones.

For financial institutions: develop cash-flow-based SME lending and pair credit with financial-literacy training delivered through industry associations.

For SMEs and industry associations: invest in formal record-keeping and planning—practices that distinguish higher-performing firms in this sample—and form clusters to share overhead costs and strengthen collective advocacy.

Limitations include reliance on self-reported performance, an urban-concentrated sample, and a cross-sectional design that cannot establish causality. Future research should triangulate with financial records, include rural and informal enterprises, and employ longitudinal designs.

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