TECHNOLOGICAL INCUBATION SERVICES AND THE GROWTH TRAJECTORIES OF START-UPS IN MINNA METROPOLIS

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Abstract

In an ideal entrepreneurial ecosystem, start-ups thrive on structured mentorship, modern infrastructure and tailored business support services, leading to sustained growth and competitiveness. However, in Minna metropolis, the start-up landscape is constrained by weak institutional support, infrastructural deficits and inadequate incubation services, resulting in high mortality rates and stunted growth trajectories. This study, therefore, examined the effect of technological incubation services on the growth of start-ups in Minna metropolis. Anchored on the Resource-Based View (RBV), the study employed a quantitative survey design. The population comprised 210 registered start-ups within incubation centres in Minna, with a sample size of 138 determined using Yamane's formula. Stratified random sampling was adopted to ensure representation across sectors. Data were collected using a validated and reliable structured questionnaire, with Cronbach's alpha coefficients of 0.78 value exceeding the acceptable threshold of 0.7. Descriptive statistics profiled responses, while Pearson correlation and multiple regression analyses tested hypothesised relationships at 0.05 significance level. Results revealed that technological incubation services significantly influence growth trajectories of start-ups, with business support services emerging as the most impactful predictor, followed by mentorship and networking, while infrastructural facilities contributed positively but modestly. The findings affirmed the RBV theory, highlighting incubation services as strategic resources that mitigate start-up vulnerabilities and enhance survival, revenue growth, job creation, access to finance and market expansion. The study concludes that incubation services are indispensable to accelerating entrepreneurial success in resource-constrained environments like Minna. It recommends that incubation managers institutionalize structured mentorship, policymakers intensify capacity-building initiatives, industry associations strengthen networking platforms, governments improve incubation infrastructure and financial institutions scale tailored business support to collectively drive sustainable start-up growth.

Keywords: Acceleration, Business support services, Growth trajectories, Mentorship, Start-ups, Technological incubation.

Introduction

Globally, start-ups are increasingly recognized as engines of innovation, competitiveness and employment generation. Yet, their mortality rate is alarmingly high, with nearly 80% failing within their first three years due to constraints such as limited finance, poor managerial capacity, and inadequate access to markets (OECD, 2019). To mitigate these risks, technological incubation services have emerged as vital interventions, offering structured support to nurture early-stage ventures. Evidence suggests that incubated firms record survival rates above 80%, compared to far lower averages among non-incubated firms (NBIA, 2018).

Nigeria presents a microcosm of this global dynamic. The country hosts over 3,300 active start-ups, with about 480 in the technology sector, generating nearly 20,000 jobs and positioning Nigeria as a leading hub for African entrepreneurship. Between 2015 and 2022, Nigerian start-ups attracted more than US$2 billion in investment, yet more than half still fail to scale beyond infancy (World Bank, 2023). Empirical evidence shows that incubation contributes over 60% to human capital development and about 74% to productivity growth among supported firms (World Bank, 2023).

Specifically, services such as mentorship and capacity building enhance managerial competence and entrepreneurial skills; networking opens access to investors and markets; infrastructural facilities reduce operational costs; and business support services provide strategic guidance for navigating complex business environments. Together, these services are intended to influence the growth trajectories of start-ups, reflected in survival, revenue growth, employment generation, market expansion, and access to funding.

Within Nigeria, research has largely concentrated on metropolitan hubs like Lagos and Abuja, while smaller but emerging ecosystems such as Minna metropolis remain understudied. Minna hosts government-backed technology incubation centres, university innovation hubs, and private accelerators, all designed to provide the incubation services highlighted above. However, anecdotal evidence suggests that despite their presence, many start-ups in Minna still grapple with sustainability challenges, limited scalability and premature closure. The extent to which technological incubation services directly shape the growth trajectories of start-ups in Minna remains an open empirical question. This leads to the fundamental inquiry: are technological incubation services in Minna through mentorship, capacity building, networking, infrastructural facilities and business support truly driving the growth trajectories of start-ups, or are they failing to deliver on their intended promise?

Aim and objectives of the study

The study aims to test the effect of technological incubation services on growth trajectories of start-ups in Minna metropolis with the following specific objectives

1. To examine the effect of mentorship services on the growth trajectories of start-ups in Minna metropolis.
2. To evaluate the influence of capacity building programmes on the growth trajectories of start-ups in Minna metropolis.
3. To determine the effect of networking opportunities provided by incubators on the growth trajectories of start-ups in Minna metropolis.
4. To assess the impact of infrastructural facilities offered through incubation on the growth trajectories of start-ups in Minna metropolis.
5. To investigate the effect of business support services on the growth trajectories of start-ups in Minna metropolis.

Literature review

Conceptual Review on Technological Incubation Centres

Technological incubation centres have emerged as vital institutional mechanisms for supporting entrepreneurship and innovation in both developed and developing economies. They are structured environments designed to nurture nascent enterprises by providing a mix of resources, services and networks that enhance start-up survival and growth. Unlike traditional business support agencies, technological incubation centres emphasize knowledge-intensive and innovation-driven ventures, serving as bridges between research institutions, industry, and markets (Bergek & Norrman, 2008).

The rationale for establishing incubation centres is grounded in the high mortality rates of start-ups. Globally, it is estimated that nearly 80% of new ventures fail within the first three years, primarily due to inadequate capital, poor managerial skills and lack of market access. Incubators address these challenges by offering bundled services such as mentorship, training, infrastructure, business advisory, and access to investors (Smilor, 1987). Empirical evidence shows that incubated firms often enjoy survival rates above 80%, significantly outperforming their non-incubated counterparts (NBIA, 2018).

In developing countries, technological incubation centres play an even more critical role, as they are not only tasked with reducing start-up mortality but also with addressing structural deficits such as unreliable infrastructure, weak entrepreneurial ecosystems, and limited innovation capacity (Adegbite, 2001). In Nigeria, the establishment of incubation centres under the National Board for Technology Incubation (NBTI) reflects a policy-driven approach to promote indigenous technology development and enterprise creation. These centres are expected to catalyze job creation, enhance competitiveness and reduce dependency on imports by fostering local innovation (Ogundele *et al.*, 2012).

Conceptually, technological incubation centres can be understood through the lens of the innovation systems approach, which highlights the importance of linkages between knowledge institutions, entrepreneurs and policy frameworks. By situating start-ups within a supportive ecosystem, incubation centres help overcome the "liability of newness" by reducing resource constraints and increasing the legitimacy of young ventures (Hackett & Dilts, 2004). They function as both resource providers (offering physical and financial support) **and** network facilitators (linking entrepreneurs with stakeholders such as investors, universities, and regulatory bodies).

Furthermore, technological incubation centres are not monolithic; their effectiveness depends on the quality and scope of services provided. Core dimensions such as mentorship, capacity building, networking, infrastructural facilities and business support services determine the extent to which incubated firms can achieve sustainable growth. These services collectively address the key bottlenecks of entrepreneurship skills gaps, knowledge transfer, market access, infrastructural barriers and institutional complexities.

Mentorship

Mentorship is a developmental relationship in which an experienced professional guides a less experienced entrepreneur to improve decision-making, strategic thinking and venture performance (Abereijo, 2009). In incubation centres, mentorship links start-ups with industry experts who provide practical insights on business planning, market entry and growth execution. It reduces the liability of newness by offering tacit knowledge and real-world judgment that formal training cannot deliver.

Research shows that mentored start-ups record higher survival and growth rates than non-mentored ventures (St-Jean & Audet, 2012). Mentorship also strengthens entrepreneurial confidence and resilience through psychological support (Cull, 2006). In Nigeria, incubation-based mentorship has improved market responsiveness, networking and managerial capability among emerging firms (Abereijo, 2009). The study agree that mentorship is a strategic component of incubation, enhancing human and social capital and increasing the likelihood of start-up sustainability.

Capacity Building

Capacity building refers to a systematic process of developing the knowledge, skills and competencies that entrepreneurs require to effectively create, manage and scale their ventures (Bergek & Norrman, 2008). Within incubation environments, capacity building involves structured training, targeted workshops, mentoring sessions and knowledge transfer programmes designed to strengthen managerial

capability, financial literacy, innovation competence and strategic decision-making. It equips entrepreneurs with the practical competencies needed to analyse markets, manage resources, attract investment, and respond to competitive pressures. By enhancing these core skills, capacity building reduces operational errors, improves opportunity recognition, and enables start-ups to adapt to changing business environments.

Empirical studies confirm that structured capacity-building programmes significantly improve the performance and survival of incubated firms by strengthening managerial and innovation capabilities (Bergek & Norrman, 2008). In African economies, such initiatives are particularly critical, as they help to close gaps in entrepreneurial education and improve the competitiveness of emerging ventures in volatile markets (Adegbite, 2001). Evidence further shows that incubation-led capacity building accelerates human capital development, which is fundamental to sustainable enterprise growth and long-term competitiveness (Aernoudt, 2004). Additionally, the study argued that in developing contexts such as Minna, capacity building is a strategic pillar of incubation because it directly upgrades human capital, enhances strategic preparedness and improves the growth trajectory of start-ups operating in uncertain and resource-constrained environments.

Networking

Networking refers to the deliberate creation and use of social and professional relationships that enable entrepreneurs to access resources, market information, partnerships and growth opportunities (Huggins & Johnston, 2010). Within incubation systems, networking is a catalytic support service that connects start-ups with key external stakeholders, including investors, suppliers, policymakers, technical experts and potential customers. By facilitating these linkages, incubators enhance entrepreneurs' visibility, legitimacy and ability to mobilize the resources required for venture scaling. Effective networking increases access to finance, promotes trust-based collaborations and opens pathways to strategic alliances that would otherwise be out of reach for early-stage firms. Research shows that strong network ties significantly improve entrepreneurs' access to opportunities and institutional support (Huggins & Johnston, 2010). Incubators strengthen these ties by providing structured platforms such as pitch sessions, trade fairs, cluster collaboration and industry networking events, all of which broaden the social and professional capital of start-ups (Hansen *et al.*, 2000). In Nigeria where fragmented entrepreneurial ecosystems, information asymmetry and weak market linkages often constrain business growth, networking support from incubators plays a decisive role in helping start-ups break out of isolation and connect to wider value chains (Ogundele *et al.*, 2012).

The study contend that in emerging innovation environments like Minna, networking is a strategic lever for incubated start-ups because it compensates for ecosystem limitations, enhances legitimacy and accelerates access to markets, partnerships and funding opportunities, thereby improving the survival and competitiveness of new ventures within the region.

Infrastructural Facilities

Infrastructural support refers to the provision of essential physical and technological facilities that enable start-ups to operate efficiently and competitively during their formative stages. Within incubation centres, infrastructural support includes access to subsidized office space, laboratories, workshops, high-speed internet, power supply, ICT tools, meeting rooms and other shared utilities critical for day-to-day business operations. By absorbing these capital-intensive costs, incubators reduce the financial burden on entrepreneurs, allowing them to channel scarce resources toward product development, market entry and innovation.

Access to shared infrastructure creates a conducive work environment that enhances productivity and accelerates venture development. It also fosters a collaborative community where entrepreneurs interact, exchange ideas and engage in peer learning with an outcome that strengthens collective problem-solving and stimulates innovation (Hackett & Dilts, 2004). Research confirms that subsidized infrastructure is a major determinant of start-up survival, especially in the early phase when revenue streams are unstable and operational costs are high (Smilor, 1987). In emerging economies, where infrastructure is often unreliable or prohibitively expensive, incubators play a strategic role in cushioning start-ups from environmental constraints and improving their competitiveness (Adegbite, 2001).

However, the study argue that in cities like Minna, where entrepreneurs frequently grapple with inadequate power supply, limited workspace and insufficient technological facilities, incubation-driven infrastructural support is critical to venture sustainability. By providing stable and affordable infrastructure, incubators in Minna enhance operational efficiency, reduce business failure rates and strengthen the foundation for scalable, innovation-driven enterprises within the local ecosystem.

Business Support Services

Business support services refer to a structured set of advisory and administrative solutions designed to enhance the operational efficiency and strategic performance of new ventures. According to Bollingtoft and Ulhøi (2005), business support within incubation environments includes specialized assistance in legal compliance, financial management, intellectual property protection, regulatory navigation and strategic planning services that help entrepreneurs overcome institutional and managerial bottlenecks. These services are essential for early-stage firms that often lack the expertise and capacity to manage complex regulatory systems, formal documentation, risk assessment and long-term strategic positioning. By providing such support, incubation centres reduce administrative burdens and allow entrepreneurs to concentrate on core business activities such as product development, customer acquisition, and innovation. Empirical studies show that access to professional advisory services enhances the legitimacy, credibility and market positioning of start-ups (Bollingtoft & Ulhøi, 2005).

In addition, advisory-driven guidance on financial structuring, compliance and corporate governance strengthens investment readiness and improves start-ups' ability to attract funding and manage risk exposure (Bergek & Norrman, 2008). Within the Nigerian context, structured business advisory has been linked to improved market expansion, better access to finance and stronger institutional alignment among incubated ventures (Abereijo, 2009). Moreover, the study argue that in developing innovation ecosystems such as Minna where entrepreneurs often struggle with regulatory bottlenecks, weak institutional support and limited managerial expertise, business support services are a critical success factor. By equipping start-ups with professional advisory capacity, incubation centres in Minna help reduce business failure, enhance legitimacy within regulatory systems and position emerging ventures for sustainable growth in the local and regional market.

Growth Trajectories of Start-ups

The growth trajectories of start-ups represent the progressive patterns of development that new ventures experience as they move from inception through stages of expansion, maturity and in some cases, renewal or decline. Unlike static performance measures, growth trajectories emphasize longitudinal outcomes of how ventures evolve over time, rather than just a snapshot of performance at a single point (Delmar *et al.*, 2003). For start-ups, growth trajectories are not uniform but heterogeneous. Some ventures exhibit rapid scaling driven by innovation and external funding, while others follow incremental growth paths, consolidating resources before expansion. Others may experience stagnation or early exit due to structural bottlenecks or market failure. Thus, growth trajectories provide a multidimensional lens through which to assess entrepreneurial success.

In the context of incubation, these trajectories are particularly significant because technological incubation centres are designed to shorten the liability of newness by providing essential services that influence long-term sustainability. Empirical findings demonstrate that incubated firms exhibit higher survival rates, accelerated revenue growth and stronger employment generation compared to firms that develop independently (Hackett & Dilts, 2004).

From an operational perspective, growth trajectories of start-ups can be assessed through the following dimensions: Survival Rates which is the ability of firms to endure beyond the critical first three to five years of operation. Revenue Growth which implies the increase in turnover and profitability as evidence of market acceptance and scalability. Employment Generation which is the creation of new jobs, which reflects scaling and organizational expansion. Access to Finance as, success in mobilizing venture capital, angel investment, or institutional funding to support expansion. Market Expansion as penetration into new customer segments, industries, or geographical areas, signaling maturity and competitiveness. Innovation Output which is the development of new products, processes, or services as a marker of dynamism in growth pathways.

In the Minna metropolis context, these indicators are especially critical, as start-ups operate in a relatively nascent ecosystem with infrastructural deficits and weaker market linkages compared to metropolitan hubs like Lagos or Abuja. Evaluating growth trajectories here allows for a nuanced understanding of how technological incubation services such as mentorship, capacity building, networking, infrastructural facilities and business support, translate into tangible entrepreneurial outcomes.

Theoretical Anchor: Resource-Based View (RBV)

The Resource-Based View (RBV) offers a suitable theoretical lens to anchor this research. RBV posits that firms achieve sustainable competitive advantage when they acquire and effectively deploy resources that are valuable, rare, inimitable, and non-substitutable (VRIN) (Barney, 1991). For start-ups, which typically operate under resource scarcity, the role of external support systems such as technological incubation becomes indispensable.

Technological incubation centres provide start-ups with access to tangible resources (infrastructural facilities, subsidized workspace, shared technology), intangible resources (mentorship, knowledge transfer, business support) and relational resources (networking platforms and market linkages). These resources reduce liabilities of newness, enhance adaptive capacity and enable start-ups to pursue accelerated growth trajectories.

Materials and Method

This study adopts a quantitative, cross-sectional survey design as it is appropriate for examining the effect of technological incubation services on the growth trajectories of start-ups within a defined population at a single point in time. The population of the study comprises all start-ups currently incubated or recently graduated (within the last five years) from technological incubation centres in Minna metropolis, including those under the Federal University of Technology Minna incubation hub, the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) incubation programme and other private or government-supported incubators. Preliminary records by NBIS (2019) place this population at approximately 210 firms. The sample size was determined using Yamane's formula at a 5% margin of error, yielding 138 firms, and respondents were selected using proportionate stratified random sampling to ensure representation across the different centres. Eligibility is restricted to start-ups that have been incubated for at least one year and have verifiable business operations, while unincubated or less established firms were excluded.

Data were collected through a five-point Likert scale structured questionnaire ranging from strongly disagree (1) to strongly agree (5). To ensure psychometric soundness, content validity was established through expert reviews, while construct validity were tested using exploratory factor analysis. A pilot test involving 20 start-ups outside the main sample frame was conducted to refine the tool prior to full-scale administration. Cronbach's alpha value of 0.78 was used to determine the reliability of the instrument. Questionnaires was administered using a combination of physical drop-and-collect methods and online distribution to accommodate respondents' preferences and minimize non-response. Data collected was analyzed using the Statistical Package for Social Sciences (SPSS v26). Descriptive statistics such as mean, frequency and standard deviation was used to summarize responses, while inferential analysis involved Pearson correlation to establish relationships and multiple regression analysis to examine the effect of the incubation service variables on growth trajectories. All hypotheses relationships were tested at 0.05 level of significance.

Results and Discussion

The results of the data collected from beneficiaries of Technological Incubation Centres in Minna Niger state are harvested, analysed and reported here under descriptive and inferential statistics for interpretation and robust discussion.

Descriptive Statistics

Table 1: Descriptive Statistics of Study Variables

Variable	N	Mean	Std. Deviation	Min	Max
Mentorship	138	3.82	0.71	2.10	4.95
Capacity Building	138	3.76	0.68	2.00	5.00
Networking	138	3.91	0.74	1.80	5.00
Infrastructural Facilities	138	3.65	0.82	1.90	5.00
Business Support Services	138	3.88	0.70	2.00	4.95
Growth Trajectories	138	3.92	0.73	2.05	5.00

Source: Field Survey (2025).

Table 4.1 show that respondents rated all technological incubation services above the midpoint (Mean > 3.5). Mentorship (M = 3.82), networking (M = 3.91) and business support services (M = 3.88) were the most highly rated, suggesting that start-ups in Minna consider these services particularly influential in their developmental journey. Growth trajectories also averaged high (M = 3.92), indicating that incubated firms in the region are generally experiencing positive patterns of survival, scaling and market expansion. These findings are consistent with Hackett and Dilts (2004), who argued that incubated start-ups demonstrate stronger growth outcomes than non-incubated firms, largely due to access to supportive services.

Inferential Statistics

Table 2: Pearson Correlation Matrix

Variables	1	2	3	4	5	6
1. Mentorship	1					
2. Capacity Building	.462**	1				
3. Networking	.398**	.421**	1			
4. Infrastructural Facilities	.352**	.377**	.402**	1		
5. Business Support Services	.484**	.465**	.432**	.389**	1	
6. Growth Trajectories	.526**	.493**	.517**	.471**	.543**	1

Note: Correlation is significant at the 0.01 level (2-tailed).

Correlation Results

Correlation analysis reveals that all incubation services are positively and significantly associated with growth trajectories, with coefficients ranging from **r = .352 to .543, p < 0.01.** Business support services (r = .543) and mentorship (r = .526) had the strongest associations, while infrastructural facilities (r = .471) had the weakest, though still significant. These results echo the findings of Pauwels *et al.* (2016), who highlighted mentorship and strategic business support as core value drivers of incubation and reinforce Bruneel *et al.* (2012), who demonstrated that effective networking linkages are pivotal in scaling start-ups.

Table 3: Multiple Regression Analysis of Incubation Services on Growth Trajectories

Predictor Variables	Unstandardized Coefficients (B)	Std. Error	Standardized Beta(β)	t-value	P-values
Constant	1.084	0.276	—	3.93	0.000
Mentorship	0.214	0.082	0.218	2.61	0.010
Capacity Building	0.175	0.079	0.182	2.22	0.028
Networking	0.203	0.085	0.206	2.39	0.018
Infrastructural Facilities	0.167	0.072	0.169	2.32	0.022
Business Support Services	0.246	0.080	0.249	3.08	0.002

Model Summary: $R = 0.734$, $R^2 = 0.539$, Adjusted $R^2 = 0.522$, $F(5,132) = 30.73$, $p < 0.001$
Source: Field Survey (2025).

Regression Results

The regression analysis provides deeper insights into the individual contributions of the incubation service variables toward explaining the growth trajectories of start-ups in Minna. The overall model is statistically significant ($R^2 = 0.539$, $F(5,132) = 30.73$, $p < 0.001$), indicating that incubation services jointly explain 53.9% of the variance in growth outcomes. Below, the results are interpreted objective by objective.

Objective 1: To examine the effect of mentorship on the growth trajectories of start-ups in Minna

Mentorship has a significant positive effect ($\beta = 0.218$, $p = 0.010$), showing that start-ups benefiting from regular guidance, coaching, and advisory services are more likely to experience higher survival rates,

revenue growth and market expansion. This aligns with the argument of Ratinho and Henriques (2010) that mentorship accelerates learning curves and reduces liabilities of newness for young firms. It is also consistent with **RBV lens** that mentorship constitutes a valuable intangible resource that is rare and difficult to imitate. Under RBV, access to quality mentorship within incubation centres gives firms a knowledge-based advantage that enhances their growth trajectories. This implies that mentorship significantly enhances start-up growth trajectories in Minna by equipping firms with experience-based insights critical for survival and scaling.

Objective 2: To determine the effect of capacity building on the growth trajectories of start-ups in Minna

Capacity building significantly predicts growth trajectories (**β = 0.182, p = 0.028**). Training programmes, workshops and skill development initiatives directly strengthen managerial and technical capacities, thereby improving start-up competitiveness. This finding supports Pauwels *et al.* (2016), who showed that structured training in incubators enhances business readiness and resilience. Capacity building provides firms with inimitable human capital resources, which under RBV become a source of sustained competitive advantage when embedded in organizational routines. Capacity building plays a significant role in shaping growth trajectories, confirming that investments in knowledge and skills development improve start-up survival and scaling in Minna.

Objective 3: To assess the effect of networking on the growth trajectories of start-ups in Minna

Networking is a significant determinant of growth (**β = 0.206, p = 0.018**). Firms with access to incubation-enabled networks such as investor forums, partnerships and peer learning platforms, are more likely to secure financing, expand into new markets and attract customers. This resonates with Bruneel *et al.* (2012), who emphasized the role of relational resources in overcoming market entry barriers. Networking enhances relational capital, which is valuable and rare. By connecting firms to external stakeholders, incubators enable start-ups to leverage external resources they otherwise could not access independently. Networking significantly strengthens growth trajectories by expanding start-ups' access to markets, resources and partnerships.

Objective 4: To analyze the effect of infrastructural facilities on the growth trajectories of start-ups in Minna

Infrastructural facilities exert a significant positive effect (**β = 0.169, p = 0.022**), though the magnitude is weaker compared to other variables. Shared office spaces, internet connectivity, and access to technical labs reduce operational costs and provide start-ups with an enabling environment. However, the relatively weaker effect reflects infrastructural challenges in Minna, where deficiencies in power supply and broadband limit full utilization. This aligns with the contextual gap highlighted by Adegbite (2001), who noted that infrastructural inadequacies often undermine incubation effectiveness in Nigeria. While physical resources can be valuable, they are less rare or inimitable compared to intangible resources (e.g., mentorship, networks). Thus, RBV helps explain why infrastructural facilities contribute positively but less strongly to growth trajectories. Infrastructural facilities enhance start-up survival and reduce costs, but their impact is weaker compared to intangible services, reflecting infrastructural limitations in Minna.

Objective 5: To examine the effect of business support services on the growth trajectories of start-ups in Minna

Business support services recorded the strongest effect on growth trajectories (**β = 0.249, p = 0.002**). Access to legal advice, financial management support, marketing guidance and intellectual property protection provides start-ups with critical strategic leverage. This finding supports the evidence of Hackett and Dilts (2004), who established that business support interventions accelerate the commercialization of innovations and foster rapid scaling. Business support services represent a bundle of valuable, non-substitutable organizational resources that enable start-ups to bridge institutional voids.

particularly in resource-constrained ecosystems like Minna. Under RBV, this explains why business support emerges as the strongest predictor of growth trajectories. Business support services are the most critical incubation input driving growth trajectories of start-ups in Minna, as they directly address managerial and strategic gaps that impede scaling.

Conclusion and recommendations

Conclusion

This study set examined the effect of technological incubation services on the growth trajectories of start-ups in Minna metropolis. The findings confirmed that incubation services such as mentorship, capacity building, networking, infrastructural facilities and business support collectively exert a strong and statistically significant influence on start-up growth, jointly explaining more than half of the variance in growth outcomes. Among these, business support services emerged as the strongest predictor, followed by mentorship and networking, while infrastructural facilities contributed positively but more modestly. These results align with the Resource-Based View, which emphasizes that firms achieve sustainable growth when they gain access to valuable, rare and inimitable resources. In the Minna context, where infrastructural and financial constraints remain acute, incubation centres play a vital role in offsetting institutional voids and equipping start-ups with the knowledge, relational capital and strategic support necessary for survival, scaling and market expansion. Overall, the evidence underscores that incubation services are not peripheral but central drivers of entrepreneurial success in resource-constrained ecosystems such as Minna.

Recommendations: the following recommendations are hereby made to the appropriate stakeholder

1. Incubation centres should institutionalize structured mentorship programmes by pairing start-ups with seasoned entrepreneurs and industry experts. This will help transfer tacit knowledge, shorten learning curves and improve decision-making, thereby strengthening survival and early-stage growth.
2. Government and policy agencies should invest in specialized training modules focused on financial literacy, digital innovation and business management. Targeted capacity-building initiatives will enhance start-up resilience, improve market readiness, and directly support national entrepreneurship development goals.
3. Industry bodies and private sector actors should create regular networking platforms, such as pitch events and innovation fairs, where incubated start-ups can interact with investors, customers and potential partners. Expanding relational capital will increase access to finance, new markets, and collaborative opportunities.
4. Federal, state and local governments, in partnership with development agencies, should prioritize upgrading incubation infrastructure, particularly stable electricity, broadband internet and shared technical laboratories. Improved physical infrastructure will reduce operational costs and provide start-ups with an enabling environment to thrive.
5. Banks, venture capital firms and consultancy outfits should collaborate with incubation centres to provide financial advisory, legal guidance, and marketing support. Tailored business support will bridge critical managerial gaps, accelerate commercialization, and enhance the long-term growth trajectories of start-ups.

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