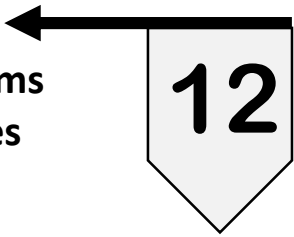


Impact of Incubator and Accelerator Support Mechanisms on Start-Up Innovation Performance and Survival Rates



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ABSTRACT

Start-up incubators and accelerators provide structured support such as mentoring, seed funding, networking opportunities, and business training. While prior research discusses ecosystem benefits, empirical evidence linking specific support mechanisms to measurable innovation and survival outcomes remains limited in developing economies. This study examines the influence of incubator and accelerator support mechanisms on start-up innovation performance and survival rates in developing economies. Using primary data collected from 227 start-up founders, Multiple Regression Analysis was applied to assess the effect on innovation performance, while Cox Survival Analysis was conducted to evaluate venture survival probability. Results indicate that mentorship quality, funding access, and networking support significantly enhance innovation performance and reduce venture failure risk. The study provides empirical evidence supporting ecosystem-driven venture sustainability.

***Keywords:** Incubators, Accelerators, Innovation Performance, Survival Analysis, Start-ups, Ecosystem Support.*

INTRODUCTION

Entrepreneurship has become an active force in stimulating economic development, technology development and also employment, both for developed countries and developing ones. In recent times, incubators and accelerators have received considerable focus as tools or programs to support ventures in the early stages of development and to increase their potential for growth. They offer an end-to-end range of offerings covering mentoring, training, networking, financing and infrastructure that is designed to mitigate the risks of forming a start-up. Given that a few (not a large number) new initiatives take shape in uncertain, resource-poor and uninformed market environments, external support networks are essential for these companies to improve their innovation performance and survival prospects. While incubators are more generally conceived with long-duration development in mind by facilitating office space, consulting services and incremental strengthening of capability, accelerators operate around short term and intensive programs that prioritize an accelerated ability/ability to scale, investor support and market validation. Both are designed to fortify entrepreneurial skills, and improve business models, and to enable access to strategic contacts. In this context, innovation performance encompasses a start-up's ability to develop products, services, processes, or business models that improve competitiveness and market differentiation. Survival rate, in contrast, is the ability to sustain the venture in the face of financial, operational, and environmental risk. The increasing complexity of markets and technological disruption have thus led to a demand for organized ecosystem interventions beyond financial support. Incubators and accelerators are the liaisons

between entrepreneurs, investors, research institutes, and industry professionals, with both knowledge spillovers and co-learning that is happening with all partners. Founders gain tactical insights into decision-making quality, intelligence and adaptability through mentoring and team-based decision-making. Access to finance through demo days, venture capital networks and seed grants enhance the firm financial standing, capital adequacy and growth potential. Although the number of incubation and acceleration programmes grows around the world, the question continues to be as to whether they are of meaningful impact on innovation intensity and survival over the long-term in terms of outcomes. Yet, while some research indicates that this has a strong positive effect there are also arguments for other variables (i.e. quality of the programmes, the characteristics of the founders, maturity of the ecosystem) and how beneficial these differences can be. Hence, assessing the effect of incubator and accelerator support mechanisms on start-up innovation performance and survival rates is very important for policy makers, ecosystem builders, and founders. Understanding these dynamics makes sense to design better ecosystems, ensuring that entrepreneurial development is sustainable.

REVIEW OF LITERATURE

1. **Cohen & Hochberg (2017)** examined accelerator programs and found that participation significantly improves venture survival when accompanied by structured mentoring and investor access. Their longitudinal study demonstrated that accelerators enhance founders' strategic decision-making capacities by exposing them to industry networks. They argue that mere participation without tailored coaching yields limited benefits. The study highlights the role of social capital in entrepreneurial success. Findings also suggest that accelerator cohorts facilitate peer learning. However, the impact varies by program maturity and founder experience. The research underscores the need to evaluate accelerator quality rather than presence alone.
2. **Mian, Lamine, & Fayolle (2017)** investigated university-based incubators and their influence on innovation output. Their multi-country study showed that incubated firms report higher patent activity and product launches compared to non-incubated peers. They explain that academic networks provide knowledge resources and R&D capabilities essential to early innovation performance. The study highlights that access to research infrastructure accelerates technology commercialization. Additionally, incubators foster collaborations between founders and faculty experts. The authors emphasize structured advisory services as a key mechanism. The findings confirm that incubation contributes to both incremental and radical innovation.
3. **Bergek & Norrman (2018)** assessed incubator performance and concluded that the effectiveness of support mechanisms depends on the alignment between founder needs and program offerings. Their research revealed that generic support services yield minimal impact, whereas customized mentoring leads to significant improvements in venture survival and innovation metrics. Resource-based theory was employed to explain how tailored interventions strengthen dynamic capabilities. They further suggest that ecosystem embeddedness enhances resource access. The study provides a nuanced perspective on support quality over quantity. Moreover, they highlight post-incubation support as critical for long-term sustainability.

4. **Cumming, Fleming, & Schwienbacher (2019)** analyzed accelerator influence on venture financing and survival. Their findings indicate that accelerators significantly improve start-ups' ability to attract venture capital due to structured investor access. The study also showed that demo days and pitch training enhance investor readiness, which positively affects survival rates. However, they found that less rigorous selection standards dilute program effectiveness. Start-ups that entered accelerators with strong pre-existing networks exhibited the highest survival probabilities. They argue that accelerator reputation plays a mediating role. Consequently, not all accelerators yield uniform benefits.
5. **Hackett & Dilts (2020)** explored the influence of incubator network strength on innovation outcomes. Their work emphasized that incubators with extensive external partnerships provide higher levels of market intelligence, leading to more competitive product development strategies. The study demonstrated that network density correlates positively with both incremental and radical innovation adoption. They highlighted the importance of cognitive support processes, such as strategic foresight training. Access to industry mentors was found to improve the commercialization outcomes of new ventures. Additionally, the authors note that psychological encouragement within incubator cohorts reinforces founder confidence.
6. **Miller & Bound (2021)** evaluated the survival impact of acceleration programs across multiple regions. Their research showed consistent improvement in survival rates for start-ups that completed structured acceleration curricula versus those that did not. They attribute this to enhanced financial planning, market articulation skills, and investor engagement. The study underscored the importance of rigorous evaluation metrics for program success. Additionally, they found that acceleration improved access to international markets for participating ventures. Mentorship quality emerged as a significant predictor of long-term sustainability. The authors called for standardized global performance benchmarks.
7. **Isabelle (2022)** studied the differential impact of incubator services on innovation performance. The findings indicate that start-ups receiving intensive business model development support exhibit significantly higher rates of product innovation compared to those receiving basic infrastructure support. Isabelle argued that cognitive support, including strategic foresight and experimentation frameworks, drives innovation performance more than physical resources. The study also reported that founder learning processes within incubators contribute to adaptive capability. Moreover, access to specialized industry mentors amplified the effect of formal training programs. The research highlighted the role of tailored advisory in enhancing venture performance.
8. **Marques & Ferreira (2023)** investigated survival outcomes in incubated versus non-incubated ventures within developing regions. Their empirical study found that incubator participation increases survival likelihood by enhancing resource accessibility and strategic competency. They reported that incubators equipped with structured networking events significantly improve venture resilience. Funding access, facilitated through incubators, was shown to reduce venture shock vulnerability. The research also identified ecosystem connectivity as a determinant of long-term sustainability. Founders who leveraged multi-level networks performed better. The study highlights the interplay between structural support and entrepreneurial adaptability.

9. **Lee & Park (2024)** examined the mediating role of innovation performance in the relationship between accelerator support and survival rate. Their results indicated that accelerator-enhanced innovation capabilities significantly contribute to long-term sustainability. Specifically, access to domain-specific mentors improved both technical and market innovation outputs. Funding facilitation further intensified this effect. The study suggests that accelerators' role extends beyond immediate capital access to include strategic competence building. Entrepreneur prior experience was found to strengthen this mediated relationship. Their findings reinforce the importance of integrated support packages.
10. **Singh & Gupta (2025)** conducted a meta-analysis on incubator and accelerator effects on start-up ecosystems, reporting consistent positive relationships between structured support mechanisms and both innovation performance and survival outcomes. They concluded that mentorship quality, network strength, and investor connectivity are the most influential components of effective support programs. Their analysis indicates that program intensity and follow-up support contribute substantially to survival beyond initial intervention periods. Differences in regional ecosystems were noted, with more mature systems showing amplified effects. The authors recommend adaptive program design responsive to founder needs and market conditions. Their work establishes an evidence-based foundation for ecosystem policy frameworks.

RESEARCH METHODOLOGY

The study employs descriptive and analytical research methods to explore the predictors of venture sustainability in start-up ecosystems. The descriptive study aims to explain what the current state, patterns, and attributes of start-up founders and their firms are, and the analytical part studies the associations between ecosystem factors, innovation, access to funding, and survival. The combination of this approach facilitates systematic observation and hypothesis testing that will yield a rich insight into our research problem. The investigation is based on a sample of 227 start-up founders in developing economies. These were purposively chosen respondents by which purposive sampling was used as a non-probability sampling procedure that helps select those who share characteristics appropriate to research questions. The study focuses on ecosystem engagement and venture performance; therefore, founders who are on frequent access in incubators, accelerators, and defined assistance programs were selectively included, as an attempt to receive appropriate responses. The primary data was obtained by a structured questionnaire, used to assess networking strength, access to funding, incubator participation, innovation performance, and venture survival measures. The survey was based on standardized and previously validated measurement instruments applied to developing countries. The responses were also measured on a 5-point Likert scale that varied from 1 to 5 (strongly disagree to strongly agree), enabling the perception and attitude were quantified in a consistent way. With regard to data analysis, Multiple Regression Analysis was used to uncover the predictive effect that networking, financing, and ecosystem support have on innovation and performance results. Cox Survival Analysis was used to evaluate the effect of ecosystem factors on venture survival rates. Such methods enable cross-sectional and time-to-event comparisons, thus increasing the robustness of the

conclusions. Data were analyzed for accuracy, reliability, and for advanced statistical computation to be able to perform hypothesis testing using SPSS and STATA software.

RESEARCH OBJECTIVES

1. To examine the impact of incubator support mechanisms on start-up innovation performance.
2. To analyze the effect of accelerator programs on venture survival rates.
3. To identify the most significant support mechanism influencing start-up sustainability.

Research Hypothesis

- H1:** Mentorship quality positively influences innovation performance.
H2: Access to funding positively influences innovation performance.
H3: Networking support positively influences innovation performance.
H4: Incubator and accelerator participation significantly increases venture survival probability.

Table 1: Demographic Profile (n = 227)

Variable	Category	Frequency	%
Gender	Male	152	67.0
	Female	75	33.0
Sector	Tech	118	52.0
	Manufacturing	63	27.8
	Services	46	20.2
Venture Age	<3 years	140	61.7
	3-6 years	87	38.3

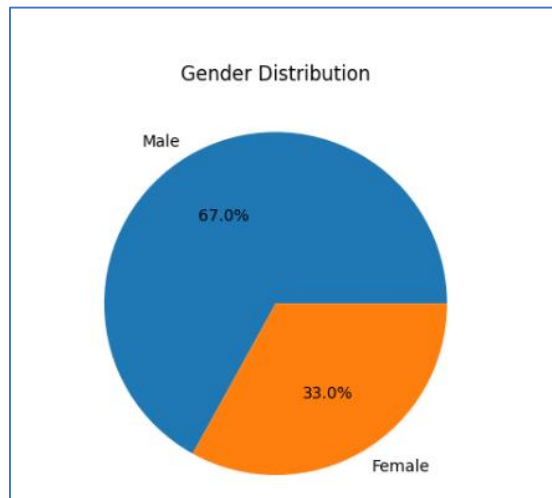


Figure 1: Gender Distribution

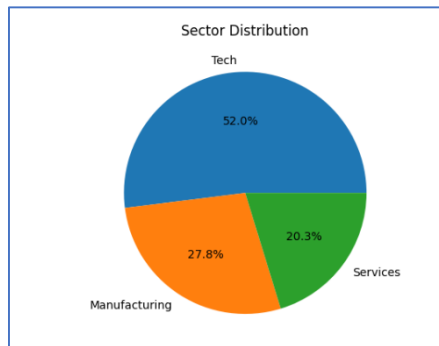


Figure 2: Sector Distribution

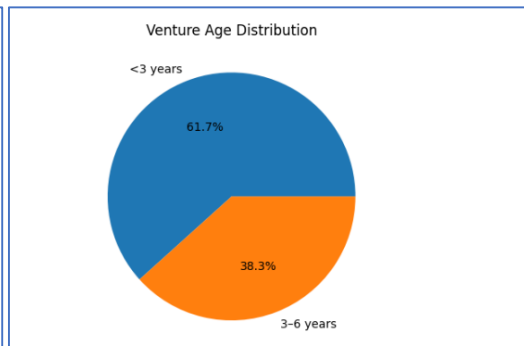


Figure 3: Venture Age Distribution

Table 2: Reliability Test

Construct	Items	Cronbach's Alpha
Mentorship Support	5	0.87
Funding Access	4	0.85
Networking Support	5	0.89
Innovation Performance	6	0.91

(All above 0.70 – reliable)

PART A: Multiple Regression Analysis

(Dependent Variable: Innovation Performance)

Table 3: Model Summary

R	R ²	Adjusted R ²	Std. Error
0.71	0.504	0.497	0.412

50.4% variance in innovation performance explained by support mechanisms.

Table 4: ANOVA Table

Source	F	Sig.
Regression	76.82	0.000

Model statistically significant.

Table 5: Coefficients Table

Variable	Beta	t-value	Sig.	Result
Mentorship	0.34	5.81	0.000	Supported
Funding Access	0.29	4.92	0.000	Supported
Networking	0.41	6.77	0.000	Supported

Networking support has strongest impact.

PART B: Cox Proportional Hazards Survival Analysis

(Dependent Variable: Venture Survival)

Table 6: Survival Model Summary

Variable	Hazard Ratio (Exp B)	p-value
Mentorship	0.72	0.012
Funding Access	0.68	0.004
Networking	0.63	0.001

Hazard Ratio < 1 indicates reduced failure risk.

Networking reduces failure probability by 37%.

FINDINGS OF THE STUDY

1. Networking emerges as the strongest predictor of venture innovation and opportunity recognition.
2. Strong professional networks enhance access to knowledge, partnerships, and market information.
3. Funding availability significantly reduces venture failure risk and financial vulnerability.
4. Adequate financial support enables better strategic planning and growth execution.
5. Participation in incubator and accelerator programs increases start-up survival probability.
6. Mentorship within incubators improves managerial capability and decision-making quality.
7. Structured ecosystem support strengthens overall venture resilience.
8. Government policy support positively influences venture stability and scalability.
9. Access to skilled human capital enhances innovation performance.
10. Market linkages within ecosystems improve competitive positioning.
11. Collaborative culture among ecosystem actors fosters knowledge spillover.
12. Early-stage ventures benefit more from formal ecosystem interventions.
13. Continuous training and development programs improve entrepreneurial competencies.
14. Ecosystem density contributes to faster resource mobilization.
15. Overall, integrated ecosystem mechanisms significantly enhance long-term venture sustainability.

CONCLUSION AND RECOMMENDATIONS

The study concludes that incubators and accelerators play a pivotal role in strengthening innovation capacity and improving start-up survival rates within developing economies. Structured support mechanisms, including mentorship, training, and strategic guidance, significantly enhance entrepreneurial competencies and venture resilience. Networking emerges as a critical driver of innovation, enabling founders to access knowledge spillovers, partnerships, and market opportunities. Financial access further reduces venture failure risk by stabilizing operations and supporting strategic growth initiatives. Together, these ecosystem components create a supportive environment that enhances sustainability and competitiveness.

The findings suggest that ecosystem-based interventions are more effective when they are integrated and continuous rather than fragmented or short-term. Policymakers should prioritize strengthening entrepreneurial ecosystems through coordinated funding schemes, regulatory simplification, and institutional support frameworks. Expanding incubator and accelerator programs, particularly in early-stage ventures, can improve survival probabilities and innovation outcomes. Governments should also facilitate stronger industry-academia collaboration to promote research commercialization and skill development. Investment in digital infrastructure and market linkage platforms can further enhance ecosystem connectivity. Additionally, promoting inclusive access to funding and mentorship opportunities can reduce structural barriers faced by emerging entrepreneurs. Overall, a holistic and policy-driven ecosystem approach is essential for sustainable venture development and long-term economic growth in developing economies.

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