

Exploring the Services of the Incubation Centres on the Performance of Start-Ups in Kerala

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Abstract - Incubation centres have a significant role in promoting innovation, entrepreneurship development and thereby economic growth in a country. They are the main catalysts to attain the per capita income of an industrialized nation. This study analyses the effectiveness of the services of incubation centres on the performance of Start-ups in Kerala. The variables for measuring the service effectiveness were identified from the literature. A structured questionnaire was used to collect primary data from 313 Start-ups. A proportionate sampling method was adopted in the study. Correlation and multiple regression analysis were used to analyse the data. The result derived from correlation indicate that all the variables of the service effectiveness of Incubation Centre's such as Incubation Services, Mentorship Programmes, Business Counselling and Advice, Legal Services, Marketing Support, Co-working Space or desk Cabin Space, Funding Support or Services and Internet based services have significant association with the Performance of Start - ups and regression analysis reveals that there is a positive effect of the variables of Service Effectiveness of Incubation Centres on the Performance of Start-ups. This study is important to policymakers and governments, as it guides the foundation for building structured policies and programmes that generate employment opportunities, growth in the economy, and innovation.

Keywords: Entrepreneurship, Incubation centre, Startup, Performance

I. INTRODUCTION

In every nation, incubation centres are a crucial part of the ecosystem that promotes start-ups, sponsors, stakeholders, services and the procedure of incubation support offered through hard and soft infrastructure, and the results vary over time. There are more than 250,000 employment opportunities created by incubated start-ups since 1980, resulting in economic growth and impact in other industrial sectors (Wiggins & Gibson, 2003). The importance of entrepreneurship in creating jobs and establishing enterprises is recognised as a catalyst for the prosperity of a nation (Lalkaka & Abetti, 1999). Incubation centres provide effective services to start-up firms. (Smilor, 1987; Aernoudt, 2004; Chan & Lau, 2005; Gozali, 2016). Incubation centres help start-ups to raise their goodwill. (Yannopoulos, 2017;

Leitão, 2020). Business incubators promote business development through innovation and add to the sustainability of start-ups (Joy & Kuruvilla, 2025). Capabilities of the incubator manager and the interpersonal network are the key determinants of quality and performance (Chan & Harayama, 2003) (Abdullah, 2024). Market failure of a start-up handled through incubators. (Colombo & Delmastro, 2002). The gain of every start-up influences the incubation facility and support offered. In Kerala, under KSUM, TBI is working in various districts. Batavia Industrial Centre started its operation in New York in 1959 and was the first incubation centre. The government has been providing funds or incentives to incubators to upgrade their existing facilities. It will help the incubated start-ups reach the scale-up stage, and thus it would ensure the growth of the start-up ecosystem in the state (Audretsch et al., 2016). Business incubators are those that aid and ensure the development of new start-ups. It is a mechanism for solving many early-stage problems of start-ups. These incubators measure the growth potential of start-ups before granting any funds to them.

II. REVIEW OF LITERATURE

Incubation centres offer an orderly platform for entrepreneurial endeavours. (Theodorakopoulos et al., 2014). Incubation centres' value-added services contribute to the enhancement of incubatees' ability to survive and grow. Strengthening, mentoring, funding support, and industry ties are needed to improve centres' performance (Alizadeh & Mahmoudian, 2025) (Sravana et al., 2022). Efforts are necessary to connect different stakeholders and strengthen ties between academic institutions, research institutions, industry, and government. (Dhochak et al., 2019). Business incubation centres are popular for creating successful centres. Recent incubation centres are providing more services to tenants, and it analyses both the supply and demand of business incubation centres. The result suggests that old-generation business incubation centres need to update their service portfolio compared to the new generations. (Bruneel et al., 2012). Incubation is important for the development of

a business. (Meru & Struwig, 2015). Technology incubators ensure proper arrangement of facilities, but are weak in allocating funds. (Oladimeji & Aladejebi, 2020). Adaptation of incubators and innovative programmes leads to high outcomes, and incubators help companies in promoting an entrepreneurship environment. (Al-Mubarak & Busler, 2017). Based on the previous literature, most of the studies argue that incubation promotes the performance of start-ups, and other research argues against this statement. (Ayatse et al., 2017) (Wickramasinghe, 2020). It has been found that business and technical assistance provide significant growth and development to the venture (Olango et al., 2025). If the incubator fails to provide this assistance, the growth and development of the venture may be sacrificed. (Scillitoe & Chakrabarti, 2010). There is no universally accepted criterion for measuring the effect of incubation. (Phan et al., 2005). Incubation services, mentorship programmes, business counselling & advice, legal services, marketing support, co-working space, funding support, and internet-based services are the main constructs of the study that were extracted from previous research (Sherman, 1999). It was found that no studies have been elaborately done to evaluate the startups incubated in Kerala and how the effectiveness of services leads to an increase in achieving different outcomes.

III. OBJECTIVES OF THE STUDY

TABLE I POPULATION AND SAMPLE

Kerala -Zone-wise area of the study	Percent of incubated Start-ups registered in each zone	Start-ups incubated in each zone	Proportionate sample selected for study
South Kerala	31	521	97
Central Kerala	47	790	147
North Kerala	22	369	69
Total	100	1680	313

Source: Annual Report KSUM, 2022

TABLE II DEMOGRAPHIC PROFILE OF THE START-UP FOUNDERS

Profile	Labels	Frequency	Percent
Gender	Male	220	70.3
	Female	93	29.7
	Total	313	100.0
Age	Below 30 years	76	24.3
	30 Years - 50 Years	195	62.3
	Above 50 Years	42	13.4
	Total	313	100.0
Area of Residence	Urban	212	67.7
	Rural	101	32.3
	Total	313	100.0
Educational Qualification	SSLC	1	0.3
	Higher Secondary	11	3.5
	Degree	162	51.8
	PG	128	40.9
	MPhil or PhD	11	3.5
	Total	313	100.0
Family Background of the Respondent	Business	122	39.0
	Service	120	38.3
	Agriculture	43	13.7
	Others	28	8.9
	Total	313	100.0

Source: Primary Data

Establishing the relationship between the effectiveness of the services of Incubation Centres and the performance of Start-ups is the major objective of the study.

IV. RESEARCH DESIGN AND METHODOLOGY

The population consists of incubated start-ups in Kerala. Start-ups that were incubated from 2017 to 2022 in Kerala under any of the incubation centres were included for the study. Incubated start-ups that agreed to fill out the questionnaire were identified as samples for the study. The sample size required as per the De-Morgan table is 313 (Morgan, 1970). There are 4200 startups in Kerala, and forty percent of them have been incubated. (Kerala Start-up Ecosystem Report 2022). So, the population of the study consists of 1680 incubated startups in Kerala. The study area is divided into three zones, viz. South, Central, and North. The zone-wise sample has been taken based on the proportionate number of incubated start-ups registered in each zone. For this study, a required sample size of 313 as per the De Morgan table was selected from each zone using the proportionate random sampling technique, and the final sample size is distributed zone-wise, which is given in Table I.

Table II presents demographic characteristics and background of individuals driving entrepreneurial endeavours in Kerala. The Demographic Profile of Start-up founders in Kerala was examined based on gender, age, area of residence, educational qualification, and family background. Out of 313 respondents, 220 (70.3%) were male, and 93 (29.7%) were female. Age distribution revealed that 76 (24.3%) respondents were below 30 years, 195 (62.3%) were aged between 30 and 50 years, and 42 (13.4%) were above 50 years old. Regarding area of residence, 213 (68.1%) respondents lived in urban areas, while 100 (31.9%) were from rural areas. Educational qualifications varied among respondents, with 162 (51.8%) holding a degree, 128 (40.9%)

having completed postgraduate studies, 11 (3.5%) having higher secondary education, and 11 (3.5%) possessing M.Phil./PhD degrees. Only one respondent reported completing SSLC. Family background analysis showed that 122 (39%) entrepreneurs came from business families, 120 (38.3%) from service backgrounds, 43 (13.7%) from agricultural backgrounds, and 28 (8.9%) from other backgrounds.

V. RESULTS AND DISCUSSION

H₀ 1: There is a significant association between service effectiveness and performance of Start-ups

TABLE III CORRELATION ANALYSIS

		Incubation Services	Mentorship Programmes	Business Counselling & Advice	Legal Services	Marketing Support	Co-working Space/desk Cabin Space	Funding Support/ Services	Internet-based services	Performance of Startups
Incubation Services	PC	1								
	Sig.									
	N	313								
Mentorship Programmes	PC	.203**	1							
	Sig.	.000								
	N	313	313							
Business Counselling & Advice	PC	.154**	.012	1						
	Sig.	.006	.827							
	N	313	313	313						
Legal Services	PC	.075	.120*	.200**	1					
	Sig.	.185	.034	.000						
	N	313	313	313	313					
Marketing Support	PC	.271**	.011	.135*	.093	1				
	Sig.	.000	.909	.017	.099					
	N	313	313	313	313	313				
Co-working Space/desk Cabin Space	PC	.229**	.039	.111*	.089	.210**	1			
	Sig.	.000	.491	.050	.114	.000				
	N	313	313	313	313	313	313			
Funding Support/ Services	PC	.006	.111	.038	.071	.143*	.065	1		
	Sig.	.916	.051	.507	.208	.011	.254			
	N	313	313	313	313	313	313	313		
Internet-based services	PC	.054	.075	.162**	.057	.110	.085	.254*	1	
	Sig.	.343	.186	.004	.314	.051	.587	.035		
	N	313	313	313	313	313	313	313	313	
Performance of Startups	PC	.609**	.433**	.493**	.467**	.586**	.508**	.474**	.470**	1
	Sig.	.000	.009	.000	.000	.000	.000	.000	.000	
	N	313	313	313	313	313	313	313	313	313

** . Correlation is significant at the 0.01 level (2-tailed) * . Correlation is significant at the 0.05 level (2-tailed) PC – Pearson Correlation

Source: Primary data

Table III deals with the correlation between the variables of Service Effectiveness of Incubation Centres and Performance indicates that independent variables of the Service Effectiveness of Incubation Centres such as Incubation Services, Mentorship Programmes, Business Counselling

and Advice, Legal Services, Marketing Support, Co-working Space or desk Cabin Space, Funding Support or Services and Internet based services have positive relationship with Performance. The result also reveals that the Incubation Services has 60.9 percent, Mentorship Programmes has 43.3

percent, Business Counselling and Advice has 49.3 percent, Legal Services has 46.7 percent, Marketing Support has 58.6 percent, and Co-working Space or desk Cabin Space has 50.8 percent, Funding Support or Services has 47.4 percent and Internet-based services have 47 percent association with performance and it is significant.

Effect of Variables of Service Effectiveness

H₀ 2: Effect of Service Effectiveness of Incubation Centres is significant on the Performance.

TABLE IV MODEL SUMMARY

Model	R	R square	Adjusted R Square	Standard error
Effect of Variables of Service Effectiveness of Incubation Centres on Performance of Startups	.849	.720	.708	.321
<i>Predictors: (Constant), Incubation Services, Mentorship Programmes, Business Counselling and Advice, Legal Services, Marketing Support, Co-working Space or desk Cabin Space, Funding Support or Services, and Internet-based services</i>				

Model summary table depicts R square value, which is .720, indicating that 72 percent change in the dependent variable is predicted by all independent variables. The table also presents the adjusted R-squared model, with a value of .708

means it adjusts R- square by the number of predictor variables. This value is a good fit hence there is a strong relationship between the predictor and outcome variables.

TABLE V ANOVA

Model		Sum of Squares	DF	Mean Square	F	Sig
Effect of Variables of Service Effectiveness of Incubation Centres on Performance of Start-ups	Regression	2.243	8	.280	2.260	.000
	Residual	37.719	304	.124		
	Total	39.962	312			
Outcome Variable: Performance						
Predictors: (Constant), Incubation Services, Mentorship Programmes, Business Counselling and Advice, Legal Services, Marketing Support, Co-working Space or desk Cabin Space, Funding Support or Services, and Internet-based services						

Table V presents F value of 2.260 and the sig value, which is less than 0.05. It implied that there is a significant effect of service effectiveness on performance of Start-ups.

TABLE VI MULTIPLE REGRESSION ANALYSIS

Model	Variables	UC		SC	T	Sig.
		B	S. E	Beta		
Effect of Variables of Service Effectiveness of Incubation Centres on Performance of Start-ups	(Constant)	3.021	.261		11.552	.000*
	Incubation Services	.090	.030	.170	3.024	.004*
	Mentorship Programmes	.003	.022	.215	-1.446	.000*
	Business counselling & Advice	.002	.027	.040	.068	.000*
	Legal services	.024	.030	.044	.786	.000*
	Marketing support	.025	.036	.243	.690	.023*
	Co-working Space/desk Cabin Space	.026	.039	.245	.677	.000*
	Funding support/ services	.044	.030	.101	1.479	.000*
	Internet-based services	.029	.030	.020	.956	.000*
<i>Dependent Variable: Performance of Start-ups.</i>						
<i>UC – Unstandardized coefficient SC – Standardized coefficient S.E. – Standard Error</i>						
Source: Primary Data		* Significant at 5 % level of Significance				

Table VI Incubation Services, Mentorship Programmes, Business Counselling and Advice, Legal Services, Marketing

Support, Co-working Space or desk Cabin Space, Funding Support or Services, and internet-based services have a beta

coefficient of .17, .215, .040, .044, .243, .245, .101, and .020 respectively.

VI. IMPLICATIONS OF THE STUDY

The study depicts several implications that guide policymakers and the government in implementing various policies within a favourable ecosystem. This study highlights that business incubation centres effectively enhance their performance. The demographic profile of start-ups offers critical understanding into the functionalities and features of budding start-ups, such as age, education, gender, and area of residence. Policy guidelines would be clearer and more accessible based on the demographic profile of start-up founders. This study would be beneficial to the younger age group, especially those below 30 years of age, to seek and leverage the support offered by incubation centres. In addition, there is a need to promote women and rural start-ups. To improve the effectiveness and relevance of incubation centres, they should implement a personalised strategy that provides differentiated support and resources that are specifically tailored to the unique characteristics and growth requirements of start-ups based on the demographic profile of founders. Implementation of a customised strategy is needed for each start-up regarding its characteristics, and the demographic profile of start-up founders is a crucial aspect for incubation centres. This study is important to policymakers and governments, as it guides the foundation for building structured policies and programmes that generate employment opportunities, growth in the economy, and innovation.

VII. CONCLUSION

Service effectiveness and its outcome are important discussion topics in the service sector industry. The study concluded that there is a significant positive correlation between the service effectiveness of incubation centres such as incubation services, mentorship programmes, business counselling and advice, legal services, marketing support, co-working space or desk cabin space, funding support or services, and internet-based services and the performance of start-ups. Thus, eight variables of service effectiveness of incubation centres are important in determining performance. This would be beneficial to policymakers to formulate more targeted policies effectively. Moreover, by identifying which of these services are most impactful, start-ups are better equipped to allocate their limited resources strategically. The study also underscores the need to streamline regulatory frameworks to reduce entry barriers and improve business outcomes, and it adds to the existing literature on business incubation.

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