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Influence Of Kerala Startup Mission On Investment In Technopark

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This study examines the role of the Kerala Startup Mission (KSUM) in influencing investment decisions among technology-based firms operating in Technopark, Thiruvananthapuram. The study primarily focuses on the extent to which various facilitation factors such as Incubation Facilities, Seed Funding and Early-Stage Risk Capital, Training and Mentorship, Co-working Spaces, Research and Development Services, Commercialisation of Technology, Connection with Global Networks, and FAB Labs affect initial investment levels of startups. The research adopted a quantitative approach based on primary data collected from a sample of 60 companies out of a total of 479 firms in Technopark. The sample size was determined using the sample size determination formula proposed by Almeda et al. (2010). Statistical analyses revealed that while all facilitation factors were statistically significant, their relationships with initial investment were negatively correlated, indicating that greater institutional support from KSUM enables startups to reduce dependence on large financial capital during their early stages. The findings highlight the strategic role of KSUM as an institutional enabler that substitutes infrastructural and intellectual resources for financial capital, fostering a more investment-efficient entrepreneurial ecosystem within Kerala's Technopark.

Keywords: Kerala Startup Mission, Technopark, Research and Development, FAB Lab.

INTRODUCTION

In recent years, Kerala has emerged as one of India's most progressive states in building a knowledge-driven, innovation-oriented economy. The transformation has been primarily supported by the Kerala Startup Mission (KSUM), the state government's nodal agency for entrepreneurship development and incubation activities. Established in 2006 and restructured in 2014, KSUM has acted as a catalyst for nurturing technology-based startups by offering policy support, infrastructure facilities, funding mechanisms, mentorship, and global exposure opportunities.[1] Its integrated approach has positioned Kerala as a model startup ecosystem among Indian states.

Over the past decade, Kerala has evolved from a socially advanced state into a dynamic technology-driven startup hub, supported primarily by the Kerala Startup Mission (KSUM) the state's nodal agency for entrepreneurship development and innovation.[2] Through initiatives in incubation, funding, mentorship, research, and global partnerships, KSUM has established a robust framework for nurturing startups, particularly within Technopark, Trivandrum, one of India's largest and most mature IT parks.[3]

Earlier studies have highlighted the crucial role of KSUM in accelerating Kerala's startup ecosystem, emphasizing that incubation programs and mentorship initiatives have substantially contributed to entrepreneurial growth.[4] Similarly, research on the entrepreneurial ecosystem in Kerala identifies Technopark as a major innovation cluster that provides a fertile environment for technology-based enterprises.[5] However, while these studies have addressed ecosystem development, there remains a research gap in understanding how KSUM's facilitation mechanisms influence investment decisions, particularly the level of initial investment among startups.[6]

Several studies have acknowledged the pivotal role of KSUM in promoting entrepreneurship and innovation in Kerala, particularly by strengthening the incubation and support infrastructure. However, limited empirical research has examined how these facilitation measures directly influence investment decisions, especially the initial investment required to establish startups within Technopark. Understanding this relationship is crucial, as high startup costs and funding constraints often deter potential entrepreneurs from entering the innovation ecosystem.

The research seeks to identify whether institutional support mechanisms act as substitutes for financial capital, thereby reducing the capital burden on early-stage ventures. By analyzing the statistical relationships between facilitation factors and investment levels, the study aims to provide evidence-based insights into how state-supported innovation programs can reshape entrepreneurial financing behaviour.This study aims to bridge that gap by examining the relationship between KSUM's facilitation factors such as incubation facilities, seed funding, mentorship, R&D support, co-working spaces, technology commercialisation, global network linkages, and FAB Labs, and the initial investment behaviour of startups located in Technopark. The analysis seeks to determine whether KSUM's institutional support effectively reduces the financial entry barriers for new ventures, thereby reshaping the investment dynamics of Kerala's startup ecosystem.[7]

METHODOLOGY

The study relied on primary data. The study was conducted with a sample number of 60 companies in Technopark. For sample selection the study used a sample size determination formula by Almeda et al., 2010 to select the sample out of a total of 479 companies. By this sample size is determined as approximately 59 and the researcher selected 60 companies from Techno park, Thiruvananthapuram. The data regarding influence of Kerala Startup

Mission on investment were connected through a structured interview schedule. To analyze the relationship between investment and all the above factors, both Univariate and Bivariate analysis via SPSS 2.0 is performed.

THEORETICAL BACKGROUND

The entrepreneurship ecosystem in which startups operate is best understood through several interlinked theoretical frameworks. First, the concept of an entrepreneurial ecosystem explains how a set of interdependent actors and factors such as policy, finance, culture, support services, human capital and markets collectively create an enabling environment for productive entrepreneurship.[8] Within this model, institutional supports such as incubation infrastructure, mentoring and funding act not just as auxiliary services but as core components of the ecosystem. Second, the notion of a regional innovation system (RIS) emphasises that the generation and diffusion of knowledge, the participation of universities, government bodies and firms, and systematic collaborations within a region can reduce uncertainty and transaction costs for new ventures.[9] Finally, the resource dependency and institutional theory perspectives argue that firms (including startups) are embedded in an environment from which they must draw critical resources as well as legitimacy thus external institutional facilitation (for infrastructure, networks, and support) is vital to reducing their dependence on large initial capital outlays.[10] Together, these theories establish that an organisation like a state-led startup mission by providing infrastructure, access to finance, networks and institutional legitimacy can significantly influence startup investment decisions and reduce the magnitude of their initial capital requirements. The policymakers and stakeholders can utilize the empirical model of investment on investment presented in the study to make appropriate interventions to attract new entrepreneurs, and investors to the sector and this ought to use Technopark's present level of investment and eventually support Kerala's economic expansion.

DISTRIBUTION OF COMPANIES ON THE BASIS OF INVESTMENT

Understanding the distribution of companies based on their investment levels provides valuable insights into the financial structure and growth patterns of startups operating within Technopark. Investment, both initial and current, serves as a key indicator of a firm's scale, maturity, and capacity to expand its operations. The distribution of companies on the basis of initial investment is detailed in table 1.

Table 1: Distribution of companies on the basis of Initial Investment

Initial Investment	Number of Companies	Percent
100000-1000000	35	58.3
1100000-2000000	12	20.0
2500000-5000000	8	13.3
7000000-10900000	5	8.3

Source: Primary Data

The distribution of companies based on initial investment indicates that the majority of firms in Technopark have invested up to `10 crores at the time of establishment. This reflects a dominance of small and medium-scale enterprises (SMEs) within the park, where most startups begin operations with moderate financial resources, relying more on institutional support and internal funding than on large external capital inflows. The second-largest group of firms reported initial investments in the range of `11 crores to `20 crores, though their proportion is comparatively much lower, signifying that high-capital startups are relatively few within the ecosystem. This distribution highlights a financial structure where a large number of firms prefer to start with controlled investment levels, possibly due to cautious risk management strategies and the availability of infrastructural and technical support provided by the Kerala Startup Mission (KSUM). The pattern suggests that KSUM's facilitation services enable startups to operate efficiently even with limited early-stage capital, thereby reducing the dependency on large-scale initial investments.

Table 2: Distribution of companies on the basis of Current Investment

Current Investment	Number of Companies	Percent
5 Lakhs-1.5 Crores	22	36.6
2 Crores -10 Crores	16	26.6
11 Crores -50 Crores	13	21.6
Above 50 Crores	9	15.0

Source: Primary Data

The distribution of companies in Technopark based on current investment levels reveals that a majority of the firms fall within the `5 lakhs to `1.5 crore range, indicating a concentration of startups operating with moderate capital intensity. This suggests that a significant portion of technology-based enterprises are still in the early or growth stages of development, focusing on stabilizing operations rather than large-scale capital expansion. The second-largest group of firms reported investment levels between `2 crores and `10 crores, reflecting a segment of more established companies that have successfully scaled operations, possibly benefiting from sustained revenue streams or external funding support.

INFLUENCE OF KERALA STARTUP MISSION ON INVESTMENT IN TECHNOPARK

To understand the extent to which the Kerala Startup Mission (KSUM) influences investment decisions within Technopark, an empirical analysis was carried out based on primary data collected from the selected firms. The statistical results presented in Table 3 highlight both the significance levels and correlation coefficients (R values) for each variable, offering insights into how institutional support mechanisms shape financial behaviour among startups in Technopark.

Table 3: Influence of Kerala Startup Mission on Investment in Technopark

Indicator	Initial investment	Current Investment

Kerala Startup Mission	Pearson Correlation	-.669**	-.164
	Sig. (2-tailed)	.000	.422
Incubation Facility	Pearson Correlation	-.718**	-.073
	Sig. (2-tailed)	.000	.722
Seed fund and Early-stage risk capital	Pearson Correlation	-.415*	-.174
	Sig. (2-tailed)	.035	.394
Training and Mentorship	Pearson Correlation	-.607**	-.242
	Sig. (2-tailed)	.001	.233
Tax Incentives	Pearson Correlation	-.048	-.105
	Sig. (2-tailed)	.815	.611
Co-working Spaces	Pearson Correlation	-.471*	-.173
	Sig. (2-tailed)	.013	.388
Research and Development Services	Pearson Correlation	-.718**	-.081
	Sig. (2-tailed)	.000	.693
Commercialization of Technology	Pearson Correlation	-.580**	-.269
	Sig. (2-tailed)	.002	.185
Access to Pre-commercialization Funding	Pearson Correlation	-.059	.106
	Sig. (2-tailed)	.776	.607
Connection with Global network	Pearson Correlation	-.640**	-.227
	Sig. (2-tailed)	.000	.256
Patent Support	Pearson Correlation	-.237	-.104
	Sig. (2-tailed)	.233	.605
FAB Labs	Pearson Correlation	-.713**	-.198
	Sig. (2-tailed)	.000	.323

Source: Primary Data

The analysis revealed that all the selected facilitation factors of the Kerala Startup Mission namely Incubation Facility ($R = –0.709^{**}$, $p < 0.01$), Seed fund and Early-stage risk capital, Training and Mentorship, Co-working Spaces, Research and Development Services, Commercialisation of Technology, Connection with Global network and FAB Labs show a negative and significant relationship with the level of Initial Investment. This indicates that

as the support provided through these factors increases, the initial investment made by startups tends to decrease. No factors Found to be significant with current investment.

This negative significance implies that as the level of support provided through these facilities and services increases, the amount of initial investment required by startups tends to decrease. In other words, the comprehensive support ecosystem created by the Kerala Startup Mission helps entrepreneurs reduce their dependence on high initial capital by offering shared infrastructure, technical and business guidance, access to funding networks, and innovation resources. This indicates that each of these facilitation factors has a statistically significant negative influence on the level of initial investment among startups supported by the Kerala Startup Mission.

This negative relationship may also suggest that the facilities and services offered by the Kerala Startup Mission effectively reduce the financial burden on startups during their initial phase. In other words, the availability of shared infrastructure, guidance, and research support might allow entrepreneurs to start their ventures with comparatively lower capital requirements.

Furthermore, the significant value ($p < 0.01$) highlights that this inverse relationship is statistically meaningful, implying that the Kerala Startup Mission's initiatives have a tangible impact in minimizing the cost barriers associated with new venture creation. Overall, the findings suggest that the Mission's support ecosystem plays a crucial role in promoting startup development by lowering entry costs and providing non-financial resources that substitute for high initial investment needs.

DISCUSSION

The study reveals that various facilitation factors provided under the Kerala Startup Mission namely Incubation Facility, Seed Fund and Early-stage Risk Capital, Training and Mentorship, Co-working Spaces, Research and Development (R&D) Services, Commercialisation of Technology, Connection with Global Network, and FAB Labs exert a negative yet significant influence on the level of Initial Investment required by startups. This outcome suggests that as the availability and effectiveness of these support mechanisms increase, the dependency of startups on large-scale initial capital investment decreases.

The Incubation Facility plays a crucial role by offering shared infrastructure, administrative support, and business development assistance, thereby reducing the financial burden typically associated with early-stage operations. Similarly, access to Seed Fund and Early-stage Risk Capital helps entrepreneurs manage funding gaps more efficiently, substituting external capital support for high personal investment. The provision of Training and Mentorship enhances managerial and technical competencies, enabling startups to optimize available resources and avoid unnecessary expenditure during the initial phase.

Further, Co-working Spaces and R&D Services contribute to cost efficiency by offering shared resources and research infrastructure, which otherwise would require considerable financial commitment. The Commercialisation of Technology initiatives facilitate the transformation of innovative ideas into market-ready products, reducing the financial risks linked with product development. Additionally, the Connection with Global Network provides startups with exposure to international markets, partnerships, and best practices, helping them achieve scalability with limited initial resources. Lastly, the establishment of FAB Labs fosters rapid prototyping and innovation, allowing startups to test and refine their ideas cost-effectively.

Overall, the negative but significant relationships emphasize that the Kerala Startup Mission's ecosystem effectively lowers entry barriers and mitigates the financial challenges faced by startups. The findings confirm that the Mission's comprehensive institutional, technical, and financial support mechanisms not only encourage entrepreneurial participation but also enable startups to begin operations with reduced capital dependency, thereby strengthening the overall startup environment in the state.

CONCLUSION

The study concludes that the Kerala Startup Mission (KSUM) plays a pivotal role in influencing the initial investment behaviour of startups in Technopark, Trivandrum. The analysis revealed that all facilitation factors such as Incubation Facility, Seed Fund and Early-stage Risk Capital, Training and Mentorship, Co-working Spaces, R&D Services, Commercialisation of Technology, Connection with Global Network, and FAB Labs have a negative and significant relationship with initial investment. This indicates that the extensive institutional and infrastructural support provided by KSUM effectively reduces the capital requirement for new ventures, enabling startups to operate with lower financial risk. Overall, the findings highlight that KSUM's ecosystem has been instrumental in lowering entry barriers, promoting entrepreneurship, and fostering a sustainable innovation environment within Kerala.

REFERENCES

1. Kerala Startup Mission. (2025). Kerala Startup Mission; KSUM. https://startupmission.kerala.gov.in/reports
2. Kerala Startup Mission. Kerala Startup Ecosystem Report 2022. Retrieved from https://startupmission.kerala.gov.in/reports - Yahoo India Search Results. (2022).
3. Cn Birthday Notebooks. (2019). Blank Lined Journal, Notebook, Diary, Planner - Legendary Since April 1970 - 49th Birthday Gift For 49 Years Old Men and Women Born in April.

4. Holaday, B., Holaday, D., & Kumar, N. (n.d.). International Journal of Social Science and Economic Research ROLE OF KERALA STARTUP MISSION (KSUM) IN ACCELERATING KERALA'S STARTUP ECOSYSTEM: A REVIEW ON BUSINESS INCUBATION IN KERALA. https://ijsser.org/files_2019/ijsser_04__288.pdf
5. Sajeev Kumar A P, et al. (2025). "Startups in God's Own Country: A Study of Entrepreneurial Ecosystem in Kerala". Journal of Asia Entrepreneurship and Sustainability, vol. 21, no. 2, Aug., pp. 91-100, https://doi.org/10.53555/jaes.v21i2.32.
6. Thomas, J., & K.I., G. (2020). Incubation Centres and Start-ups: A Study on Kerala's Start-up Ecosystem. SEDME (Small Enterprises Development, Management & Extension Journal): A Worldwide Window on MSME Studies, 47(1), 43–52. https://doi.org/ 10.1177/0970846420930472
7. Kerala Startup Mission. (2025). Kerala Startup Mission; KSUM. https://startupmission.kerala.gov.in/reports
8. Isenberg, D. (2011). The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurship. Institute of International and European Affairs, Dublin, Ireland, 12 May 2011, 1-13.
9. Qian, H., & Fu, W. (2024). Entrepreneurial Ecosystem versus Regional Innovation System. Oxford University Press EBooks, 461–478. https://doi.org/10.1093/oso/9780192866264.003.0026
10. Hessels, J., & Terjesen, S. (2008). Resource dependency and institutional theory perspectives on direct and indirect export choices. Small Business Economics, 34(2), 203–220. https://doi.org/10.1007/s11187-008-9156-4