INFLUENCE OF KERALA START- UP MISSION ON ENTREPRENEURIAL ECOSYSTEM IN KERALA

Thesis submitted to the

University of Calicut

for the award of the degree of

Doctor of Philosophy in Commerce

Under the Faculty of Commerce and Management Studies

By

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SEPTEMBER 2025

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I hereby declare that the work presented in the thesis entitled **"Influence of Kerala Start-Up Mission on Entrepreneurial Ecosystem in Kerala"** is based on the original work done by me under the guidance of Dr. Aravind J., Associate Professor, NSS College, Manjeri and has not been included in any other thesis submitted previously for the award of any degree. The contents of the thesis are undergone plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut, and the similarity index found within the permissible limit. I also declare that the thesis is free from AI generated contents.

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This is to certify that the thesis entitled "**Influence of Kerala Start-Up Mission on Entrepreneurial Ecosystem in Kerala**" is a record of the bonafide research work done by Ms. Praveena Vijayan, Part Time Research Scholar under my supervision and guidance. The thesis is the outcome of her original work and has not formed the basis for the award of any degree, diploma, associateship, fellowship or any other similar title and is worth submitting for the award of the Degree of Doctor of Philosophy in Commerce under the Faculty of Commerce and Management Studies, University of Calicut. All the relevant corrections and modifications recommended by the Doctoral Committee during the pre-submission seminar have been incorporated in the thesis.

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Acknowledgement

With profound gratitude, I acknowledge the Almighty God and Gurudeva for the abundant blessings, guidance and strength, which enabled me to successfully complete this research work.

First, I express my sincere appreciation and gratitude to my research guide Dr. Aravind J, Associate Professor, N S S College, Manjeri for the invaluable guidance, encouragement and constructive suggestions throughout this research work. His patience, keen insights and unwavering support have not only shaped this research but also enriched my academic and personal growth. I consider it a great privilege to have worked under his mentorship.

I express my sincere gratitude to Christ College (Autonomous), Irijalakkuda, especially the Principal Rev. Fr. Dr. Jolly Andrews CMI and the Manager, Rev. Fr. Dr. Joy P T CMI for giving all the facilitates in the College for my research work. Also express my gratitude to Dr. Joseena Jose, Mrs. Shine Paul, Dr. Arun Balakrishnan M B, Mr. Muvish K M and all other faculty members of the Department for their support and encouragement.

Sincere gratitude to all co-scholars who have assisted me during my research work at the Research Centre.

Thanks to Librarian Dr. Nasirudheen T, C.H.M K library, University of Calicut for all the facilities and guidance provided during the plagiarism checking of my thesis. I also express my thanks to the Director of Research and team for the assistance given for my work.

I express my sincere gratitude to Dr. Shafeer P S, Assistant Professor and Research Guide, Department of Commerce, MES Asmabi College, for all the support given for statistical analysis for the completion of my thesis. Also thankful to all startup owners who generously shared their time and insights, making this study possible.

I am deeply indebted to all my family members and relatives for their unwavering love, support and encouragement during the course of this work.

Finally, I extend my heartfelt thanks to all my well-wishers and friends whose encouragement has been a source of strength throughout this academic journey.

Praveena Vijayan

Abstract

The topic of research is Influence of Kerala Start-Up Mission on Entrepreneurial Ecosystem in Kerala. The objectives of the study include Examination of the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala; Investigation of the entrepreneurial ecosystem in the State of Kerala; exploration of the role of core support services provided by the KSUM in shaping the ecosystem, and analysis of differences in perception among entrepreneurs based on socio-demographic characteristics; Examination of the levels of attitude, motivation, self-efficacy, risk tolerance and innovativeness among entrepreneurs in Kerala, and to analyse the association of these traits with their socio-demographic and organizational characteristics; Empirically testing a moderated serial mediation model in which the impact of start-up support services on the entrepreneurial ecosystem is mediated through the sequential influence of attitude, motivation, and self-efficacy, and moderated by entrepreneurs' risk-taking behaviour, and; Extraction of the mediating role of risk tolerance in the relationship between the core support services of the Kerala Start-up Mission and the development of the entrepreneurial ecosystem, and to analyse the moderating effect of entrepreneurial innovativeness on the relationship between core support services and risk tolerance. The sample size of 384 is determined on random basis from a total population of 2650 Start Ups as on 31st December, 2022 according to Krejcie and Morgan's formula. 18 Constructs were used for the study to collect the samples. A well-designed questionnaire was used to collect the primary data. A pilot study was conducted based on 50 samples to measure internal reliability. 16 Hypotheses in combined form were formulated and tested. The Analysis and Interpretation of Primary Data are presented in the Thesis in the fourth Chapter. Chapter consists of Parts of Analysis which cover the Objectives of the Study. Each Part again consists of an Introduction and a Conclusion to facilitate easy understanding of the Analysis of the Data.

The statistical tools used for analysis of data include mean, standard deviation, one sample t test, independent t test and ANOVA with Tukey HSD's post hoc analysis are used with the help of IBM SPSS 27 software package, Quartile settings, Percentage Analysis and Chi-Square test for goodness of fit and Chi-square test, Co-variance Based Confirmatory Factor Analysis (CB-CFA) and Structural Equation Modelling (SEM) techniques with chi square difference test, heterogeneity test and bootstrapping procedures and simple slope curve graph. 84 specific findings were derived from the study. By tailoring interventions to meet the specific needs of entrepreneurs, the entrepreneurial ecosystem in Kerala can be further improved, fostering a climate conducive to sustained innovation and economic growth, especially through the Kerala Startup Mission. Theoretical and practical implications of the study were observed and noted. Specific recommendations were made for the policy makers. Areas for future research were also suggested.

Keywords: Entrepreneurial Ecosystem, Startups, Kerala Startup Mission (KSUM)

സംഗ്രഹം

കേരളത്തിലെ സംരംഭകത്വ ആവാസവ്യവസ്ഥയിൽ കേരള സ്റ്റാർട്ടപ്പ് മിഷന്റെ സ്വാധീനം എന്നതാണ് ഗവേഷണ വിഷയം. കേരളത്തിലെ സംരംഭകത്വം പ്രോത്സാഹിപ്പിക്കുന്നതിനുള്ള കേരള സ്റ്റാർട്ടപ്പ് മിഷന്റെ പദ്ധതികൾ, പരിപാടികൾ, പിന്തുണാ സേവനങ്ങൾ എന്നിവയുടെ പരിശോധന; കേരളത്തിലെ സംരംഭകത്വ ആവാസവ്യവസ്ഥയെക്കുറിച്ചുള്ള അന്വേഷണം; ആവാസവ്യവസ്ഥയെ രൂപപ്പെടുത്തുന്നതിൽ KSUM നൽകുന്ന കോർ സപ്പോർട്ട് സർവീസുകളുടെ പങ്ക് പര്യവേക്ഷണം ചെയ്യുക, സാമൂഹികജനസംഖ്യാ സവിശേഷതകളെ അടിസ്ഥാനമാക്കി സംരംഭകർക്കിടയിൽ ധാരണയിലെ വ്യത്യാസങ്ങൾ വിശകലനം ചെയ്യുക; കേരളത്തിലെ സംരംഭകർക്കിടയിലെ മനോഭാവം, പ്രചോദനം, സ്വയംഫലപ്രാപ്തി, അപകടസാധ്യത സഹിഷ്ണുത, നൂതനത്വം എന്നിവയുടെ നിലവാരം പരിശോധിക്കുക, ഈ സ്വഭാവവിശേഷങ്ങളെ അവരുടെ സാമൂഹികജനസംഖ്യാ, സംഘടനാ സവിശേഷതകളുമായി എങ്ങനെ ബന്ധപ്പെടുത്തുന്നുവെന്ന് വിശകലനം ചെയ്യുക എന്നിവ പഠനത്തിന്റെ ലക്ഷ്യങ്ങളിൽ ഉൾപ്പെടുന്നു; സ്റ്റാർട്ടപ്പ് സപ്പോർട്ട് സർവീസുകളുടെ സ്വാധീനം മനോഭാവം, പ്രചോദനം, സ്വയംഫലപ്രാപ്തി എന്നിവയുടെ തുടർച്ചയായ സ്വാധീനത്തിലൂടെ മധ്യസ്ഥത വഹിക്കുന്നതും സംരംഭകരുടെ റിസ്ക്എടുക്കൽ പെരുമാറ്റം വഴി നിയന്ത്രിക്കപ്പെടുന്നതുമായ ഒരു മോഡറേറ്റഡ് സീരിയൽ മീഡിയേഷൻ മോഡൽ അനുഭവപരമായി പരീക്ഷിക്കൽ; കേരള സ്റ്റാർട്ട്അപ്പ് മിഷന്റെ കോർ സപ്പോർട്ട് സർവീസുകളും സംരംഭക ആവാസവ്യവസ്ഥയുടെ വികസനവും തമ്മിലുള്ള ബന്ധത്തിൽ റിസ്ക് ടോളറൻസിന്റെ മധ്യസ്ഥ പങ്കിന്റെ വേർതിരിച്ചെടുക്കൽ, കോർ സപ്പോർട്ട് സർവീസുകളും റിസ്ക് ടോളറൻസും തമ്മിലുള്ള ബന്ധത്തിൽ സംരംഭക നവീകരണത്തിന്റെ മിതമായ സ്വാധീനം വിശകലനം ചെയ്യുക. ക്രെജ്സിയുടെയും മോർഗന്റെയും ഫോർമുല അനുസരിച്ച് 2022 ഡിസംബർ 31 ലെ 2650 സ്റ്റാർട്ടപ്പുകളുടെ ആകെ ജനസംഖ്യയിൽ നിന്ന് ക്രമരഹിതമായി 384 ന്റെ സാമ്പിൾ വലുപ്പം നിർണ്ണയിക്കപ്പെടുന്നു. സാമ്പിളുകൾ ശേഖരിക്കുന്നതിനായി പഠനത്തിനായി 18 നിർമ്മാണങ്ങൾ ഉപയോഗിച്ചു. പ്രാഥമിക ഡാറ്റ ശേഖരിക്കുന്നതിന് നന്നായി രൂപകൽപ്പന ചെയ്ത ഒരു ചോദ്യാവലി ഉപയോഗിച്ചു. ആന്തരിക വിശ്വാസ്യത അളക്കുന്നതിനായി 50 സാമ്പിളുകളെ അടിസ്ഥാനമാക്കി ഒരു പൈലറ്റ് പഠനം നടത്തി. സംയോജിത രൂപത്തിലുള്ള 16 അനുമാനങ്ങൾ രൂപപ്പെടുത്തി പരീക്ഷിച്ചു. പ്രാഥമിക ഡാറ്റ

യുടെ വിശകലനവും വ്യാഖ്യാനവും നാലാമത്തെ അധ്യായത്തിലെ തീസിസിൽ അവതരിപ്പിച്ചിരിക്കുന്നു. പഠനത്തിന്റെ ലക്ഷ്യങ്ങൾ ഉൾക്കൊള്ളുന്ന വിശകലന ത്തിന്റെ ഭാഗങ്ങൾ അധ്യായത്തിൽ അടങ്ങിയിരിക്കുന്നു. ഡാറ്റയുടെ വിശകലനം എളുപ്പത്തിൽ മനസ്സിലാക്കാൻ സഹായിക്കുന്നതിന് ഓരോ ഭാഗത്തിലും വീണ്ടും ഒരു ആമുഖവും ഒരു ഉപസംഹാരവും അടങ്ങിയിരിക്കുന്നു.

ഡാറ്റ വിശകലനത്തിനായി ഉപയോഗിക്കുന്ന സ്റ്റാറ്റിസ്റ്റിക്കൽ ഉപകരണങ്ങ ളിൽ ശരാശരി, സ്റ്റാൻഡേർഡ് ഡീവിയേഷൻ, ഒരു സാമ്പിൾ ടി ടെസ്റ്റ്, ഇൻ ഡിപെൻഡന്റ് ടി ടെസ്റ്റ്, Tukey HSD യുടെ പോസ്റ്റ് ഹോക്ക് വിശകലനത്തോടു കൂടിയ ANOVA എന്നിവ ഉൾപ്പെടുന്നു. SPSS 27 സോഫ്റ്റ്വെയർ പാക്കേജിന്റെ സഹായത്തോടെ ക്വാർട്ടൈൽ സെറ്റിംഗ്സ്, പെർസെന്റേജ് അനാലിസിസ്, കൈ സ്ക്വയർ ടെസ്റ്റ് ഫോർ ഗുഡ്നെസ് ഓഫ് ഫിറ്റ്നസ് ആൻഡ് കൈ സ്ക്വയർ ടെസ്റ്റ്, കോവേരിയൻസ് ബേസ്ഡ് കൺഫർമേറ്ററി ഫാക്ടർ അനാലിസിസ് (CB-CFA), കൈ സ്ക്വയർ ഡിഫറൻസ് ടെസ്റ്റ്, ഹെറ്ററോജെനിറ്റി ടെസ്റ്റ്, ബൂട്ട്സ്ട്രാപിംഗ് നടപടി ക്രമങ്ങൾ, ലളിതമായ സ്ലോപ്പ് കർവ് ഗ്രാഫ് എന്നിവ ഉപയോഗിച്ച് ഇവ ഉപയോഗി ക്കുന്നു. പഠനത്തിൽ നിന്ന് 84 നിർദ്ദിഷ്ട കണ്ടെത്തലുകൾ ഉരുത്തിരിഞ്ഞു. സം രംഭകരുടെ പ്രത്യേക ആവശ്യങ്ങൾ നിറവേറ്റുന്നതിനായി ഇടപെടലുകൾ ക്രമീകരി ക്കുന്നതിലൂടെ, കേരളത്തിലെ സംരംഭക ആവാസവ്യവസ്ഥ കൂടുതൽ മെച്ചപ്പെടു ത്താനും സുസ്ഥിരമായ നവീകരണത്തിനും സാമ്പത്തിക വളർച്ചയ്ക്കും അനുകൂല മായ ഒരു കാലാവസ്ഥ വളർത്തിയെടുക്കാനും കഴിയും, പ്രത്യേകിച്ച് കേരള സ്റ്റാർട്ടപ്പ് മിഷൻ വഴി. പഠനത്തിന്റെ സൈദ്ധാന്തികവും പ്രായോഗികവുമായ പ്രത്യാഘാതങ്ങൾ നിരീക്ഷിക്കുകയും ശ്രദ്ധിക്കുകയും ചെയ്തു. നയരൂപീകരണ ക്കാർക്കായി പ്രത്യേക ശുപാർശകൾ നൽകി. ഭാവി ഗവേഷണത്തിനുള്ള മേഖലകളും നിർദ്ദേശിച്ചു.

പ്രധാനപദങ്ങൾ: സംരംഭകത്വ പരിസ്ഥിതി വ്യവസ്ഥ, സ്റ്റാർട്ടപ്പുകൾ, കേരള സ്റ്റാർട്ടപ്പ് മിഷൻ (KSUM)

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1.1 Introduction

The economic growth of a country refers to an increase in the real level of national output, which can result from enhancements in resource quality, an increase in resource quantity, or advancements in technology. Alternatively, it signifies a rise in the value of goods and services produced across all sectors of the economy. Economic growth can be quantified by an augmentation in a nation's GDP (gross domestic product). Economic growth is a normative term, meaning it pertains to individuals' moral perceptions of right and wrong, good and bad. Michael Todaro defines economic progress as an enhancement of living standards, an elevation of self-esteem, liberation from oppression, and an expansion of choices (Todaro, 1981). The Human Development Index is the most precise measure of development, incorporating literacy rates and life expectancy, which influence productivity and may result in economic growth. It also results in the generation of additional opportunities in the domains of education, healthcare, employment, and environmental conservation. It indicates a rise in the per capita income of each resident.

In the past decade, India has demonstrated a strong and resilient growth narrative propelled by determination, creativity, and foresight. Amidst exceptional hurdles like the Covid outbreak and geopolitical crises, the Indian economy has exhibited a notable capacity to recover and transform obstacles into opportunities while pursuing robust, sustainable, balanced, and inclusive growth.

The Indian economy has experienced numerous structural reforms that have bolstered its macroeconomic fundamentals. These reforms have resulted in India becoming the fastest-growing economy inside the G20. In 2023-24, current forecasts indicate a growth of 7.3 percent, following increases of 9.1 percent in FY22 and 7.2 percent in FY23, while the economy is creating jobs. The remarkable post pandemic rebound has resulted in a decrease in the urban jobless rate to 6.6

percent. Since May 2023, the proportion of net new subscribers to the EPFO (Employees' Provident Fund Organisation) aged 18-25 has regularly surpassed 55 percent of the total net new EPF subscribers. (Department of Economic Affairs, Govt. of India, 2024).

The expansion of entrepreneurship has emerged as a critical factor for the advancement and development of developing nations. Business communities, academics, and governments are significantly concerned with the cultivation and advancement of entrepreneurial mindsets, particularly in developing economies. (Acs et al., 2018; Naude, 2010). Entrepreneurship is a crucial factor in economic growth as it enhances national wealth through the establishment of new enterprises driven by innovation and innovative concepts (Aryal, 2020).

Startups have emerged as essential drivers of India's economic expansion and employment generation. They are essential in fostering innovation and creating employment possibilities. Consequently, it cultivates an entrepreneurial culture. Startups have challenged existing sectors by adopting disruptive technologies and innovative business strategies, resulting in beneficial disruptions and market growth. A primary benefit of startups is their capacity to rapidly adjust to evolving market conditions.

Startups have become crucial catalysts of economic growth in India. They enhance GDP, create employment opportunities, and promote a culture of innovation and risk-taking. The expansion of startups exerts a multiplicative impact on the economy. It can provide a ripple effect by boosting demand for goods and services, so stimulating adjacent businesses.

Startups are nimble, adaptable, and motivated by a fervour to address tangible issues. They introduce novel concepts, ingenuity, and advancements. Consequently, they are vital for a dynamic and evolving economy such as India.

Startups have played a crucial role in job creation, particularly within the technology industry. They provide work possibilities for skilled persons and attract premier talent. The objective is to offer a platform for recent graduates to implement

their knowledge in a practical environment. Moreover, startups have played a crucial role in mitigating brain drain by offering compelling prospects domestically (Razorpay, 2024).

India, recognized for its dynamic culture, extensive heritage, and varied populace, has become a hub for startups in recent years. The Indian startup has undergone a substantial transition, drawing entrepreneurs, investors, and innovators globally. India's startup ecosystem has experienced significant expansion and has emerged as a crucial contributor to the nation's economy. The emergence of startups can be ascribed to various factors, including an expanding youthful demographic. It enhances digital connectivity and establishes a conducive policy framework. The entrepreneurial spirit is flourishing, with individuals exploring several industries including technology, e-commerce, healthcare, and renewable energy. (Tyagi, 2022)

The availability of technology and the internet has been crucial in empowering entrepreneurs throughout India. The extensive proliferation of cell phones and the accessibility of economical internet services have linked millions. It allows startups to access previously unexploited markets. Furthermore, the emergence of venture capital firms and angel investors has supplied essential financial support for the proliferation of innovative concepts.

The Indian startup ecosystem is leading in technological innovations, facilitating the digital transformation across multiple sectors. They utilize emerging technology, including artificial intelligence, blockchain, and data analytics, to transform conventional sectors. This not only stimulates economic growth but also augments India's global competitiveness.

Moreover, startups cultivate entrepreneurial ecosystems that promote collaboration, knowledge exchange, and mentorship. They unite individuals with varied competencies, establishing a network of innovators and problem solvers. This collaborative atmosphere fosters learning, enhances creativity, and stimulates the entrepreneurial spirit, establishing a virtuous cycle of progress.

The ecosystem is founded on the dynamic interplay of social, political, economic, and cultural aspects within a region. The Entrepreneurship Ecosystem comprises multiple constituents, including entrepreneurs, organizational stakeholders, employees, and other individuals and organizations, that either assist or hinder the development of entrepreneurs in a specific place or region (Mason & Brown, 2014). The components of the system, such as institutions, aspiring entrepreneurs, entrepreneurial associations, and other complementary factors, may influence the advancement of current entrepreneurs, individuals seeking to become entrepreneurs, and potential future candidates for entrepreneurship. These entities are referred to as stakeholders.

Additional stakeholders may include policy institutions, educational establishments, financial entities, investors, research and development centers, civil society organizations, industry groups, labour unions, legal institutions, and multinational corporations. Despite the numerous components in the ecosystem that either promote or impede entrepreneurship, some factors may exert a comparatively greater influence than others. Certain cities in India, such as Bengaluru and Hyderabad, exhibit greater entrepreneurial activity than most other Indian cities. The stage of ecosystem evolution in certain locations may influence the likelihood that a mature ecosystem will promote greater entrepreneurship. Furthermore, these supporting variables must operate in conjunction to establish an appropriate environment for growth. All entities and stakeholders are interconnected, either directly or indirectly, formally or informally, influencing performance in the specified environment by either accelerating or decelerating it.

The interconnections among these diverse subsystems facilitate the fulfilment of the ecosystem's goal (Mason & Brown, 2014). The conductive ecosystem fosters innovation and risk-taking, which are essential for startup growth which in turn cause the growth and development of entrepreneurial ecosystems.

1.2 Statement of the Problem

The problem under study is the influence of Kerala Startup Mission on the Entrepreneurial Ecosystem in Kerala. The study seeks to analyse how Kerala Startup Mission serves the Entrepreneurial Ecosystem in Kerala. The study examines the nature and degree of utilisation of various services of Kerala Startup Mission by the Entrepreneurial Ecosystem in Kerala. The study establishes the relationship between various Schemes, Programs, Events and Other Supports of Kerala Startup Mission and the various factors of Entrepreneurial Ecosystem such as Finance, Policy Environment, Human Capital, Entrepreneurial Culture, Business Support Services, Markets, Infrastructure, Business Environment, and Research and Development/Innovation with a view to ascertain the true nature of influence of Kerala Startup Mission on Entrepreneurial Ecosystem in Kerala. Thus, the study investigates into the role of Kerala Start up Mission in modelling the dynamics of Entrepreneurial Ecosystem in Kerala. The study investigates into the levels of attitude, motivation, self-efficacy, risk tolerance, and innovativeness among entrepreneurs in Kerala, and examines the correlation of these attributes with their socio-demographic and organizational features. The study also seeks to establish the mediating and moderating effect of these pertinent psychological entrepreneurial traits on the relationship between Kerala Start up Mission and Entrepreneurial Ecosystem in Kerala.

Kerala was the first state in India to implement a startup policy, the Kerala Technology Startup Policy, in 2014. The Kerala Startup Mission (KSUM) was founded to execute the stipulations outlined in the policy. The Government of Kerala incorporated initiatives for startups in the State IT Policy 2017 to adapt to the evolving requirements of startups. KSUM aims to promote innovation-driven entrepreneurship, with the catalysts for such innovation anticipated to emerge from academic institutions, research and development centers, society at large, and rural innovators. The Government of Kerala has allocated 1% of its budget for the advancement of entrepreneurship and innovation inside the State.

KSUM serves as the principal department for the startup ecosystem in the State, bolstered by a robust network of incubators and several other ecosystem facilitators. The Kerala Startup Policy, initiated in 2014, seeks to establish Kerala as the premier destination for startups in India and among the top five startup ecosystems globally. The Policy establishes a framework for strengthening startups in the technology sector. Kerala has led in the advancement and promotion of entrepreneurship. The startup ecosystem is organized, featuring a clearly articulated startup policy and regulatory framework, which has received recognition from the Department for Promotion of Industry and Internal Trade (DPIIT). The startup policy is to establish a premier scientific and technological ecosystem that empowers the youth to realize their aspirations within the state. In 2017, the State implemented the Technology Innovation and Entrepreneurship policy to facilitate the commercialization of technology and enhance conventional industries through new technologies. KSUM serves as the principal agency of the Government of Kerala for the advancement of entrepreneurship and incubation initiatives within the State. KSUM serves as the principal organization for all incubators in the State, coordinating their efforts to enhance infrastructure development for businesses.

The state possesses a clearly articulated startup policy with designated focus areas and a dependable online platform for entrepreneurs to register and access incentives provided by the state government. Additionally, the state possesses a startup cell staffed by a specialized team to support startups. It possesses a mechanism to offer intellectual property support to startups. The Kerala Government receives robust backing from multiple agencies to foster the development of the state's startup ecosystem.

Entrepreneurial ecosystems comprise the cultural, political, and economic elements that facilitate entrepreneurs in launching, sustaining, and growing a new venture (Stam, 2015; Isenberg, 2011). Employing ecological principles, the term underscores the interconnection of entities whose growth is either promoted or hindered by one another (Cantner, 2020). In this context, entrepreneurial ecosystems

amalgamate the examination of economic development and entrepreneurship (Acs, 2017). Ecosystem components may include networks of individuals serving as formal and informal mentors, local regulations overseeing business initiation and sustainability, academic institutions nurturing new workforce talent, cultural factors influencing innovation and risk-taking, and support organizations offering financial and technical resources to promote the growth of early-stage enterprises (Isenberg, 2011; Stam & Spigel, 2016; Autio et al., 2018). Entrepreneurial ecosystems typically refer to a geographical area, such as a city, region, or small nation, where entrepreneurs access a shared set of services and are affected by similar laws (Mason & Brown, 2014; Spigel, 2017).

The entrepreneurial ecosystem approach provides a unique viewpoint on the aggregation of economic activity that has been overlooked or understated in prior research studies. The primary emphasis is on entrepreneurial endeavours, particularly high-growth enterprises. The focus is on local and regional settings and the necessary circumstances to foster and sustain ambitious entrepreneurship. Third, it underscores the interplay between framework conditions and local or regional geographical contexts. This unique perspective results in a policy agenda that diverges from traditional 'economic development,' 'innovation,' and 'cluster' strategies, prioritizing a more facilitative approach to support (Isenberg, 2011).

Moreover, entrepreneurs' contentment with their firm's performance is crucial as it significantly influences investment and continuation decisions (Gorgievski et al., 2011; Murphy & Callaway, 2004; Wach et al., 2016). Entrepreneurs with a favourable perception of their business success are likely to allocate additional resources to their firm, regardless of their existing financial status (Gorgievski et al., 2011; Wach et al., 2016). This will boost the firms' performance, ensuring the business's survival prospects. Therefore, to guarantee the enduring beneficial effects of entrepreneurship such as job creation and economic growth (Bosma & Kelley, 2019), it is essential to comprehend the characteristics linked to entrepreneurial performance. Entrepreneurial performance denotes the comprehensive satisfaction entrepreneurs demonstrate regarding their

firm's performance, including metrics such as revenue and personnel count (Gorgievski et al., 2014).

Entrepreneurial operations inherently involve risk, which denotes a preference for uncertainty characterized by a distribution of probabilities rather than certainty (Zhang et al. 2015). As noted by Douglas and Shepherd (2002), a favourable disposition towards risk or a readiness to accept unpredictable outcomes is a crucial characteristic of an entrepreneur. A significant characteristic of an entrepreneur is locus of control, defined as an individual's perceived ability to influence events in their life (Farradinna et al., 2019). It may be of an internal or exterior character. Individuals with an internal locus of control perceive themselves as capable of influencing all aspects of their lives, while those with an external locus of control attribute their life circumstances to external forces (Colakoglu & Gozukara, 2016). Khanka (2009) found that entrepreneurs with an internal locus of control had superior performance relative to those with an external locus of control. The success of entrepreneurs is contingent upon their resilience and capacity for innovation (Ngah & Salleh, 2015). Innovation entails the execution of novel concepts or the development of products or processes that differ from those currently available, according to Gault (2018). The inventive feature is considered a component of strategic orientation that transforms new ideas into reality, leading to creative concepts and the introduction of innovative events, identification of chances for new products, and effective problem-solving implementation (O'Regan & Ghobadian, 2005). Moreover, Douglas and Fitzsimmons (2005) stated that aspiring entrepreneurs are driven by the aspiration to be their own boss. The aspiration for autonomy is a fundamental characteristic of entrepreneurial traits, allowing an individual to formulate future goals and make independent judgments. Joseph, (2017) Lee et al. (2005) assert that persons with a strong drive for independence are more likely to become entrepreneurs. Alongside personality features, various demographic aspects influencing entrepreneurship include age, gender, education, work experience, and role models (Ambad & Damit, 2016).

1.3 Scope of the Study

The scope of a research study delineates the extent and boundaries of the research, specifying what will and will not be included in the investigation. Defining the scope early in the research process, prior to data collection, is crucial for maintaining focus and realism in the research. The scope of a research study includes the specific objective of the study which is the influence of Kerala Startup Mission on the Entrepreneurial Ecosystem in Kerala. The population of the Study is the entire Startup units registered as on 31st December, 2022 which comes to 2650 units. The sample size is 384 startup units in Kerala. The variables considered for the study include the schemes, programs, events and supports of KSUM, the factors of Entrepreneurial ecosystem, Mediating and Moderating Constructs used in the study. Direct Personal Investigation is the method used for collecting the Primary Data. The main limitation of the study is that the full working or function of the Startup units or KSUM is not studied. The time period with which the study conducted is three years. The geographical location of the study spread across the entire State of Kerala. The related theories of the variables of the Study are also discussed in detail.

Defining the scope of a research study facilitates the concentration of the research and guarantees the attainment of objectives and outcomes; Determine the data to be collected and the mechanisms for data collection to be developed; Elucidate the expectations for the research; Recognize possible biases in the research methodology; Optimize the study methodology; and Augment the reliability of the results A clearly delineated research scope allows a researcher to elucidate the study outcomes that were examined. It elucidates the rationale behind the collection of certain data points while excluding others. In the absence of this, establishing a conclusion for research is challenging, as no parameters have been delineated for the work that may occur.

1.4 Research Questions

1) To what extent are the schemes, programmes, events, and support services offered by the Kerala Start-up Mission accessed and utilized by entrepreneurs in the state?

2) Are there any significant variations in the extent of utilization of these support services across socio-demographic and organizational characteristics of entrepreneurs?

3) To what extent do the core support services of KSUM contribute to the development of the entrepreneurial ecosystem?

4) How do perceptions of the entrepreneurial ecosystem vary among entrepreneurs based on their socio-demographic and organizational characteristics?

5) What are the prevailing levels of entrepreneurial attitude, motivation, self-efficacy, risk tolerance, and innovativeness among entrepreneurs in Kerala?

6) Are there significant differences in these entrepreneurial traits across different socio-demographic and organizational profiles?

7) Does the effect of KSUM's start-up support services on the entrepreneurial ecosystem operate through a serial mediation pathway involving attitude, motivation, and self-efficacy?

8) Does risk tolerance moderate the strength of this serial mediation effect in the proposed model?

9) Does risk tolerance mediate the relationship between KSUM's core support services and the development of the entrepreneurial ecosystem in Kerala?

10) Does entrepreneurial innovativeness moderate the relationship between core support services and risk tolerance among entrepreneurs?

1.5 Research Objectives

1) To examine the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala.

2) To investigate the entrepreneurial ecosystem in the State of Kerala, explore the role of core support services provided by the Kerala Start-up Mission in shaping the ecosystem, and analyse differences in perception among entrepreneurs based on socio-demographic and organizational characteristics

3) To examine the levels of attitude, motivation, self-efficacy, risk tolerance and innovativeness among entrepreneurs in Kerala, and to analyse the association of these traits with their socio-demographic and organizational characteristics

4) To empirically test a moderated serial mediation model in which the impact of start-up support services on the entrepreneurial ecosystem is mediated through the sequential influence of attitude, motivation, and self-efficacy, and moderated by entrepreneurs' risk-taking behaviour.

5) To extract the mediating role of risk tolerance in the relationship between the core support services of the Kerala Start-up Mission and the development of the entrepreneurial ecosystem, and to analyse the moderating effect of entrepreneurial innovativeness on the relationship between core support services and risk tolerance

1.6 Hypotheses of the Study (Combined Form)

The core hypotheses of the study are given as under:

H1 There is no significant difference between observed and assumed core support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

H2 There is no significant difference between various socio-demographic and organisational properties related with entrepreneurs, and factors of core support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

H3 There is no significant difference between observed and assumed factors of entrepreneurial ecosystem in Kerala

H4 There is no significant difference between low level and high-level core support services offered by the Kerala Start-up mission with respect to factors of entrepreneurial ecosystem in Kerala

H5 There is no significant difference between various socio-demographic and organisational properties related with entrepreneurs, and factors of the entrepreneurial ecosystem in Kerala

H6 There is no significant difference among the levels of entrepreneurial traits of entrepreneurs in Kerala

H7 There is no significant association between various socio-demographic and organisational properties related with entrepreneurs, and level of entrepreneurial traits of entrepreneurs in Kerala

H8 Core support services of the Kerala Start-up mission has a positive effect on risk tolerance of the entrepreneurs, entrepreneurial ecosystem and entrepreneurial attitude

H9 Innovativeness has a positive effect on risk tolerance of the entrepreneurs

H10 Risk tolerance of the entrepreneurs has a positive effect on entrepreneurial ecosystem

H11 Risk tolerance mediates in the relationship between core support services of the Kerala Start-up mission and entrepreneurial ecosystem

H12 Innovativeness moderates the effect of core support services of the Kerala Start-up mission on risk tolerance of the entrepreneurs

H13 Entrepreneurial attitude has a positive effect on entrepreneurial motivation

H14 Entrepreneurial motivation has a positive effect on entrepreneurial self-efficacy

H15 Entrepreneurial self-efficacy has a positive effect on entrepreneurial ecosystem

H16 Entrepreneurial traits specifically attitude, motivation, and self-efficacy serially mediate the relationship between the core support services of the

Kerala Start-up Mission and the entrepreneurial ecosystem, and this indirect relationship is moderated by the entrepreneur's risk-taking behaviour.

The formulated Hypotheses as above were tested with suitable statistical tools, accepted or rejected, as the case may be, and presented at the appropriate places in the Thesis.

Table 1.1

Harman's Single Factor Test: Assessment of Common Method Bias

Purpose of Test	Method Used	Result obtained	Threshold value	Inference
To assess Common Method Bias (CMB)	Harman's single factor test	42.78%	≤ 50%	Common Method Bias does not pose significant issue

Harman's Single Factor Test was utilised to assess the existence of Common Method Bias (CMB) in the study. This method employs exploratory factor analysis wherein all measurement items are assigned to a single component to evaluate the variance explained. The outcome indicated that the singular factor represented for 42.78% of the overall variance, falling short of the widely recognised benchmark of 50%. Consequently, it can be concluded that Common Method Bias is not a substantial issue in this investigation, thereby preserving the integrity of the measurement model.

1.7 Research Methodology

The research methodology adopted for the study is designed as follows:

1.7.1 Nature of Study

The study is partly descriptive and partly analytical. An attempt is made to define the existing situation and it is analysed to find out emerging patterns.

1.7.2 Type of Data

Both Primary and Secondary data are used for the study. Primary data were collected from the Start-up founders in the State of Kerala and also from the KSUM Officials. Secondary data has been collected from all the available sources which

includes Journals, KSUM annual reports, conference proceedings, articles and Government publications and reports.

1.7.3 Period of the Study

The total period of Study covers a period of Three years. The primary Data were collected during the period from 1st April, 2023 to 31st March, 2024.

1.7.4 Development of Measurement Scale

The Questionnaire for collecting primary data from the selected samples of Starup founders consists of 7 Sections such as Declaration by the Researcher, Socio-Demographic and Economic Profile of the Respondent, Organisational Properties of the Entrepreneurial Venture, Factors of various Support Systems of Kerala Start-Up Mission, Factors of Entrepreneurial Ecosystem, Psychological Constructs of Entrepreneurs - Mediating Constructs and Moderating Constructs respectively.

The first three Sections were of general nature and hence drafted by the Researcher on her own. Questions on the Factors of various Service Systems of Kerala Start-Up Mission were drafted with reference to the official website of Kerala Start Up Mission. The section of the Factors of Entrepreneurial Ecosystem (EPE) was designed on the basis of the Entrepreneurial Ecosystem Diagnostic Toolkit (2013) developed by Aspen Network of Development Entrepreneurs (ANDE) USA. The questions on Entrepreneurial Traits which include Mediating Constructs and Moderating Constructs are framed with reference to an in-depth analysis of the literature concerned.

Except the first three Sections, a Five-point Likert Scale is used to collect the requisite primary data from the respondents.

1.7.5 Variables used in the Study

The Table below shows the Variables together with the number of Statements used for the collection of Primary Data in the Study:

Table 1.2

Variables of the study

Sl. No.	Variables	No. of Statements
	Factors of Core Support Systems of KSUM	
01.	Schemes	5
02.	Programmes	4
03.	Events	4
04.	Support Services	4
	Factors of Entrepreneurial Ecosystem	
05.	Finance	3
06.	Business Support System	3
07.	Policy Environment	3
08.	Markets	3
09.	Human Capital	3
10.	Infrastructure	4
11.	Business Environment	4
12.	Research and development / Innovation	3
13.	Entrepreneurial Culture	3
	Factors of Entrepreneurial Traits	
14.	Attitude	5
15.	Motivation	5
16.	Self-Efficacy	5
17.	Risk Tolerance	5
18.	Innovativeness	5
	Total	71

1.7.6 Sample Size Determination

Sample size determination is a crucial step in research design, as it directly influences the validity and generalizability of the findings. One widely accepted method for determining sample size is Krejcie and Morgan's formula (1970), which provides a standard table for identifying an appropriate sample size based on a given population at a 95% confidence level and a 5% margin of error. According to this formula, for any population size that is large or considered infinite, the recommended sample size is 384. This figure ensures adequate representation and statistical reliability, particularly in survey-based studies where population parameters are to be estimated.

The selection of N = 384 based on the Morgan table assumes a proportion (p) of 0.5, which yields the maximum variability, making it a conservative and safe

estimate for most social science research. This sample size is considered sufficient to reduce sampling error and ensure meaningful hypothesis testing, especially when using inferential techniques such as Structural Equation Modelling (SEM), regression analysis, or ANOVA. In this study, the chosen sample size of 384 aligns with best practices for empirical research, thus providing a statistically sound foundation for analysing relationships between constructs and generalizing the results to the broader population.

During the data analysis stage, the sample size was determined in accordance with the requirements of Covariance-Based Structural Equation Modelling (CB-SEM). As per the guideline proposed by Tanaka (1987), a minimum ratio of 5 cases for each free parameter is considered sufficient when applying Maximum Likelihood Estimation, provided the data exhibit multivariate normality. Following this recommendation, a sample size of 384 was considered appropriate and adequate for performing CB-SEM in the present study.

1.7.7 Sample Design

The study aimed to collect data from entrepreneurs who are actively operating their ventures through the support of the Kerala Start-up Mission (KSUM). The sampling design was prepared carefully to ensure fair representation, quality data, and alignment with research objectives.

Step 1: Define the Population

The population of the study consisted of entrepreneurs registered with the Kerala Start-up Mission (KSUM) and actively availing its services. As per the official database accessed in December 2022, there were 2650 entrepreneurs who met the eligibility criteria for the study.

Step 2: Refine the Population Criteria

From the total database, entrepreneurs whose firms were less than one year old were excluded. This was done based on the logic that start-ups in their early stage (less than one year) are still in the initial phase of development

and may not yet have gone through core entrepreneurial processes such as decision-making, funding, market entry, and scaling.

To study entrepreneurial behaviour meaningfully, the firm needs some level of operational maturity. Studies in the field suggest that at least one year of running a business is required for entrepreneurs to gain experience and apply the support services effectively (Davidsson, 2006; Brush et al., 2009). Hence, only those with one year or more in operation were considered in the final population size of 2650.

Step 3: Determine the Sampling Unit

The sampling unit for the study was one entrepreneur from each eligible start-up. To ensure accurate and relevant responses, the Chief Executive Officer (CEO) or equivalent (i.e., the person leading the business) was selected from each firm as the respondent.

Step 4: Decide the Sample Size

Based on the Morgan and Krejcie (1970) sample size determination table, a sample size of 384 was considered appropriate for a population of 2650, assuming a 95% confidence level and 5% margin of error. This sample size is statistically valid for making generalizations about the entire population.

Step 5: Choose the Sampling methods and Technique

To ensure that every entrepreneur had an equal and unbiased chance of being selected, Simple Random Sampling (SRS) was adopted under the probability sampling framework. The following steps were followed carefully

a) Preparation of Sampling Frame

- The updated list of eligible entrepreneurs (after excluding those with less than one year of operational experience) was obtained from the Kerala Start-up Mission (KSUM) database as on December 2022.
- The list included 2650 registered entrepreneurs, each representing a unique start-up that was at least one year old and actively availing KSUM services.

b) Assignment of Unique Identification Numbers

- Each entrepreneur (or start-up) was assigned a unique serial number from 1 to 2650 in the order they appeared in the database (alphabetically).
- This numbering created a clear and complete sampling frame, which is a prerequisite for Simple Random Sampling.

c) Selection of Sample Using Random Number Method

- Using a computer-based random number generator (online tools - random.org), 384 unique random numbers between 1 and 2650 were generated.
- These random numbers corresponded to the serial numbers assigned to the entrepreneurs.
- The entrepreneurs whose serial numbers matched the random numbers were selected as the final sample.

d) Contact and Confirmation

- The selected entrepreneurs were contacted via email or phone using the details from the KSUM database.
- They were informed about the purpose of the study, and consent was obtained before administering the survey questionnaire.
- In case of non-response or refusal, replacement samples were selected using the same random method from the remaining pool.

Step 6: Conduct the Data Collection

The selected entrepreneurs were contacted and invited to participate in the study. Data was collected using a structured questionnaire, focusing on their experiences, traits, the role of KSUM's support in their entrepreneurial journey etc.

1.7.8 Normality of Data (Distributional Assumption)

For the purpose of determining whether or not the data follow a normal distribution, the Kolmogorov-Smirnov test was carried out (Sarstedt & Mooi, 2014).

Table 1.3

Normality of data by Kolmogorov-Smirnov test

SI. No.	Constructs	Kolmogorov-Smirnov test	
		Statistic	Sig.
	Core support system factors		
1	Schemes	0.020	0.200*
2	Programmes	0.031	0.200*
3	Events	0.032	0.200*
4	Support services	0.034	0.200*
	Factors of entrepreneurial Ecosystem		
5	Finance	0.029	0.200*
6	Business Support Service	0.031	0.200*
7	Policy Environment	0.029	0.200*
8	Markets	0.041	0.200*
9	Human Capital	0.038	0.200*
10	Infrastructure	0.042	0.200*
11	Business Environment	0.034	0.200*
12	Research & Development/Innovation	0.045	0.200*
13	Entrepreneurial Culture	0.041	0.200*
	Factors of entrepreneurial traits		
14	Attitude	0.031	0.200*
15	Motivation	0.029	0.200*
16	Self-efficacy	0.031	0.200*
17	Risk tolerance	0.031	0.200*
18	Innovativeness	0.039	0.200*

** This is a lower bound of the true significance*

To determine whether the dataset conforms to a normal distribution, the Kolmogorov-Smirnov (K-S) test for normality was applied to all 18 constructs, following the recommendations of Sarstedt and Mooi (2014). As shown in above Table, the test results indicate that the Sig. values for all constructs are reported as 0.200*, which is the maximum reportable value in SPSS and denotes the lower bound of the true significance. This means that the actual p-values are equal to or greater than 0.200, indicating strong non-significance in the test. In the context of the K-S test, a p-value greater than 0.05 suggests that the null hypothesis that the data follow

a normal distribution cannot be rejected. Hence, the results provide no evidence against normality for any of the constructs.

The reported statistic values, all of which fall between 0.020 and 0.045, are also very small, further indicating that the observed distribution closely aligns with a normal distribution. The consistent 0.200* significance across all constructs (such as Schemes, Programmes, Finance, Human Capital, Motivation, Innovativeness, etc.) confirms that the data distributions do not significantly deviate from normality. Therefore, it is statistically justified to proceed with parametric tests like regression, ANOVA, and Structural Equation Modelling, which assume normality of the underlying data. These results reinforce the validity of the measurement model and increase the robustness of inferential statistics to follow in the main study.

1.7.9 Pilot Study and Initial Reliability Checking

A pilot study was conducted and the results along with initial reliability checking are as follows:

Table 1.4

Internal consistency analysis of the eighteen constructs by Cronbach's alpha for sample size 50 based on pilot study

SI No.	Constructs	Cronbach's Alpha	No. of Items	No. of Items deleted
1	Schemes	0.785	5	Nil
2	Programmes	0.878	4	Nil
3	Events	0.712	4	Nil
4	Support services	0.832	4	Nil
5	Finance	0.799	3	Nil
6	Business Support Service	0.789	3	Nil
7	Policy Environment	0.898	3	Nil
8	Markets	0.786	3	Nil
9	Human Capital	0.892	3	Nil
10	Infrastructure	0.732	4	Nil
11	Business Environment	0.778	4	Nil
12	Research & Development/Innovation	0.733	3	Nil
13	Entrepreneurial Culture	0.745	3	Nil
14	Attitude	0.756	5	Nil
15	Motivation	0.778	5	Nil
16	Self-efficacy	0.755	5	Nil
17	Risk tolerance	0.812	5	Nil
18	Innovativeness	0.783	5	Nil

The internal consistency analysis using Cronbach's alpha for the 18 identified constructs based on a pilot sample of 50 respondents reveals satisfactory reliability levels across all constructs. All Cronbach's alpha values fall within the acceptable range of 0.70 and above, indicating good internal consistency for each scale without the need to delete any items. The highest alpha was observed for Policy Environment (0.898) and Human Capital (0.892), signifying excellent reliability, while the lowest value was for Events (0.712), which still meets the acceptable threshold. This consistency ensures that the items within each construct reliably measure the intended latent variables, reinforcing the robustness of the instrument (Nunnally & Bernstein, 1994).

These findings imply that the questionnaire used for the pilot study is statistically sound for measuring various dimensions related to entrepreneurship support systems, ecosystem and entrepreneurial traits. Since no items were removed, the original item structure can be retained for the main study, thereby preserving content validity. This consistency lays a strong foundation for subsequent data collection and advanced statistical modelling such as Confirmatory Factor Analysis and Structural Equation Modelling.

1.7.10 Final Reliability and Validity

A comprehensive assessment of reliability and validity, based on the full-scale dataset, is presented in detail within the Confirmatory Factor Analysis (CFA) section of the Structural Equation Modelling (SEM) model development chapter.

1.7.11 Framework for Data Analysis

The Statistical Tools and Software Packages used for data analysis include the following:

1) To examine the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala, mean, standard deviation, one sample t test, independent t test and ANOVA with Tukey HSD's post hoc analysis are used with the help of IBM SPSS 27 software package.

2) To investigate the entrepreneurial ecosystem in the State of Kerala, explore the role of core support services provided by the Kerala Start-up Mission in shaping the ecosystem, and analyse differences in perception among entrepreneurs based on socio-demographic and organizational characteristics, mean, standard deviation, one sample t test, independent t test and ANOVA with Tukey HSD's post hoc analysis are employed with the help of IBM SPSS 27 software package.

3) To examine the levels of attitude, motivation, self-efficacy, risk tolerance and innovativeness among entrepreneurs in Kerala, and to analyse the association of these traits with their socio-demographic and organizational characteristics, Quartile settings, Percentage Analysis and Chi-Square test for goodness of fit and Chi-square test for association was used using IBM SPSS 27 software

4) To empirically test a moderated serial mediation model in which the impact of start-up support services on the entrepreneurial ecosystem is mediated through the sequential influence of attitude, motivation, and self-efficacy, and moderated by entrepreneurs' risk-taking behaviour, Co-variance Based Confirmatory Factor Analysis (CB-CFA) and Structural Equation Modelling (SEM) techniques with chi square difference test, heterogeneity test and bootstrapping procedures were adopted with the help of IBM SPSS AMOS graphics 21 software package.

5) To extract the mediating role of risk tolerance in the relationship between the core support services of the Kerala Start-up Mission and the development of the entrepreneurial ecosystem, and to analyse the moderating effect of entrepreneurial innovativeness on the relationship between core support services and risk tolerance, Structural Equation Modelling (SEM) techniques with bootstrapping techniques and simple slope curve graph were adopted with the help of IBM SPSS AMOS Graphics 21 and MS Excel software packages

1.8 Operational Definitions of the Terms Used in the Study

The following concepts are used in the study:

1. **Kerala Startup Mission** - The Kerala Startup Mission is the principal agency of the Kerala government for fostering entrepreneurship inside the state. The organization is responsible for executing the Kerala Technology Startup Policy, which bolsters the state's startup environment via different initiatives and assistance programs. It serves as a catalyst for aspiring entrepreneurs seeking to embark on technology-oriented careers and has facilitated the development of numerous creative products and solutions.

2. **Start-Up -** An entity shall be considered as a Startup:

   - If it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India.
   - Up to ten years from the date of its incorporation/registration
   - If its turnover for any of the financial years since incorporation/registration has not exceeded INR 100 Crore.
   - If it is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation.
   - Provided that any such entity formed by splitting up or reconstruction of a business already in existence shall not be considered a 'Startup' (DPIIT, 2019)

3. **Entrepreneurial Ecosystem** - An entrepreneurial ecosystem comprises the network of individuals and institutions that initiate, support, finance, and advocate for new enterprises within a community. It is a network of interconnected entrepreneurial actors (both potential and established), entrepreneurial organizations (e.g., firms, venture capitalists, business angels,

banks), institutions (universities, public sector agencies, financial entities), and entrepreneurial processes (e.g., business birth rates, numbers of high-growth firms, levels of 'blockbuster entrepreneurship,' prevalence of serial entrepreneurs, degree of sell-out mentality within firms, and levels of entrepreneurial ambition) that formally and informally coalesce to connect, mediate, and govern performance within the local entrepreneurial environment. (Mason & Brown, 2014).

4. **Schemes of Kerala Start up Mission** - Schemes are the services implemented to assist and support entrepreneurs in their entrepreneurial journey in the state of Kerala.

5. **Programs of Kerala Start up Mission -** Programs are the diverse plans organised for startups to impart essential skills for establishing a world-class firm.

6. **Events of Kerala Start up Mission –** Events are ideal networking platforms for company founders for fostering startups and to offer visibility to stakeholders.

7. **Support services of Kerala Start up Mission** – Support Services are the services designed to supplement the various schemes, programs and events and to provide various facilities to the startups.

8. **Finance** – It is the money resources which act as the life blood of any business. Finance is essential for the commencement and expansion of enterprise.

9. **Business Support System** - It includes institutional quality, conferences, infrastructures, business associations, business development centres, and experts, all of which significantly influence entrepreneurial quality and quantity in developing nations.

10. **Policy Environment -** The policy is a collection of ideas or plans that has been collectively endorsed by a group of individuals, institutions, or the government. Modifications and enhancements in economic development policies foster entrepreneurship and enterprises, ultimately contributing to the advancement of a nation's economy.

11. **Markets** – They include reference customers, distribution channels, and local business networks.

12. **Human Capital** - It includes the skills, knowledge, and experience held by an individual or population, considered in relation to their value or cost to an organization or country. It encompasses the aggregate of knowledge and skills acquired through education or experience that an entrepreneur possesses and can utilize in specific entrepreneurial endeavours.

13. **Infrastructure** - Infrastructure refers to the fundamental physical systems of a firm, region, or nation, typically encompassing the generation of public goods or production activities.

14. **Business Environment** - It is 'a set of policy, legal, institutional, and regulatory circumstances that control company activities.' It encompasses the administration and enforcement mechanisms instituted to execute government policies, together with the institutional frameworks that affect the operations of principal players

15. **R &D / Innovation** – It typically enables an entrepreneurial firm to compete with better-resourced incumbents or to establish an entirely new market for a novel product. Entrepreneurial ideas originate from advanced technology resources, insights into client needs, the underutilization of inventions within huge corporations, and research conducted at universities.

16. **Culture** - Culture encompasses the practices, norms, values, arts, and social interactions that are collectively exhibited as behaviour within a specific nation, area, or society. Culture is organization-specific, characterized by a distinct set of behaviours adhered to by all members, referred to as corporate culture

17. **Attitude** - Attitude towards entrepreneurship denotes the overall sentiment or viewpoint individuals possess regarding the initiation and management of their own enterprises.

18. **Motivation** - the desire or inclination to organize, manipulate, and comprehend concepts or entities swiftly and autonomously.

19. **Self-efficacy -** Entrepreneurial self-efficacy is a crucial motivator in the entrepreneurial process, as it compels individuals to confront the uncertainties of the business environment, necessitating preparation, diligence, and perseverance

20. **Risk tolerance** – It is synonymous with risk aversion. Elevated risk aversion, synonymous with diminished risk tolerance, is anticipated to reduce the likelihood risk of entrepreneurship.

21. **Innovativeness** – It refers to the capacity for innovation, characterized by the introduction of novel ideas and independent action. It may also denote the extent to which an individual is an early adopter of novel concepts relative to others within a social framework.

22. **Entrepreneurial performance** - It relates to the execution, achievement, or termination of entrepreneurial ventures, including both success and failure. It also relates to the attainment of entrepreneurial goals through the use of established channels and available resources.

1.9 Significance of the Study

The present Study is about the Startups, Kerala Startup Mission and Entrepreneurial Ecosystem in the State of Kerala. Hence the Study is very significant for the following reasons:

1. Startups

This study provides ample scope to know in detail about the various facets of growth of startups in Kerala. Kerala, with a literacy rate of 92.2%, has historically been recognized as one of India's most educated and proficient states. The state has successfully interconnected schools, colleges, incubators, government organizations, and businesses to establish a cohesive ecosystem. This has fostered the state's exceptional prospects for innovation, investment, and entrepreneurship.

A start-up is a business dedicated to the development, commercialization, and creation of innovative products, services, or technologies, propelled by intellectual

property or novel technology. Over the past twenty years, the Indian startup ecosystem has rapidly grown, receiving enhanced support in all aspects. Startups function within a larger business ecosystem designed to generate substantial solutions, thereby acting as catalysts for socioeconomic advancement and transformation. Start-ups, as centers of innovation, generate employment opportunities that enhance the economy; a strong economy directly impacts the growth of the cities housing these start-ups.

Startups are essential to the economic advancement of India and Kerala by generating employment, promoting innovation, and cultivating entrepreneurship. Startups create job prospects for the emerging workforce. Startups develop unique solutions to complex problems. Startups cultivate an entrepreneurial culture. The Kerala Startup Mission (KSUM) was established in 2006 to foster technology-driven entrepreneurship due to the proliferation of startups. The Government of Kerala has created a strong startup ecosystem with more than 3,800 registered firms. IEDC centers offer forums for students in higher education institutions to engage in experimentation. Thus, startups are vital for the economy as they: introduce innovative products or services, penetrate previously underserved markets, and enhance economic growth.

2. Kerala Startup Mission (KSUM)

The Study helps to bring out the role and importance of KSUM in the Entrepreneurial Ecosystem in the state of Kerala. The Kerala Startup Mission (KSUM) is significant as it fosters a dynamic startup environment in Kerala, India, and promotes entrepreneurship within the state. It fosters technology-driven entrepreneurship and assists emerging entrepreneurs in initiating their careers. It establishes the infrastructure and ecosystem necessary for the advancement of high-tech enterprises. KSUM offers assistance throughout the startup life cycle, encompassing programs for funding, mentorship, and access to governmental resources. It cultivates communities that promote entrepreneurship, technical discourse, and knowledge exchange. It assigns startups a distinctive ID for use in all communications and for identification on the KSUM portal. It fosters entrepreneurship among students via initiatives such as the Innovation and

Entrepreneurship Development Centres (IEDC). It also facilitates incubators and techno lodges that furnish businesses with infrastructure, mentorship, and access to governmental assistance. It further facilitates direct procurement, enabling departments to acquire products from startups. Thus, the principal aim of KSUM is to execute the planning, establishment, and administration of Technology Business Incubators and Accelerators in Kerala. It aims to foster technology-driven entrepreneurial initiatives and establish the necessary infrastructure for such activity.

Further, the Schemes, Programs, Events and other Support Services of KSUM are very clearly highlighted, discussed and analysed from the viewpoint of the Entrepreneurship community of the State. It helps the community to plan, design and execute their activities in a very efficient and effective manner. These facilities of KSUM create a very conducive environment for the initiative, progress and development of startups in the State.

3. Entrepreneurial Ecosystem

The significance of Entrepreneurial Ecosystem in Kerala is very well brought out in the Study. The objective of economic policy is often economic growth, which encompasses an increase in enterprises, job creation, a robust international competitive stance, and enhanced innovation, all within the context of a vibrant and sustainable community environment. Furthermore, the objective of enhancing innovation and competitiveness arises from the necessity for wealth. A country's prosperity necessitates that enterprises enhance their productivity and innovation to maintain competitiveness and foster wage and wealth growth.

An entrepreneurial ecosystem is crucial since it facilitates entrepreneurial success by offering resources, fostering a supportive culture, and creating collaborative opportunities. An entrepreneurial ecosystem offers entrepreneurs access to resources such as accelerator programs, microloans, and networking events. A culture of trust and collaboration facilitates successful interactions among entrepreneurs, enabling them to acquire necessary resources. An entrepreneurial ecosystem facilitates entrepreneurs in generating and seizing value via innovation.

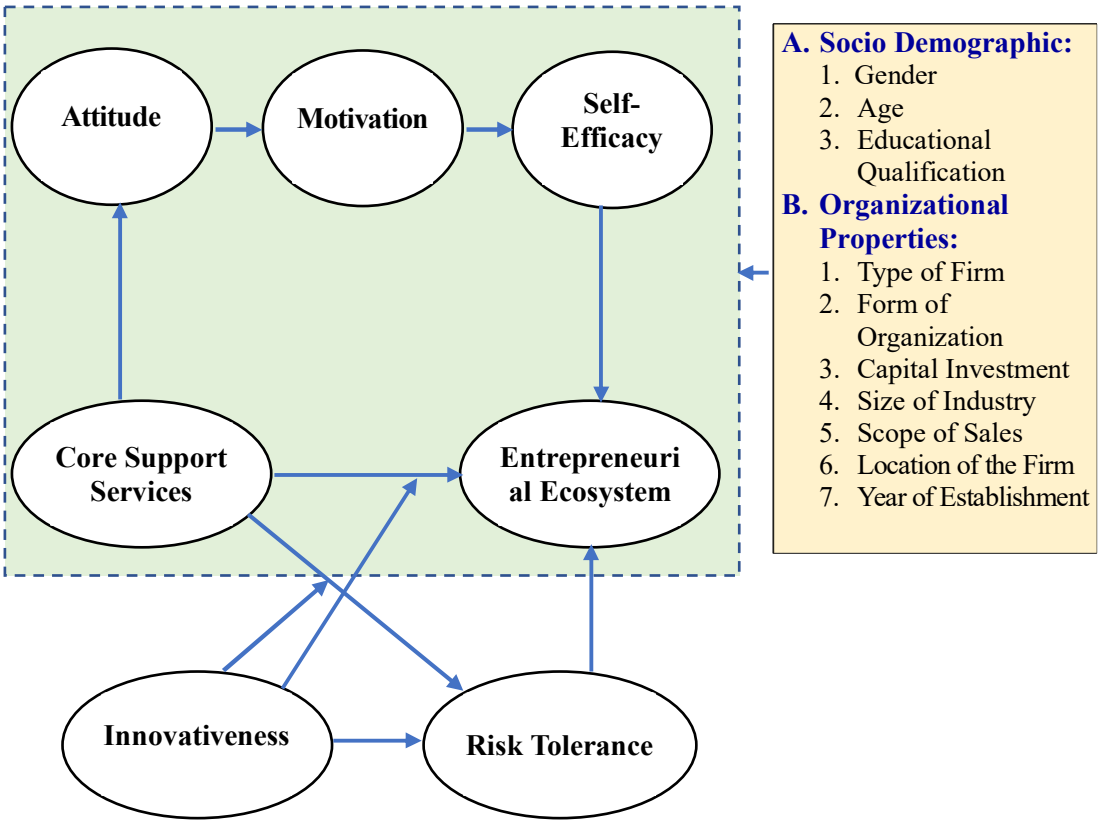
An effective entrepreneurial ecosystem facilitates the growth and innovation of entrepreneurs. Entrepreneurs are essential to a developing nation, generating employment and facilitating economic expansion.

The efficacy of an entrepreneurial ecosystem can be assessed by the ease with which an individual with an idea can establish a successful enterprise in that region. The ecosystem must prioritize entrepreneurs, ensuring their perspectives are included in discussions with other ecosystem developers. The core of an entrepreneurial ecosystem is in its individuals and the culture of trust and collaboration that facilitates their successful interactions. An ecosystem that facilitates the rapid exchange of talent, information, and resources enables entrepreneurs to swiftly acquire necessary elements at each phase of development.

1.10 Conceptual Framework

Figure 1.1

Conceptual Model



Source: Compiled by the researcher

1.11 Limitations of the Study

The Study is not without its limitations. A critic view of the Study gives rise to the following limitations:

1) The full working or the functions of KSUM and the Startups are not considered in the Study.
2) The total number of Startups registered with KSUM as on a specified date was only taken for the calculation of Sample size. Thus, Startup units registered after the date was not covered in the Study
3) The study is delimited only to the influence of KSUM on Entrepreneurial Ecosystem in the State. All other elements are excluded from the Study.
4) Newer and newer schemes, programs, events and support services added by KSUM could not be considered for the study due to the cut-off date of data collection.
5) A detailed study of entrepreneurial ecosystem in the State could not be conducted due to the thrust given on the influence of KSUM on Entrepreneurial Ecosystem.

1.12 Scheme of Presentation

The results of the study are presented in the Thesis on the following lines:

Chapter 1 Introduction

Chapter 2 Review of Literature

Chapter 3 Theoretical Framework of the Study

Chapter 4 Data Analysis and Interpretation

Chapter 5 Findings, Recommendations and Conclusion

1.13 Conclusion

This chapter has presented the topic of investigation, delineated the objectives, and thoroughly described the research methodology utilized. The study's weaknesses were emphasized. It also articulated the study's urgency, significance, and relevance. This chapter offers specific guidance for the study and delineates its objectives and research technique.

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Chapter 2

REVIEW OF LITERATURE

Chapter 2

REVIEW OF LITERATURE

2.1 Introduction

The reviews of earlier studies conducted in the relevant fields are presented in this chapter in a condensed form. This chapter assists in determining the study's theoretical underpinnings, proposed research strategy, and required variables by conducting such a review. This chapter also aids in identifying the research gap by providing guidance on how to fill in the open holes in the necessary field of study's theory and empirical research.

2.2 Start –Ups

Kamaluddin and Sridhar (2021) evaluated the concentration of investment in the Indian startup ecosystem as well as the effectiveness of government programmes put in place to support businesses in the nation. While information on the effectiveness of government programmes was gathered using the Startup India website and RTI, descriptive statistics were utilised to describe investment trends. It was discovered that platform business model firms receive the majority of investment. Government programmes aimed at startups have a poor track record. In "Startup India," acceptance rates range from 5% to 7%. Many of the federally funded programmes featured on the Startup India portal do not keep separate statistics on startup recipients, which shows that startups only receive a small portion of the benefits. This study added to the meagre body of academic research on investment trends and the effectiveness of government initiatives pertaining to Indian startups. It demonstrated massive industry and spatial investment concentrations as well as the underwhelming results of government initiatives.

Inc 42 Plus (2021) summarised the state of Indian Start-up Ecosystem to include-38,815 active Startups in India, 51 total Number of Unicorns. In India, the US is the biggest source of Foreign Investments in Indian Startups, $70 Bn raised by 3,436 Startups between 2014 and 2020. 1,114Unique investors who participated in 2020,

711 Mergers and Acquisitions between 2015 And 2020, Fintech the Top Startup Sector in 2020, Chennai most promising emerging Startup Hub in India, 51number of Soonicorns in India.

Thomas and KI (2020) conducted a study with the aim of examining how Kerala's Technology Business Incubators were carrying out their role as a facilitator among start-ups in the state as well as assessing their influence on how start-up units operated. By analysing the satisfaction among start-up founders with the facilities provided by the incubators and evaluating the advantages attained by founders through incubation support, this article aimed to review the role of incubators as a facilitator among start-ups and to evaluate their impact on survival and growth of start-ups. A sample of 80 start-up founders and 8 incubation managers were used to gather primary data. Eight incubators from the state of Kerala were randomly picked, and 10 start-up founders were chosen from each incubator for the purpose of gathering primary data. Additionally, the managers of these eight incubators were consulted. Data was collected from the sample using a questionnaire method after it was chosen using a convenience sampling methodology. The research revealed that the start-up founders were happy with the facilities and services offered by the incubation centres. With the exception of investor connections, it could be said that the incubation support had been advantageous for start-up units in all the factors. Additionally, as the mean value for all factors shows, the incubation managers are quite satisfied with the support, systems, and start-up ecosystem in Kerala as well as numerous issues relating to their incubation centres. The study's findings showed that the start-up founders were generally happy with the facilities at their incubation centre. They also expressed the opinion that the support provided by the incubation programme had led to many advantages for their start-up units, including mentoring, marketing opportunities, networking opportunities, and more.

Praveena (2020) organised a study to understand the development and future prospects of startups in Kerala, to evaluate the function and numerous programmes offered by the Kerala Start Up Mission, and to learn about the issues and difficulties that entrepreneurs encounter. The study is a descriptive one that draws on

secondary material from books, journals, websites, books, and reports of the Kerala Start-up Mission. The Kerala government has launched a number of initiatives and programmes to encourage young people to become entrepreneurs. The Central government has launched programmes like Make in India, Startup India, Mudra, and others to foster entrepreneurship. The Kerala Startup Mission is an organisation that works to encourage high-technology enterprises by building the environment and infrastructure needed for them to succeed. Business Development Clubs are established in Kerala from the elementary school level onwards to foster the children's entrepreneurial abilities and skills. In addition to ED Clubs, FAB Labs and IEDCs have been established in colleges, demonstrating a commitment to developing entrepreneurs and innovators who can keep up with the latest technological advancements. Through an efficient mentorship system and an effective incubation centre operation, the issues and difficulties faced by entrepreneurs can be resolved. If more and more angel investors and venture capitalists step forward to invest in the creative business concepts of startups, the financial problem might be solved.

Nambiar and Balasubramanian, (2020) examined the impact of government support on startup performance in Kerala, India. After conducting in-depth interviews with 201 startup business owners, 2 academic faculty members, and 5 mentors in Kerala, a conclusion has been drawn. This report identifies the main barriers to Kerala's startup ecosystem by analysing several government startup support programmes. The expansion of startups in Kerala is significantly hampered by the lack of access to capital. Startup entrepreneurs in Kerala who were registered under KSUM who provided the primary data. There are 600 firms registered under KSUM, claims the Kerala Startup Mission website. The sample respondents were chosen using a purposive sampling strategy. 56% of the firms under consideration have received grant, seed money, or marketing help from the government. However, the responders all agreed that raising government funds was difficult. In Kerala, a company can raise government funding regardless of its level of development. Access to capital was a significant issue for businesses in India. Another issue facing entrepreneurs was angel tax. Startups in Kerala are impacted by a few regulatory

factors. Infrastructure resources and Mentorship support increase business success and boosts entrepreneurs' self-assurance in managing a company. Having acceleration knowledge boosts an entrepreneur's business management confidence. The outcome thus suggests that receiving business assistance in the form of training, workshops, etc. leads to greater company success and boosts an entrepreneur's confidence in managing a business.

Pradeep and Shajahan (2020) used the case study approach to understand why social incubators do not thrive in Kerala in an effort to overcome the failure in fostering social companies. They did this by identifying the methodological hurdles in the implementation of social incubators. The results show that social incubation is still difficult for businesses, individuals, and policymakers to comprehend, which leads to the conclusion that Kerala's social enterprise ecosystem needs to develop and mature before it can accept social enterprises and social incubators that can promote social change and development.

Sharma and Vohra (2020) conducted a multi-level examination of incubation in India with the goal of determining the incubation landscape, the function and impact of incubators on startups, and the difficulties encountered by both incubators and incubates. Secondary information from 284 incubators in India, the four main incubator assistance programmes, a survey of 22 incubators financed by a programme, and in-depth interviews with entrepreneurs who had been incubated were gathered and analysed. There is discussion of the function, goals, procedures, and success measures of incubators specifically relevant to the Indian setting. As the development of incubation in India is examined, it becomes clear that, up until 1991, the emphasis was on assisting tiny, livelihood-oriented companies and rural, undereducated youth (as found in the policies of MSME, setting up of NABARD, and SIDBI). But since 1991, the emphasis has changed to encouraging urban, educated young to start high-value, innovative firms (as evident in the policies of DST and AIM). Understanding the incubation environment, landscape, and techniques through abstraction from the data also provides new information.

David et al. (2020) discovered that private investments, such as seed, angel, venture, and private equity funds, as well as technical assistance from incubators, accelerators, and the government, have been the main drivers of the Indian startup ecosystem's rapid expansion. Through its flagship Startup India project, which went into effect in 2016, the government, for its part, is fostering an atmosphere that is favourable to entrepreneurs. The government is attempting to deploy ICT infrastructure and provides policy support for enhanced e-governance, investments, and technology innovation through research and higher education to support entrepreneurship and propels economic growth as India pushes towards a knowledge-based and digital economy. According to data, the growth of the startup ecosystem has mostly concentrated in big (Tier 1) cities and states with strong economies, notably in IT-enabled industries like e-commerce, transportation, and banking. Beyond the metro areas, small firms are not sufficiently informed of or included in programmes that offer startups different government incentives and tax benefits. Despite the progress that has been made so far, there are still many obstacles that Indian businesses must overcome. These obstacles include the unorganised and fragmented nature of the market in the majority of sectors, a lack of clear and transparent policy initiatives that startups can quickly access, a lack of infrastructure, a lack of knowledge and exposure, and difficulties in conducting business. Opportunities for startups in India may be improved by increasing public awareness of government initiatives and incentives, allocating credit to priority industries, promoting outreach and network benefits to Tier 2 and Tier 3 cities, and simplifying financing and tax breaks for both domestic and foreign investors.

Holaday et al. (2019) looked into the startup ecosystem that exists in Kerala and the initiatives taken by the Kerala government through the Kerala startup mission to support entrepreneurs and create profitable firms. Through diligent work, Kerala Startup Mission was able to attract over 1500 firms, several of which have received international recognition for their innovation and development potential. This article also discusses the numerous funding opportunities and programme plans that Kerala Startup Mission provides to help and support aspiring business people. This expanding innovation ecosystem attracted seasonal entrepreneurs, many of whom

have now moved back to Kerala to start their businesses. One of the most significant effects of the shifting startup ecosystem is this reverse migration, which is an intentional result of the mentorship, networking, education, funding, and incubation activities put out by Kerala Startup Mission. Both primary and secondary data were used to conduct the study. To fully understand the practises, primary data has been gathered using a qualitative technique, including email communication, an unstructured questionnaire, and brief interviews. By concentrating on the evolving trend, nature, and pattern of incubators in Kerala, the information gathered has been examined. Using rigorous pre-tested organised schedules and personal interviews with incubators and entrepreneurs, primary data was gathered from a random sample of 1500 startups selected from all 38 incubators. By promoting a startup environment in Kerala, the Kerala Startup Quest is on a mission to turn workable technological ideas into profitable economic ventures. In its three years of existence, Kerala Startup Mission has made this effort. The Kerala Startup Mission has made some progress toward achieving its objective of offering hand-holding support to Keralan startups. Through the Kerala Startup Mission, the Kerala government played an important role in encouraging aspiring business owners to launch profitable companies. This report also demonstrates Kerala's shockingly low proportion of female entrepreneurs, despite a notable rise in new businesses and young business owners.

Chellappan (2018) examined the significant challenges faced by young people starting their own business units. Based on primary and secondary data, the current study has a descriptive and analytical nature. 100 young entrepreneurs in Kerala were contacted for the basic data that was needed. The main issues that young entrepreneurs in Kerala confront are a lack of access to beginning financing and a difficult paperwork process, followed by administrative and regulatory obstacles. Other issues included a lack of knowledge of the available resources, challenging documentation, difficulty in accessing start-up capital, a lack of programmes specifically designed for young entrepreneurs, the lack of entrepreneurship education, and a lack of business support through networks, mentoring, and counselling.

Growth Enabler (2018) found that the Kerala Startup Mission (KSUM) has contributed $414K (INR 2.65 Cr) in financial assistance to 31 startups and student teams from throughout the state who submitted a variety of new generation technological ideas at the 8th edition of Grand Idea Day, a KSUM initiative. By giving substantial support in the areas of capacity development, infrastructure development, funding, and industry associations, creative ideas like the Student Entrepreneurship Policy (SEP) have been able to create momentum for an entrepreneurial culture in the state and reduce the Brain Drain. Currently, the Kerala Start Up Mission (KSUM) oversees over 750 enterprises, the bulk of which are in the hardware, software/IT, biotechnology, and agricultural sectors. The Kerala startup ecosystem is poised to become a big force to be reckoned with in the near future thanks to the government's proactive support for developing new product businesses and the ever-increasing interest from accelerators and incubator programmes.

2.3 Entrepreneurial Eco System

Carayannis et al. (2022) reviewed the literature and created connections for additional transdisciplinary study. First, based on present constraints, the emerging trends in ecosystem research was examined and offer a typology of four major issues. These issues serve as a point of focus for the contributions of operational research academics and relate them to the context. Second, the literature on operational research was analysed to give an overview of how these issues have been dealt with and to identify potential areas for future research, both on the individual issues and on broader topics. Decision-makers in a variety of disciplines have found operational research to be an important tool. The purpose of this work is to expand its contribution to the study and management of entrepreneurial ecosystems by providing a conceptual and methodological agenda.

Pita et al. (2021) evaluated the existence of various entrepreneurial ecosystem patterns in order to determine how they relate to entrepreneurial initiative and to suggest entrepreneurship policies that might have an impact on the expansion of entrepreneurial

activity. Without data on the topography of entrepreneurial ecosystems and what factors encourage entrepreneurship in a particular setting, governments run the risk of being ineffective and failing to achieve their goals. Data taken between 2010 and 2016 from the Global Entrepreneurship Monitor (GEM) Database was used to conduct the analysis for research purposes. A balanced panel technique was adopted, followed by calculations using Logistic Regression, to ensure a longitudinal view. To address a disaggregated perspective on entrepreneurial ecosystems, between individual and context levels, the essay proposes an innovative and systematic approach, the Entrepreneurial Ecosystem Taxonomy. Empirical findings are based on two metrics: entrepreneurial ecosystems and entrepreneurial initiative, and they capture four distinct country profiles. The findings make it possible to evaluate substantial differences regarding entrepreneurial determinants, specifically the education factor, and to compare the four groups. Despite the fact that education is frequently seen as having a favourable impact on entrepreneurship, the findings point to the opposite. The existence of diverse profiles and its determinants emphasises the significance of creating entrepreneurship policy packages tailored to the needs of particular groups.

Lema (2021) discovered that learning must be the primary process if knowledge is the essential resource. Therefore, developing an institutional framework that supports learning for individuals and organisations regardless of their economic and social standing is the first major issue in Kerala's transition to a knowledge economy. The second, and more crucial, goal is to guarantee an inclusive knowledge economy with shared prosperity by making sure that all forms of knowledge are fully utilised. Kerala's budget for 2021–22, which aims to address these issues by developing the knowledge economy's infrastructure, the innovation system, and facilitating the process of skilling, re-skilling, and upskilling, intends to summarise the findings of the international consultation while publishing the full text as a book. The topic is divided roughly into three sections. It begins with addresses that provide background information for Kerala's new vision. The second section outlines the main tenets of the knowledge economy, and the thoughts from eminent researchers are followed by the last section, which emphasises the path forward.

Venugopalan et al. (2021) investigated the role and influence of multi-actor interaction on successful women's empowerment based on a case study of the Kudumbashree programme in a regional setting of Kerala, South India. The goal was to evaluate how the Kudumbashree efforts, which were carried out within a multi-actor engagement framework supportive of women's empowerment through capacity building and social inclusion programmes, affected women's empowerment. The case study illustrates "how multiple-level engagements facilitate wide lasting social change and boost the development of women, in light of their sensitivity to the embeddedness of women's agency within specific socio-political and cultural circumstances." Research shows that Kudumbashree programmes aim to strike a balance between social change brought about by top-down (policy and regulatory change) and bottom-up (people-powered change) social change (bottom-up). In terms of policy, it is possible to design rural and urban community development programmes with a focus on the multidimensional empowerment as well as the social and economic inclusion of women and other marginalised communities after taking into account the key lessons from the successful outcomes of Kudumbashree.

Kapturkiewicz (2021) contributed to the knowledge of how local EEs may be compared and quantified in a way that pays respect to context and time through longitudinal qualitative research of comparable but dissimilar entrepreneurial ecosystems (EEs) in Bangalore and Tokyo. Unlike many other methods of measuring EEs, this study uses a bottom-up strategy rooted in organisational theory to identify potential systematic EE variations (pointing to EE types) and, on the basis of them, to inductively suggest contextualised EE measurement dimensions. The article conceptualises EEs as organisational fields and introduces and traces an analytical unit made up of institutional work and practise carried out by EE stakeholders (entrepreneurs, investors, and other supporters) on components linked to the institutional architecture of their EEs (e.g., financial and labour resources, support infrastructure, markets). This research reveals which EE components are particularly significant at a specific time and place based on the stakeholders' behaviour. The results show similarities between several aspects of the institutional architecture for

EEs that have been the targets of action in both places. The substance and order of the acts exhibit patterns of similarity and difference at the same time. In contrast to acts connected to markets, institutional work and practise involving support infrastructure, for example, comprised of similar particular actions and occurred in a similar order across time in both Bangalore and Tokyo. A set of interrelated dimensions (underlying the institutional infrastructure of EEs) that drive similarities and differences in the evolution trajectories of EEs in Tokyo and Bangalore by moderating stakeholders' actions are revealed by revealing the existence of disputes regarding some instances of actions performed with regard to EEs. These dimensions are transnational connectedness, domestic old economy factors, perceived local EE needs, and EE benchmarks. This set of dimensions and their interactions is conceptualised as the beginnings of a novel framework for comparing sub-national EEs called Varieties of Entrepreneurial Ecosystems. This framework is rooted in organisation theory but is sensitised by knowledge from other well-established comparative frameworks, such as Varieties of Capitalism. Two EE kinds can be distinguished according to the cases studied in this paper: more domestically oriented EE (like Tokyo) and more transnationally oriented EE (like Bangalore), both of which have a tendency to grow and strengthen over time. The research suggests contextualised EE measurement dimensions as an alternative and complement to the current techniques to measuring EEs, based on the Varieties of Entrepreneurial Ecosystems. Overall, this study adds to the field of organisational theory and EE studies by addressing the underdeveloped problem of how to compare different organisational fields using the institutional infrastructure concept, including the implications for policy and practise regarding how to measure and assess EEs.

Hume and Davidson (2021) discovered that mature ecosystems have a similar set of traits. Mature entrepreneurial ecosystems are characterised by the presence and robustness of entrepreneur and institutional networks, entrepreneurial culture, accelerators and other support groups, finance providers, and supporting policies. These elements interact in complicated, non-linear ways during ecosystem evolution. Ecosystems do not have a single growth route because entrepreneurial communities

must capitalise on their resources and strengths to pinpoint areas of comparative advantage. Interventions ought to capitalise on regional advantages and strengths. Although there is some evidence that ecosystem-building interventions are effective, policymakers should place a greater emphasis on developing an ecosystem with a solid foundation so that it can seize new market possibilities as they naturally arise.

Silva et al. (2021) examined the role that higher education institutions have in the development of technology-based businesses. Five technology-based companies in Belo Horizonte and two universities served as the research method's multiple case study participants. Companies were chosen whose founders were current or former students of the colleges examined. The findings demonstrated that while the institutions have strong structures and programmes, they nonetheless behave somewhat internally. Additionally, the entrepreneurs fail to acknowledge the role that their university education played in their entrepreneurial journey. The study advances knowledge of the university's function in the entrepreneurial environment. The study defined categories of analysis to rate entrepreneurial universities from a theoretical perspective.

Pita et al. (2021) introduced a fresh angle to the study of entrepreneurship, focusing on how Entrepreneurial Ecosystems change over time and how their pillars affect Entrepreneurial Initiative. A balanced panel technique based on the Global Entrepreneurship Monitor (GEM) dataset over 8 years (2010-2017), covering 18 nations, is used to demonstrate how EEs have changed. The study's discussion of three primary concerns, which is primarily backed by empirical findings, has various consequences for entrepreneurial theory, practise, as well as public policy. The first finding is that the pillars of EE have an uneven influence on EI. Results also demonstrate that institutions are poor at fostering an entrepreneurial spirit. Third, entrepreneurship must be incorporated into the process of acculturation, demonstrating the significance of societal norms. Therefore, encouraging people to create their own businesses requires more than just giving them the tools and infrastructure. The findings show that contextual factors are often important in promoting an entrepreneurial propensity to start a business. However, the nine pillars'

influence is not uniform, showing a fragmented impact with funding policies, R&D transfer, and social and cultural norms that discourage entrepreneurial initiative. As a whole, the study advances knowledge of a multifaceted perspective on EEs and identifies future policy paths to address the shortage of entrepreneurship and improve ineffective entrepreneurship policies.

Stam and Ven (2021) demonstrated the benefit of viewing the entrepreneurship context from a systems viewpoint by examining entrepreneurial economies. The quality of entrepreneurial ecosystems in the Netherlands is examined using an entrepreneurial ecosystem index, which is created using a systems framework for researching entrepreneurial ecosystems and a measurement instrument of its components. It is discovered that the strength of a region's entrepreneurial ecosystem is closely related to the number of high-growth enterprises present there. The ecosystem's components' close ties to one another show how interconnected they are, highlighting the necessity for a systems approach.

Audretsch et al. (2021) tested and created a model of multi-dimensional institutional structures in cities. It shows that institutions have a significant role in determining the entrepreneurial ecosystem in cities, particularly those institutional setups that promote productive entrepreneurship while minimising unproductive entrepreneurship. The findings imply that variations in both forms of entrepreneurship in cities are related to disparities between normative, cognitive, and regulatory pillars. All three components of an institutional arrangement are important for the development of successful and high-growth entrepreneurs. The normative foundation of institutions and the function of civil society are most important for unproductive entrepreneurship. The policies surrounding the city's entrepreneurial ecosystem is affected by this study both theoretically and practically.

Wurth et al. (2021) noted that although the idea of entrepreneurial ecosystems has gained popularity, it is paradoxical in its current form. The mechanisms that control ecosystem evolution are poorly understood, despite the fact that it draws on a rich intellectual past and offers a chance to combine several lines of inquiry. This essay summarises the empirical truth of the causal pathways and surveys' current

developments in ecosystem studies. By utilising these dynamics, a transdisciplinary research programme for ecosystem study is proposed and practise and place ecosystems in a broader context, both within and outside the field of entrepreneurship research.

Fredin and Liden (2020) looked into ways to logically support the systemic and comprehensive approach of EEs. This is accomplished by looking into the implications of complex adaptive system theory for expanding the EE viewpoint. Four ideas are focussed that are crucial for bolstering the systemic approach of EE: the system's spatial and component limits; self-governance; the relational dimension between system components and the system; and the system's evolution. It is suggested that boundaries should be viewed as a natural component of the system, that a complex system is too complicated to capture all components and interactions, and that focusing just on individual activities will prevent from understanding the behaviour of the system in its entirety.

Roman et al. (2020) supported and aided regions in fostering their entrepreneurial ecosystems by interregional cooperation and putting associated strategic initiatives into practise in interregional partnerships. Step-by-step instructions are given on how to locate entrepreneurial ecosystems, map out existing connections across regions, create interregional action plans around regional strategic topics, and carry out associated peer-learning activities.

Spigel and Vinodrai (2020) observed that one of the essential processes fostering high-growth entrepreneurship is the "recycling" of people, money, and ideas within an entrepreneurial ecosystem. When skilled employees leave a company following a successful exit or a corporate collapse, they leave behind information and insights that they might utilise to launch new businesses or join already-existing scale-up companies. Due to this, large anchor companies play a crucial role in luring talent that could later recycle back into the community. The amount of empirical study on recycling into an ecosystem following the demise of an anchor firm is, however, limited. In order to track recycling within ecosystems, this research introduces a novel methodology employing career history data. The study of Waterloo, Ontario, the location of the Blackberry smartphone maker, whose demise in 2008 caused a

tremendous shock to the community's entrepreneurial ecosystem, is the focus of the paper. It is discovered that this firm's alumni hardly ever engaged in high-growth entrepreneurship, instead joining the ecosystem as tech specialists at high-growth scale-up businesses. This was made possible by the region's improved institutional ability to link qualified people with new businesses, assuring the ecosystem's long-term prosperity. These results offer a more nuanced view of the function of anchor firms in entrepreneurial ecosystems and how recycling impacts their dynamics.

Thomas and KI (2020) investigated how Kerala's technology business incubators are carrying out their responsibilities as a facilitator among start-ups in the State and also assess their impact on start-up units' operations. The study's findings show that the start-up founders are generally happy with the facilities at their incubation centre. They also expressed the opinion that this type of support for incubation has provided many advantages for their start-up units, including mentoring, marketing opportunities, networking opportunities, and more. It is preferable to upgrade the facilities at the existing incubators to keep up with the changing needs of the start-up sector and establish new incubation centres to accommodate more start-ups in order to create a supportive start-up ecosystem. Incubators play a crucial role in nurturing start-ups by helping them with product development, feasibility studies, finding capital, necessary infrastructure, and various other services. Additionally, because government funding is so heavily reliant on incubator operations, the government must enhance funding for technical education and provide other required support to encourage innovation through TBIs.

Benny et al. (2020) concentrated on the difficulties that new businesses in Wayanad encountered. The major objective is to recognise the difficulties and chances faced by startup businesses and to be useful for future reference. This study aids in identifying the primary risks and difficulties faced by newly established businesses in Kerala's Wayanad area, which will assist the businesses perform better in the future. The primary goals are to research the threats and challenges faced by start-up businesses in Wayanad district, the opportunities and potential of start-up businesses in the future, the modern technologies used by start-up businesses today, the socio-

economic and environmental impact of start-up businesses, some solutions and suggestions for start-up businesses to overcome their challenges, and the impact of start-up businesses. The primary and secondary data are the foundation for the analysis. There are 117 startup enterprises in the sample. The study's instrument is the percentage analysis. Start-ups are indicated to be a key strategy for enhancing Wayanad district development by fostering individual initiative and relieving employment strain in Indian society, according to the study's findings.

Government of India (2019) announced that the startup policy seeks to accomplish the following by the year 2020: Establish at least 10 technological company incubators in each of the state's several industries, create one million square feet of incubator space, attract investments totalling INR 5,000 crore into the incubation and startup ecosystem, provide INR 2,500 crore for youth entrepreneurship programmes. The startup ecosystem in Kerala has grown significantly as a result of the evaluation of Kerala based on seven key pillars. The study shows Kerala's performance in relation to other states' performances in each of the seven pillars. Kerala has demonstrated impressive success in "Venture Funding Support" by scoring in the top percentile. Overall, this picture makes clear the spectrum of influence produced through all pillars to improve Kerala's startup environment.

Sonne and Jamal (2019) reviewed that the government's investment in entrepreneurship growth in Kerala's ecosystem's is the most notable feature. A number of nodal organisations have been given tasks by the Kerala State Entrepreneur Development Mission (KSEDM) in Thiruvananthapuram to further the cause of entrepreneurship. Government-backed/partner organisations that are well-known in the field include Kerala Financial Corporation, Technopark, and Startup Village. Through its Kudumbasree model, which is present in almost every block, the Kerala government is much ahead in terms of women's empowerment. The ICT-focused incubators in Kerala have their own network platforms and interactions. There aren't many platforms for interaction between businesses in other industries and civil society. Kerala Startups and Creative Rebel are two new platforms that aim to encourage communication amongst various business types and raise public awareness. There is

very little social entrepreneurial activity; in contrast, there is much NGO-related activity. Many contend that social enterprise isn't as relevant for this state as it is for others in India due to the high levels of human welfare. However, thanks to support from incubators and government programmes, there are a lot of creative entrepreneurial initiatives emerging.

Baby (2019) focused on the ecosystem that exists in our society toward young entrepreneurs and also analysed the opportunities and challenges faced by them with particular reference to Thrissur District, Kerala. It was discovered that these youngsters must overcome many obstacles from their family, friends, relatives, investors, and all stakeholders associated with them in order to become successful entrepreneurs, which is in fact a difficult task to complete. The study's goals were to examine the factors that led young people to pursue careers in entrepreneurship, to examine the entrepreneurial ecosystem that exists in the Thrissur District, to examine the opportunities for young people to develop their entrepreneurial skills, to examine the difficulties that young people would face if they choose to pursue entrepreneurship as a career, to examine the views and opinions of the society regarding the development of young entrepreneurs, and to examine people who want to start their own businesses, the general public, and other individuals who provide the primary data. Many people view youth entrepreneurship as an alternative to creating employment chances. However, because youth entrepreneurship has a bright future, it needs to be recognised globally and promoted consistently over time. According to the report, the Thrissur area has many highly successful entrepreneurs operating there, making it a great place for young people to launch their first businesses. The main issue is that they don't have enough money or publicity for their start-ups.

Shwetzer et al. (2019) added a holistic and dynamic approach to the emerging body of knowledge of entrepreneurial ecosystems (EEs). It proposes a conceptual framework for the study of the composition and interactions of such systems with the goal of synthesising research and associated neoteric EE notions. By offering a systematic literature review to guide the construction of a conceptual framework based on the theoretical underpinnings of institutional and network theory, the

authors provide an emergent enquiry approach. This paper focuses on neoteric holistic and dynamic approaches to recent scholarship on EEs, including antecedents, related concepts, limitations, features, actors, components, and resources, recommendations for application, network and institutional perspectives, pathways for future research, and ultimately, a conceptual framework fusing aspect of entrepreneurial activity, value creation, EE elements, relational interactions, and institutional inferences. As EE heterogeneity is unlikely to allow for a "one-size-fits-all" situation, the holistic and dynamic approaches used in this study are their primary limitations. Additional empirical research on the dynamics of EEs is recommended to avoid these implications and advance the rapidly expanding body of knowledge and applications of EEs. The conclusions and conceptual framework offer a theoretical framework on which applications to practise in creating new and developing EEs can be built. A ground breaking study enhances EE frameworks with a comprehensive and dynamic emergent enquiry approach with institutional and network underpinnings.

Aaltonen, (2019) found that there are a number of significant general elements that influence the development of entrepreneurial ecosystems and the increase of entrepreneurship. Silicon Valley is not the source of all outstanding technology, but no company can afford to ignore US West Coast players in the hyper connected high-technology industry. Local ecosystems encourage entrepreneurship, but the majority of high-tech firms must compete globally for clients and funding. Regions can stimulate entrepreneurship through covert actions; simply funding businesses with public funds does not guarantee the creation of strong startup ecosystems. Along with entrepreneurs, investors, big businesses, governments, and universities are important players in entrepreneurial ecosystems. Early-stage investors have a regional focus since local investors are necessary for regions to access global capital flows. Traditional Finnish under confidence results in missed opportunities without learning, but entrepreneurial overconfidence may result in an abundance of new businesses and failure. Finally, regardless of the industry they intend to join, any entrepreneurial firm must take into account at least two strategic issues: time and incumbent reactions.

Allahar (2019) conducted a study with a focus on assisting female entrepreneurs in Latin America and the Caribbean by doing literature research, applying empirical information, and designing an innovative entrepreneurial ecosystem-based approach. In order to identify the unique characteristics and challenges of female entrepreneurship and to apply empirically the characteristics of female entrepreneurship and the author's experiences to the design of a model for supporting women entrepreneurs, the research approach combines an examination of the literature on the development of entrepreneurship with a special focus on female entrepreneurship. The main conclusion is that an entrepreneurial ecosystem, which includes the essential components of entrepreneurship education programmes within a quadruple helix collaborative environment, is a worthwhile strategy for fostering the growth of female entrepreneurs in the LAC region and other regions at a comparable level of development. The article advances knowledge about female entrepreneurship generally and, in particular, in the LAC region, one of the most active hubs for female entrepreneurship globally. The article's uniqueness comes from the quadruple helix collaboration of the four-profit, non-profit, and public sectors as well as the general public in the suggested entrepreneurial ecosystem. The main outcome is the creation of a model intended to meet the needs of female entrepreneurs in Latin America and the Caribbean.

Volkmann et al. (2019) found that while the idea of entrepreneurial ecosystems is currently a hot topic and a significant stream in entrepreneurship research, the question of how ecosystems can specifically promote sustainable entrepreneurship and contribute to the Sustainable Development Goals (SDGs) set by the United Nations is a neglected one. By addressing this research vacuum with the contributions in this special issue, it is hoped to act as a catalyst for additional study at the intersection of contextualising entrepreneurship and sustainability. The explicit connection to the SDGs and the examination of the effects of entrepreneurship and entrepreneurial ecosystems in accomplishing societal and environmental goals may be regarded as the "fourth wave" of this research, which has evolved over the course of three waves during the 1990s. The start is done by introducing principles and

relevant research streams for studying sustainable entrepreneurial environments. Then, it is discussed how the papers in this special issue and the concept of "sustainability" represent a fourth wave in entrepreneurship research.

De Oliveira and Vitale Torkomian (2019) identified and examined the programmes in seven universities intended to encourage the creation of spin-offs. For this, a multi-case study is carried out at the Universities of Georgia, California, Valencia Polytechnic University, University of Porto, Cambridge University, University of Strathclyde, and Bristol University. In these institutions, interviews, observations, and documentary analysis were all done. The outcomes were then contrasted. It is noted that capital engagement across all institutions as well as proof of concept funding in Georgian and Californian universities among the initiatives that were highlighted.

Aryal (2019) pointed out that entrepreneurship is the primary driver of economic growth since it optimises national wealth by spawning new companies based on disruptive and innovative ideas. Understanding the many aspects or factors that make up the entrepreneurial ecosystem is essential to an enterprise's success. Based on the model created by Isenberg in 2010, this research has attempted to identify key components of the entrepreneurial ecosystem and how they affect entrepreneurship. The connection between entrepreneurship and its primary six domains—policy, finance, culture, support, human capital, and markets—is discussed in this literature-based reflective piece. The literature has demonstrated the close connection and influence of these areas on entrepreneurial activity, but further research is required to determine the extent of the influence. In a similar vein, it is possible to investigate the relationships between these domains themselves.

Lee and Kim (2019) found that start-ups have increasingly taken the lead in creating new jobs and economic engines for advanced countries since the middle of the 2000s, while emerging nations are working to revitalise start-ups through active government support programmes. However, about 30% of new businesses fail during the first two years of operation. As a result, based on the available government support, this study identifies the variables influencing the business sustainability of start-ups and

offers recommendations to improve the efficiency of projects funded by the government. This study surveyed 273 start-ups in Korea and used flow experience and entrepreneurial happiness as mediators to empirically analyse whether variables including entrepreneurship, market orientation, and network had an impact on business sustainability. According to the findings, entrepreneurial satisfaction and flow experience both mediated the impact of entrepreneurship on business sustainability, while market orientation and network both mediated the impact of entrepreneurship on business sustainability through flow experience and entrepreneurial satisfaction, respectively.

Korreck (2019) observed that start-ups have attracted more attention globally over the past few years. In India, the number of startups has rapidly expanded, and greater help in all areas is now readily available. In order to comprehend the growth drivers and motivations of Indian start-up founders, to identify the obstacles these start-ups face, and to describe the frameworks in place that assist them, this study analyses the current situation of the Indian start-up ecosystem. Data from semi-structured interviews with startup founders, investors, and representatives of support organisations were used in the analysis. The robustness of the findings is further strengthened by a review of pertinent literature.

Roundy and Fayard (2018) reviewed that governments and regional development organisations implement policies to encourage entrepreneurial activity in pursuit of the positive results of entrepreneurship. Promoting entrepreneurial ecosystems—the interrelated network of forces that foster and support local entrepreneurship—is a developing area of interest for policymakers in both emerging and mature economies. Despite widespread interest, there is not enough theory on entrepreneurial ecosystems. Studies highlight the beneficial effects of entrepreneurial ecosystems on the formation and operation of early-stage businesses, but the precise processes through which ecosystems have an impact on entrepreneurs remain unclear. Dynamic capacities theory is counted to provide a theoretical framework that identifies a number of forces that ecosystems use to impact entrepreneurship in order to address this problem. It is contended that entrepreneurs are better equipped to recognise, seize,

and reorganise resources and opportunities in dynamic entrepreneurial ecosystems. The hypothesis advances the field of entrepreneurship study, has consequences for practitioners and policymakers, and offers ideas for future research.

Sachin, and Rawani (2018) conducted a review of the literature on the entrepreneurial ecosystem to provide the following contributions. First off, this essay offers some background on research on the entrepreneurial ecosystem. As a result, this study is an organised attempt to identify the research gaps on the subject of the entrepreneurial ecosystem. Second, it is suggested a course is designed for future study on the entrepreneurial ecosystem by identifying the knowledge gaps in the current literature. This research helps academics and policymakers to create new regulations that are supportive of local entrepreneurship and innovation systems.

Flores and Kovacs (2018) assessed the literature that is currently available in the area of the entrepreneurship ecosystem, looking at how the notion of the entrepreneurship ecosystem is defined, the relevant factors, and the authors who support these characteristics. 45 bibliographical references, the majority of which were published in specialised academic publications, were reviewed for this exploratory study, which utilised several banks of scientific papers from 1993 to September 2018. The study was conducted in two stages: the first step involved gathering definitions of the Entrepreneurship Ecosystem concept using Google Academic, Scopus, Science Direct, and Web of Science, and the second involved defining a list of factors found in the literature and sending it to specialists in the field in Europe, America, and Asia. New study directions on EE and its factors have been established as a result of the results that were discussed with specialists.

Cavallo et al. (2019) analysed the recently published research on the entrepreneurial environment in order to help direct future studies in this exciting field. A critical analysis of the entrepreneurial ecosystem is presented in the paper, commencing with a look at its origins and definition. An original set of guidelines have been created that can assist scholars and practitioners seeking an answer to the following pressing question: such as how one develops a thorough understanding of an entrepreneurial ecosystem by combining prior research and building on the key concepts that

comprise an entrepreneurial ecosystem. The opportunities for enhancing our existing understanding of entrepreneurial ecosystems, as well as the ongoing discussions and potential future research initiatives, were then discussed. Last but not least, recommendations were made in a way that policymakers might take them into account when creating and implementing support measures to encourage entrepreneurship in their local ecosystems.

Noufal and Ramachandran (2017) made an effort to assess the potential for entrepreneurship growth and business startups in Kerala's regional industrial economy. All economies continue to be extremely dependent on their entrepreneurial activity for growth and prosperity. The main goal of the entrepreneurship framework is to organise and fortify the elements necessary for the expansion of entrepreneurship throughout the nation. The goal is to stimulate an ecosystem where successful and creative entrepreneurship can emerge, thrive, and expand, resulting in the development of a more thriving and dynamic entrepreneurial economy. Kerala Startup Mission is a trailblazer in the economic landscape of Kerala with a purpose to assist and foster digital firms in the State in order to capitalise on its "demographic dividend." It is intended to act as a launching pad for aspiring business owners who want to establish themselves in the field of technology-based careers and businesses. Kerala needs to take a targeted approach to driving entrepreneurship, innovation, and skill development in the economy. To increase the economy's productivity, the State must take the necessary measures to foster entrepreneurial talents, assist in the development of new capabilities, and encourage research and development that is in line with those demands.

Khattab (2017) observed that entrepreneurship is thought to be a strong driver of economic growth. By introducing novel goods and services and transforming fresh concepts into profitable ventures that address regional and global needs, entrepreneurs are said to be the driving force behind economic progress. Meanwhile, entrepreneurship needs a supportive atmosphere to develop and thrive, Startups need minimal entry barriers at first; to grow, they need a legal and regulatory environment that encourages initiative, assures fair competition, and safeguards private property

rights. Therefore, a strong policy environment must promote a sustained entrepreneurial ecosystem, including financial, educational, legal, and other assistance. Governments should consequently concentrate on creating the institutional and legal framework for assisting entrepreneurs' bottom-up initiatives. Both the creation and implementation of policies and changes can benefit greatly from the private sector's contribution. Global business organisations may become authoritative voices for business and crucial reform allies by engaging in an open, transparent, and democratic discussion with the government. Therefore, interaction with the business community can aid in creating an entrepreneurial ecosystem that is especially suited to regional requirements and conditions. If given the chance, entrepreneurs will go forward in this ecosystem and provide economic dynamism that works.

Sussan and Acs (2017) reviewed that there is a considerable difference in how entrepreneurship is conceptualised in the digital age. By fusing two well-established concepts—the entrepreneurial ecosystem and the digital ecosystem—this paper proposes a conceptual framework for researching entrepreneurship in the digital age. By combining these two ecosystems, it is better able to comprehend how agents and users interact while taking into account both the individual and social behaviour of customers. The four principles that make up the framework for the digital entrepreneurial ecosystem are: digital market- place, digital entrepreneurship, digital infrastructure governance and digital user citizenship. To better comprehend the digital entrepreneurial ecosystem, the study explores proposals for each of the four principles and offers a theoretical framework of multisided platforms. The article concludes by outlining a new research agenda to close the knowledge gap about entrepreneurship in the digital age.

Acs et al. (2017) found that an ecosystem is a biotic community that includes its physical surroundings and any interactions that could occur between its various living and non-living components. Economics has always been about theories that account for variations in output and results. However, just as entrepreneurship studies have mostly disregarded the importance of systems in explaining the prevalence and performance of entrepreneurship, economics has generally ignored

the function of entrepreneurship in economic systems. The entrepreneurial ecosystem model holds out the possibility of addressing these drawbacks. The regional development literature and the strategy literature are its two main lineages. Both lines have origins in ecological systems thinking, offering unique perspectives on how members of a society interact with one another to produce new value. However, research on both regional development and strategic management has generally disregarded the contribution of entrepreneurs to the production of new value. The contributions to the entrepreneurial ecosystem approach are highlighted in this paper, and a promising new line of research is suggested to further the comprehension of the emergence, development, and context of start-ups that have had a significant effect by creating new platforms.

Miller and Acs (2017) developed a paradigm for comprehending the American university campus as an entrepreneurial ecosystem using Frederick Jackson Turner's Frontier Thesis of American democracy. What is the right unit of analysis for examining ecosystem performance? Should it be a larger entity like a nation, state, city, or region, or something smaller like an incubator or accelerator? This essay makes the case that the entrepreneurial economy on American campuses has revived the open, innovative American frontier that vanished at the turn of the twentieth century. The modern campus entrepreneurial ecosystem provides the assets, liberty, and diversity of Turner's frontier while stimulating opportunity, entrepreneurship, and innovation. The administration of the campus as an entrepreneurial environment and the output generated by that campus ecosystem are explored in a case study of the University of Chicago.

Bruns et al. (2017) suggested a mechanism by which, if existing, the entrepreneurial environment manifests itself in the data. First, the entrepreneurial ecosystem is defined in accordance with the literature as a multifaceted group of interrelated elements that limit the impact of entrepreneurial activity on economic growth. Because of its complexity, it is impossible to directly quantify an ecosystem's quality. However, using this definition, it is contended that variations in the projected marginal impact of entrepreneurial activity on economic development should follow

from variations in the quality of the entrepreneurial environment. Combining a latent class analysis with a multilevel growth regression might be used to test for this variance. Before demonstrating its application in a data set encompassing 107 European NUTS 1-2 areas across 16 EU member states, the technique is motivated and tested using simulated data. For this dataset, the author is unable to disprove the idea that entrepreneurship contributes uniformly to regional growth. Therefore, there is no statistically significant evidence of variation in the calculated slope coefficients for entrepreneurial activity between areas in this dataset. This undesirable outcome may have a number of causes. The first is that the NUTS 1-2 level might not be sufficiently broken down to align with the pertinent boundaries of the entrepreneurial ecosystem. Although the data do not yet permit to empirically verify this prediction in a multi-country regional analysis, it is suspected that the method would uncover considerable disparities across smaller geographical units. The second argument is that the growth rates from 2006 to 2014 were accompanied by the European and global financial crises, which made it difficult to see how entrepreneurship affected (long-run average) growth as a whole. The simulations also pointed to a third justification. The effects might have been hidden if the measurement error is significant (in the range of 33 or 0.015% of yearly GDP growth).

Cunningham et al. (2017) studied on entrepreneurial ecosystems and concentrated on research that has largely adopted a macro-perspective to better conceptualise and map the determinants and evolution of entrepreneurial ecosystems, but has neglected the micro-level interactions of various entrepreneurial ecosystem actors. Recent criticisms of entrepreneurial ecosystems have mostly focused on the absence of concrete case-and-effect links, attribution, units of analysis, the various ways in which network definitions are used, as well as the static character of existing frameworks. The paper's goal is to present a micro level principal investigator (PI)-cantered governance framework that responds to these criticisms and, in doing so, identifies the value creation indicators (benefits), PI capabilities, problem categories (costs), and problem-solving mechanisms that PIs can use to govern expansive publicly funded research programmes effectively and efficiently. To provide the

predicted benefits and costs for each actor, PIs in charge of such research initiatives engage with many actors within entrepreneurial ecosystems and skilfully manage governance concerns, conflicts, and tensions at the micro level. Because the authors have attributed cause and effect at the level of individual actors and conceptualised the governance challenges at the micro rather than the macro level, the framework overcomes the static nature of earlier frameworks and serves as the foundation for future empirical research on the entrepreneurial ecosystem.

Vekic and Borocki (2017) found that the establishment of start-up businesses, as well as their continued growth and operation, depends heavily on state backing and its institutions. The government ought to work hard to identify and support the expansion of creative start-ups. The majority of high growth is produced by creative business owners who identify and seize fresh business possibilities. Special emphasis is given here for the most significant organisations and the support systems they provide for the development of the startup ecosystem and the health of the economy as a whole.

Sunanda (2017) conducted research on start-ups, which are characterised as "an entrepreneurial initiative or a new business in the form of a Company, a Partnership, or Temporary Organization created and searching for a repeatable and Scalable Business Model." One of the hot topics in this period that everyone is talking about is starting a business. The Start-up India Campaign, which debuted on August 15, 2015, is focused on fostering start-ups in order to promote entrepreneurship and job availability. Start-ups are the kind of businesses that use innovative development, analysis, evaluation, and research processes for their target market. With the aid of various start-up case studies in India, the goal of this article is to shed some insight on the process of creating a start-up, managing start-ups, and the measures undertaken by the Indian government.

Stam and Spigel (2016) evaluated and addressed the emergent entrepreneurial ecosystem approach. Entrepreneurial ecosystems are described as a collection of interrelated players and variables orchestrated so as to promote successful entrepreneurship within a given region. This essay's goal is to critically analyse

recent research on entrepreneurial ecosystems. The current state of study on ecosystems is undeveloped, relying more on sweeping generalisations drawn from prosperous case studies like Silicon Valley or Boulder, Colorado than on in-depth social science investigations. The study reviews the various definitions of ecosystems that have been found in the literature and analyses how ecosystems relate to related ideas like industrial districts, clusters, and innovation systems. The integrative model that links the functional characteristics of entrepreneurial ecosystems—including framework conditions and systemic circumstances—with entrepreneurial outputs and welfare outcomes is covered in the paper's conclusion. The social (informal and formal institutions) and physical circumstances that enable or restrict human contact make up the framework conditions. The ecosystem's core circumstances—networks of business leaders, funding, talent, expertise, and support services—are called systemic conditions.

Fuerlinger et al. (2015) examined the characteristics and make-up of the German entrepreneurial ecosystem and propose a new framework for evaluating the state's contribution to the ecosystem. Utilizing information from a meta-analysis of prior studies as well as qualitative interviews, this framework is used to evaluate the impact of the government on the various stages of the science-based innovation process. This paper explores how governments can affect an ecosystem's attractiveness by examining various public initiatives in Germany. It also highlights a number of areas for improvement. Germany already has a vibrant entrepreneurial ecosystem and a clear political agenda for entrepreneurship promotion. Publicly financed initiatives promote the start-up phases of new businesses, and the legal environment and entrepreneurship education have both improved, particularly in tertiary education. To fully utilise the growth potential of new companies, incentive programmes for scientific staff should be adjusted to promote more tech transfer activities. In addition, more latter stage finance through the engagement of private capital is required. To lessen the stigma associated with failure and increase societal appreciation of entrepreneurial effort, Germany also requires policies that influence social values and attitudes.

Krajcik and Formanek (2015) investigated whether the created and put into practise regional start-up ecosystem model is in line with the components, tenets, items, and iterations of standard knowledge needs to create the business environment. The regional ecosystem components are also examined in foreign models, and the own model's structure, elements, and object relations are defined along with a discussion of its advantages when used in a real-world commercial setting. The essay also provides examples for business owners and policymakers and discusses the conceptual framework of the Czech regional start-up ecosystem. Finally, it suggests dynamizing the model as a foundation for additional study in this field.

Nikhil et al. (2015) conducted a study to learn more about the prospects and issues facing start-ups in Kerala, specifically with reference to Cochin Start-up Village. 30 respondents were chosen as samples for the study's purposes using the convenience sampling method. Both the rank test and the independent sample t-test were utilised. The analysis of the data showed that the majority of new businesses were founded by men, demonstrating a significant gender gap. These corporations were formed in corporate form, with the majority of the registered shareholders being women. Although there were new sources of advantageous finance schemes accessible, it took roughly a year for enterprises to develop a workable product market fit because the bulk of start-ups were involved in B2B company and had education backing from science disciplines. Start-ups primarily relied on their own resources, placed a high value on the services they provided, and their biggest challenges included a lack of long-term financial return, poor mentoring, poor product market fit, and infrastructure issues that were hardly noticeable.

Salamzadeh et al. (2015) observed that start-up companies are young businesses that battle for survival. These organisations typically emerge from amazing ideas and develop into success. The literature on management, organisation, and entrepreneurship theories makes reference to these phenomena. There isn't a clear picture of these entities, though. This essay attempted to conceptualise the phenomenon known as "start-ups" and identify the difficulties they might encounter. The report ends with some final thoughts after reviewing the life cycle and the obstacles.

Yaribeigi et al. (2014) reviewed a number of factors that entrepreneurship in the world, especially in Western developed countries, the much interest in recent years; the concept of entrepreneurial ecosystems and integrating the separation of infrastructure services needed by entrepreneurs and governments innovative citizens, industrialists and entrepreneurs to create a person apart from the idea of an entrepreneur, and; long way to run and deliver it to the finally, profitability and growth of the organization. In many cases the idea does not run and stays in the mind. Entrepreneurship ecosystem is composed of the factors in the development of entrepreneurship involved. Macro-economic factors, cultural, social and political willingness and ability to influence the choice of entrepreneurial activity should be taken care of Hence to create an entrepreneurial environment, factors such as culture, policy, financial resources, human capital, market and support services as areas of entrepreneurship ecosystem is of particular importance.

Mason, and Brown (2013) found that industry strategy in developed nations is now heavily focused on boosting the number of high growth firms (HGFs). But current methods aren't working very well. It is insufficient to just establish supportive framework circumstances. The development of more HGFs is not a result of improving the business environment. Additionally, transactional types of help for HGFs (such financial aid) are showing poor impact, at least after startup. In response, the entrepreneurial ecosystem strategy has been developed. It acknowledges that HGFs thrive in many kinds of supporting environments. Entrepreneurial ecosystems are characterised by a core of large, well-established companies, some of which were started by entrepreneurs (entrepreneurial blockbusters); entrepreneurial recycling, whereby successful business people who have already made a lot of money reinvest their time, money, and expertise in fostering new entrepreneurial activity; and an environment that is information-rich and where information is both accessible and shared. The deal-maker, who serves in a fiduciary function in a number of entrepreneurial endeavours, is an important participant in this situation. An entrepreneurial ecosystem also has to have a strong culture, access to start-up and growth finance, the presence of big businesses, academic institutions, and service

providers. Studies on entrepreneurial ecosystems, however, have a tendency to take a static approach, largely ignoring both their origins and stimuli as well as the processes by which they become self-sustaining. For policymakers, developing entrepreneurial ecosystems presents a variety of difficulties. There are a few broad guidelines that must be followed. A holistic approach to policy intervention is required, with a focus on the entrepreneurial actors within the ecosystem, resource suppliers within the ecosystem, entrepreneurial connectors within the ecosystem, and the entrepreneurial environment of the ecosystem. Finally, it is critical that policymakers create metrics to analyse each ecosystem's strengths and weaknesses. This will allow them to decide when and how to interfere, as well as track the efficacy of such interventions over time. Choosing what to measure, how to measure it, and getting access to data at the right geographic scales are all difficult tasks.

Suresh, and Ramraj (2012) created a conceptual model of the ecosystem that would encourage people to launch new firms. On the basis of a literature research and conversations with business owners, a theoretical framework has been established. In-depth interviews were conducted to create the qualitative case, and a pilot study was used to evaluate the ecosystem elements. It was discovered that an individual's decision to pursue entrepreneurship is influenced by eight ecosystem-related factors: moral, financial, technological, market, social, network, governmental, and environmental support.

De Silva, R.L. (2010) made an effort to look into the starting and expanding intentions of Bradford, UK-based entrepreneurs that run small and medium-sized businesses. The "storytelling" method is used to conduct in-depth interviews, and narrative analysis is applied to data analysis. The results show that each entrepreneur is driven by a mix of "pull" and "push" motives during the start-up phase, but that throughout the growth phase, "pull" motives predominate. Three different types of entrepreneurs are recognised based on trends between growth objectives and entrepreneurial outcomes. Future research directions and practical ramifications are emphasised.

2.4 Attitude

G.N and GN, (2024) examined the correlation between the entrepreneurial environment and attitudes towards entrepreneurship. The conceptual study examined research articles pertaining to the entrepreneurship ecosystem and attitudes towards entrepreneurship. The current study considers research completed in several countries. Research investigations have revealed several themes, with three primary theses found within the entrepreneurial ecosystem: entrepreneurship education ecosystem, personality qualities, and diverse demographic aspects of individuals. These three principal themes are identified as determinants of attitudes toward entrepreneurship. This is a conceptual article; future studies may measure the variables to assess the impact of the entrepreneurship ecosystem on attitudes toward entrepreneurship.

Liu and Singhdong (2024) investigated the correlation between entrepreneurship education, entrepreneurial intention, and entrepreneurial performance among Chinese university students. Despite China's implementation of numerous initiatives to promote college student entrepreneurship, the success rate is comparatively low relative to other nations. This study employs a quantitative methodology and structural equation modelling to examine survey data from 424 college students who have initiated their own enterprises. The findings demonstrate that entrepreneurship education significantly enhances both entrepreneurial intention and performance, with entrepreneurial intention serving as a partial mediator in the relationship between entrepreneurship education and entrepreneurial performance. The results underscore the significance of entrepreneurship education in cultivating entrepreneurial intention and enhancing entrepreneurial performance among Chinese college students. The cross-sectional methodology and self-reported nature of the data constrain the causal inferences that can be derived from the study. Future study ought to employ longitudinal designs and objective performance metrics to better examine the influence of entrepreneurship education on entrepreneurial success in China.

Sharma et al. (2024) observed that the entrepreneurship ecosystem and entrepreneurial behaviours and attitudes are significantly correlated with various factors related to

social development, economic development, scientific and technological advancement, intellectual property rights, geographical location, government policies, demographic profiles, and cultural characteristics of the population. This study establishes the Entrepreneurship Ecosystem Development Index (EEDI) and the Entrepreneurial Behaviour and Attitude Index (EBAI) to elucidate the comparative performance of the entrepreneurship ecosystem and entrepreneurial behaviours and attitudes, respectively. Various factors related to the entrepreneurial ecosystem and entrepreneurial behaviour and attitudes were utilized to develop the EEDI and EBAI. These indicators are acknowledged as a fundamental component of the entrepreneurship ecosystem and entrepreneurial behaviours and attitudes by the Global Entrepreneurship Monitor (GEM). It subsequently analysed the relationship between estimated EEDI and EBAI by incorporating pertinent indicators as control variables in the suggested empirical models.

Amofah and Saladrigues (2022) examined entrepreneurial intention through the application of Ajzen's (1991) Theory of Planned Behaviour (TPB). They specifically investigated the influence of gender on entrepreneurial education and parental self-employment (PSE) through a multi-group analysis (MGA). A web-based questionnaire was employed to gather data from 216 students at a Spanish institution. Data are analysed using Structural Equation Modelling (SEM)–Partial Least Squares (PLS). They performed a tripartite study on Complete, Male, and Female Models. Concerning the Complete and Male Models, all primary hypotheses (five in total) were accepted, however only four were accepted for the Female Model. This study primarily investigated the fundamental factors of the Theory of Planned Behaviour (TPB). They advocated for the formal establishment of internships, optional courses, conferences, and workshops on entrepreneurship to enhance students' entrepreneurial spirit. Although this study has validated the relevance of the TPB model to entrepreneurial intention, they did not identify a significant association between males and females regarding their entrepreneurial intents for certain relationships. This study indicated that the correlation between PSE and perceived behavioural control (PBC) was more pronounced in males than in females. Their findings hold significance for scholars in entrepreneurship education, program evaluators, and policymakers.

Kansheba and Wald (2021) investigated the mediating effects of entrepreneurial attitudes (EAs) on the relationship between the quality of the entrepreneurial ecosystem (EE) and productive entrepreneurship in early-stage and high-growth ventures. The research utilized Global Entrepreneurship Monitor (GEM) panel data from 137 economies spanning the years 2014 to 2018. Data analysis employed random effects panel regressions and assessments of relative effect sizes. The study's findings indicated complementing mediation effects, demonstrating that EE quality directs entrepreneurial actions through EA. However, such mediation is significantly more pronounced in high-growth contexts than in early-stage activities. Vibrant entrepreneurial ecosystems furnish essential resources that enhance the motivation of prospective and emerging entrepreneurs to participate in early-stage and high-growth ventures. The research employed GEM data to elucidate the dynamics of EEs and EAs and their associated impacts on entrepreneurship at the macro level. Future research may investigate the phenomena utilizing micro-level data. The paper investigated a relatively under-researched inquiry into how entrepreneurial ecosystems facilitate the growth and development of entrepreneurship. It indicated a necessity for novel views and logics (e.g., mediation and moderation) to enhance the explanations within the existing EEs framework. It additionally advised policymakers and practitioners to formulate entrepreneur-centred entrepreneurial education policies and programs.

2.5 Motivation

Bahri and Alamsyah (2024) observed that the elevated unemployment rate among college graduates is a significant issue in Indonesia. The prevalence of educated unemployment in Indonesia is attributable to a lack of interest in business. The entrepreneurial ecosystem is crucial in decreasing the educated unemployed by fostering new entrepreneurs. The aggregate sample size comprises 55 students. Samples were collected utilizing a purposive sampling method. Data analysis techniques encompass validity assessments, reliability evaluations, t-tests, f-tests, and coefficient of determination analyses. The test results indicate that entrepreneurial motivation is directly affected by entrepreneurial education, familial context, and

community context; however, the social environment fails to offer internal motivation. Similarly, interest in entrepreneurship, entrepreneurial motivation, entrepreneurship education, and familial environment exert a direct influence, however the communal environment does not. Entrepreneurial motivation did not serve as a mediating factor between entrepreneurship education, familial context, and community context regarding students' entrepreneurial desire. Simultaneous tests of entrepreneurship education, home environment, and community environment can affect students' entrepreneurial drive and interest.

Nayak et al (2024) examined the impact of the antecedents of the theory of planned behaviour (TPB) and personality factors on entrepreneurial intentions and behaviours among engineering students in an emerging economy. It utilizes an expanded version of the TPB model, concentrating on the intention-behaviour gap, a relatively unexplored domain in study. Additionally, it examines the moderating influence of entrepreneurial incentive on the correlation between intention and behaviour to enhance the predictability of the conceptual model. A systematic questionnaire was employed to collect data from 1,564 engineering students, which were subsequently analysed using structural equation modelling (SEM) with Amos software. The findings indicated that subjective norms were the most significant predictor of entrepreneurial intention and behaviour, succeeded by entrepreneurial alertness, perceived behavioural control, attitude towards entrepreneurship, need for achievement, and risk tolerance. Furthermore, the moderation study indicated that entrepreneurial desire was essential in modulating the association between intention and behaviour. The current conceptual model enhances the existing Theory of Planned Behaviour (TPB) model by augmenting its predictive capacity regarding the intention-behaviour relationship. The study's findings will aid policymakers, higher education scholars, and universities in formulating policies, strategies, and curriculum to enhance student participation in entrepreneurial endeavours.

Purbasari et al. (2022) aimed to predict and establish that Attitude towards money (ATM) and Locus of control (LOC) influence the entrepreneurial motivation of young students and their business performance, with entrepreneurial motivation

serving as a significant mediator of the effects of ATM and LOC on the business performance of young entrepreneurs located in Jakarta. The subjects of this study are young entrepreneurs who own and operate their enterprises while maintaining student status at State Universities (PTN) and Private Universities (PTS) in Jakarta. The snowball sampling technique encompasses the conventional sampling method, addressing technical limitations, specifically the challenges of sampling from a population with an indeterminate size and the difficulty of accessing a population dispersed across various universities. A total of 173 students from State and Private Universities in Jakarta were sampled. The data will be examined with the SEM-PLS methodology via the SmartPLS software. This study's findings indicate that (1) attitude toward money influences business performance; (2) attitude toward money impacts entrepreneurial motivation; (3) locus of control does not influence business performance; (4) locus of control affects entrepreneurial motivation; (5) entrepreneurial motivation influences business performance and serves as a critical factor in enhancing business performance; (6) entrepreneurial motivation acts as a mediator in the relationship between attitude toward money and business performance; and (7) entrepreneurial motivation serves as a significant mediator in the relationship between locus of control and business performance.

Hassan et al. (2021) analysed the direct and indirect influences of individual entrepreneurial orientation and entrepreneurship education on students' entrepreneurial intention, mediated by entrepreneurial motives. The study seeks to determine the impact of entrepreneurship education on personal entrepreneurial orientation. Cross-sectional data were obtained from 323 university students by convenience sampling. Confirmatory factor analysis was employed to evaluate model fit, as well as the reliability and validity of the data, while hypotheses were examined using structural equation modelling. The data confirm that entrepreneurship education enhances individual entrepreneurial orientation and incentives, and is positively correlated with entrepreneurial intention. Entrepreneurial incentives considerably moderate the correlations between individual 'entrepreneurial orientation and entrepreneurial intention' and 'entrepreneurship education and entrepreneurial

intention.' The results offer tangible support for the formulation of new educational policies to aid students in their current and prospective entrepreneurial endeavours. The research enhances the literature by identifying the mediation role of entrepreneurial motivations in the aforementioned correlations. It contributes to the limited literature on the recently acknowledged individual entrepreneurial orientation construct.

Carriles-Alberdi et al. (2021) studied that social entrepreneurs possess certain features that set them apart from commercial entrepreneurs; yet, research on this behavioural differentiation remains an area requiring further exploration. A particularly significant component is the ecology in which social entrepreneurship activities occur. This study aims to examine the influence of the ecosystem on the motivation of social entrepreneurs in comparison to commercial entrepreneurs. The overarching objective is subdivided into two specific objectives. Initially, they examine how the ecosystem affects the likelihood of becoming a social entrepreneur, taking into account both the elements of the entrepreneurial environment and economic and financial considerations. Secondly, they examine whether the impact of the entrepreneurial environment is influenced by the developmental status of the country in which the activity occurs. The findings indicate that the entrepreneurial ecosystem—comprising the entrepreneurial, financial, and institutional environment—affects the motivation of social entrepreneurs differently from that of commercial entrepreneurs. Furthermore, they observe that this influence varies according on the developmental status of countries.

2.6 Self-Efficacy

Taneja et al. (2024) investigated the impact of Entrepreneurial Self-Efficacy (ESE) and its sub-components on Entrepreneurial Success (ES). The research employs primary data collected from students participating in entrepreneurial courses at the top 100 ranked higher educational institutions (HEIs). A questionnaire was distributed to 500 students, yielding 323 valid responses (response rate: 64.6%). Of these, 195 were male and 128 were female. The research was conducted in Punjab, Haryana, and the National Capital Region of Northern India. The current study employed SPSS software to examine the correlation between the variables

"regressed on" and "regress on". McGee's scale was employed to assess ESE. To assess the dependent variable, "ES," items were sourced from the scale developed by Linan, Battistelli, and Moriano. The results demonstrated that three of the five sub-constructs of ESE—planning, implementing people, and implementing finance—were positively significant to ES. The research indicates prioritizing these three subscales to attain success. Policies are required to underscore ESE-Searching and ESE-Marshalling. Future studies could incorporate gender and education as control variables.

Amer Yassin et al. (2024) observed that establishing a robust entrepreneurial ecosystem is seen as a regional economic development strategy that emphasizes creating conducive conditions for the growth of startups. This study seeks to examine the influence of the entrepreneurial environment on the success of startups and the variables that may mediate the relationship between the entrepreneurial ecosystem and startup success. The research utilized face-to-face and online semi-structured interviews, guided by nine open-ended questions, conducted from the second quarter until the end of the third quarter of 2023, concluding the data gathering phase upon achieving data saturation. The participants were chosen using a purposive sample method, comprising 20 founders or managers of startup enterprises across several sectors, including IT, customer service, food, and transportation in Egypt. Thematic and content analysis is conducted via NVivo software. Four themes are derived from the analysis of the interviews, with each theme comprising multiple codes. The primary theme is the entrepreneurial ecosystem, encompassing elements such as competency development, education and training, entrepreneurial culture and leadership, financial support, governmental laws and regulations, market accessibility, and intermediary services. The second subject pertains to entrepreneurial qualities, encompassing the codes: self-efficacy, entrepreneurial attitude, entrepreneurial intention, and entrepreneurial creativity. The third subject encompasses entrepreneurial obstacles, characterized by traits such as intense competition, inadequate planning, excessive expectations, deficiencies in knowledge and abilities, and unsuccessful marketing strategies. The fourth subject is startup success, encompassing the codes:

productivity, financial performance, and competitive advantage. This study determined that some components are insignificant for the startup ecosystem: government initiatives and assistance, commercial and professional infrastructure for entrepreneurs, and access to physical infrastructure for entrepreneurship. The study concurrently affirmed that education and training, entrepreneurial culture and leadership, financial assistance, government laws and regulations, and market openness are insignificant for the startup ecosystem. Furthermore, it has been determined that aspects such as competence development and intermediate services should be incorporated into the ecosystem. This study built a model to examine the relationship between the entrepreneurial ecosystem and startup success. Ultimately, several recommendations are presented for decision-makers, as well as for current and prospective research endeavours.

Saoula et al. (2023) found that entrepreneurship is a crucial framework for improving the economic prosperity of nations. Despite extensive discourse regarding the crucial influence of entrepreneurial education (EE) on fostering positive entrepreneurial intention (EI), there is limited understanding of the impact of individuals' entrepreneurial self-efficacy (ES), entrepreneurial motivation (EM), and family support (FS), which the authors examined in this study. This research employed a quantitative methodology to gather data from 334 youths across multiple Malaysian higher education institutions, utilizing a purposive sampling method and a deductive approach grounded in the theory of planned behaviour (TPB). The findings disclosed significant insights into the importance of young individuals' entrepreneurial skills (ES), emotional management (EM), and financial abilities (FS) in acquiring strategies, procedures, and competencies for initiating new firms. Furthermore, EE served as a crucial mediator in the interaction among individual self-efficacy, FS, EM, and EI. This study is one of the few to advance strategic management studies by developing a framework predicated on the notion that EE depends on many aspects, specifically ES, EM, and FS. These characteristics motivate Malaysian youth to pursue the requisite education to cultivate advantageous emotional intelligence and initiate prosperous enterprises.

Adeniyi (2023) found that there is increasing apprehension in Nigeria that graduates in science and engineering are ill-prepared for entrepreneurship, as seen by the low rate of firm development among youth. Another viewpoint says that entrepreneurship curricula just equip students to pursue employment rather than to become entrepreneurs. Prior research has indicated that other cognitive characteristics, outside from entrepreneurship education, influence the preparedness to initiate a firm. This study aims to identify social cognitive characteristics that can enhance start-up preparedness. This study investigated the mediating role of entrepreneurial self-efficacy (ESE) in the link between entrepreneurship education and start-up preparedness. Three dimensions of entrepreneurship education and four dimensions of entrepreneurial self-efficacy were analysed as factors influencing start-up preparedness through a survey study methodology. Data from 289 exit-level students across three Technical Vocational Education and Training (TVET) colleges were analysed utilizing SPSS 25 and Smart PLS 4 software. Entrepreneurship education, encompassing technical and business management abilities, demonstrates partial support for entrepreneurial self-efficacy in areas such as seeking, planning, and implementation. Nonetheless, entrepreneurship education (regarding personal skills) solely demonstrates support for entrepreneurial self-efficacy (in terms of mobilization). The mediation analysis results indicate that ESE, encompassing searching, planning, and implementing, partially mediates the relationship between entrepreneurship education and start-up readiness, whereas ESE marshalling does not mediate this relationship. This study indicated that, aside from ESE marshalling, all elements of ESE exhibit a direct and significant correlation with start-up readiness. This study further reveals that personal entrepreneurial abilities are a necessary precursor for improving business resource acquisition skills, hence facilitating start-up preparedness among young individuals in Nigeria. The research advocates for the cultivation of an entrepreneurial mindset through simulation-based methodologies, role-playing, and mentoring with pragmatic applications.

Wu et al. (2022) seek to investigate effective methods for enhancing college students' entrepreneurial self-efficacy and ambitions via entrepreneurship education. The poll employed a random sample of 804 university students in

Zhejiang Province, China. The findings indicate that there are considerable disparities in entrepreneurial intention features based on gender, entrepreneurial experience, competition experience, and familial background related to self-employment. There are notable disparities in the attributes of entrepreneurship education concerning gender, entrepreneurial competitive experience, and familial history related to self-employment. Entrepreneurship education is strongly and positively correlated with both entrepreneurial self-efficacy and entrepreneurial intention. Entrepreneurial self-efficacy is strongly and positively correlated with entrepreneurial intention. Entrepreneurial self-efficacy serves as a comprehensive mediator between entrepreneurship education and entrepreneurial intention. Entrepreneurial self-efficacy exerts a suppressive influence on the link between the two variables. Entrepreneurial competition experience moderates the latter portion of the mediation effect of entrepreneurial self-efficacy. The study ultimately presents multiple recommendations for the pedagogical approach to entrepreneurship education.

Wardana et al. (2020) aimed to examine the correlation between students' entrepreneurship education and their entrepreneurial mindset, while also exploring the mediating effects of attitude and self-efficacy. This study employs a convenience random sample method, commonly utilized in entrepreneurship research. Participants were recruited from various colleges in Malang, East Java, Indonesia, for an online survey, and the data were analysed using structural equation modelling (SEM). The results of this study demonstrate that entrepreneurship education effectively impacts entrepreneurial self-efficacy, entrepreneurial attitude, and the entrepreneurial mindset. Conversely, entrepreneurial self-efficacy fosters an entrepreneurial attitude rather than an entrepreneurial mindset. Moreover, entrepreneurial attitude is crucial in mediating the relationship between entrepreneurship education and self-efficacy in shaping students' entrepreneurial mindset.

2.7 Risk Tolerance

Lux et al. (2023) enhanced entrepreneurial ecosystems theory by examining how elements of the local business environment influence individual entrepreneurs' capacity to convert their own resources into firm performance. Data were gathered

from 223 business proprietors around Australia. Moderation hypotheses were evaluated by multiple hierarchical regression and validated using the bootstrapping method of Preacher and Hayes (2004). The findings indicate that the psychological capital, social capital, and entrepreneurial education of business owners directly influence their firm's performance. These beneficial relationships are influenced by particular elements of the corporate environment, being more pronounced in favourable conditions. This study reintegrates individual firm owners into entrepreneurial ecosystems theory and elucidates how they might optimize their personal resources, indicating a nuanced interaction where a universal approach is inadequate. The discussion encompasses significant practical implications for policymakers.

Hunink (2019) examined risk tolerance variations among wage workers, solo entrepreneurs, and employer entrepreneurs at both micro and macro levels. Secondly, on a macro level, the influence of two European Union regions on the relationship between risk tolerance and entrepreneurship is examined, alongside a country's uncertainty avoidance and economic progress. The model employed is derived from the GEM survey, the IMF dataset, and Hofstede's dimensions dataset utilizing logistic regressions. All variables obtained from these three sources pertain to the years 2014 and 2015, with approximately 100,000 observations audited. The primary findings indicate that both solo and employer entrepreneurs exhibit a greater risk tolerance than wage workers. Furthermore, of the two categories of entrepreneurs, employer entrepreneurs typically manage risks in a more sophisticated manner. Moreover, a substantial influence of economic and cultural indices on the relationship between entrepreneurs and risk tolerance has been identified. No differentiation could be established between Eastern and Western Europe, since an inconsequential correlation was identified about the variance in risk tolerance among entrepreneurs in both countries. Consequently, it can be affirmed that young business owners assume greater risks than any other individuals in the labour force. Essential economic and cultural determinants, like GDP per capita and uncertainty avoidance, influence this risk tolerance positively and negatively, respectively. The

model's findings suggest that nations with elevated income per capita and/or diminished uncertainty avoidance exhibit entrepreneurs possessing more risk tolerance.

Gu et al. (2019) observed that currently, China's entrepreneurial activities serve as a crucial catalyst for economic growth, propelling technical innovation and social development at an unparalleled pace. Given that substantial profits are correlated with significant risks, it is imperative to elucidate the creation mechanisms of financial hazards associated with start-ups exhibiting "new defects" for their survival, growth, and the advancement of the economic society. The entrepreneurial ecosystem is a crucial external environment for the establishment, development, and expansion of entrepreneurial ventures. Research indicates that the variety, rivalry and collaboration, and network characteristics of an entrepreneurial ecosystem might influence the risk transmission mechanism within the system, thereby impacting the financial risk level of entrepreneurial enterprises. This paper utilizes the structural characteristics of the entrepreneurial ecosystem as a framework to integrate external factors affecting the financial risk of entrepreneurial enterprises. It examines the influence of these structural characteristics on financial risk and analyses the interaction mechanisms of each feature within the entrepreneurial ecosystem structure, grounded in entrepreneurial ecosystem theory.

Hvide et al. (2014) argued that Knight (1921) posits that those with a higher tolerance for risk are more inclined to pursue entrepreneurship, however tend to underperform. These predictions were evaluated using two proxies for risk tolerance: stock market involvement and personal leverage. Analysis of investment data from 400,000 individuals reveals that common stock owners are around 50 percent more likely to subsequently establish a corporation. Companies established by stock market investors exhibit approximately 25 percent reduced sales and 15 percent diminished return on assets. The outcomes are analogous when employing personal leverage as a proxy for risk tolerance. Alternate possibilities, including unobserved affluence and behavioural influences were also examined.

2.8 Innovativeness

Chaudhary et al. (2024) enquired what factors contribute to persistent entrepreneurial productivity in certain places while others remain stagnant? The entrepreneurial ecosystem and innovation are prominent terms in academic research, denoting the cultural, economic, social, and political milieu that fosters effective entrepreneurship. Researchers have investigated the relationship between ecosystems and innovation in recent years, and there is consensus that the interplay of entrepreneurial agents, institutions, and cultures fosters new venture creation and effective entrepreneurship. Nonetheless, despite extensive research, the entrepreneurial environment remains a metaphor lacking precision. Consensus on the causal factors influencing the entrepreneurial ecosystem and innovation outcomes is minimal, as current research is characterized by various perspectives and fragmentation. This review synthesizes research information on entrepreneurial ecosystems by analysing ninety-eight publications to discover the elements that enhance inventive potential. The content analysis identifies three primary themes: (1) the function of universities, (2) the function of entrepreneurial agents, and (3) innovation as a result of the entrepreneurial ecosystem. The results emphasize academic focus on the interactions within the business ecosystem and underscore the essential function of entrepreneurial players as catalysts of innovation. The existing research were enhanced by providing a summary of key issues and suggesting a conceptual framework. Exploring the nexus between the entrepreneurial ecosystem and innovation is a promising avenue for future research in the ecosystem.

Liu and Zhang (2024) this study creates a theoretical framework that connects business model innovation, entrepreneurial bricolage, and ultimately sustained entrepreneurial performance. Examining the connections and impacts between the factors, the study focusses on 371 digital businesses that operate inside the Digital Entrepreneurial Ecosystem (DEE). The results show that sustained entrepreneurial success is positively impacted by entrepreneurial bricolage. Additionally, it has been discovered that entrepreneurial bricolage promotes innovation in business models, which improves long-term performance. The study shows that the relationship

between entrepreneurial bricolage and sustainable entrepreneurial performance is somewhat mediated by business model innovation. Furthermore, it has been demonstrated that the empowering influence of the DEE positively regulates the relationship between business model innovation and sustainable entrepreneurial performance as well as between entrepreneurial bricolage and business model innovation. The indirect benefit of sustainable entrepreneurial performance mediated by business model innovation, which results from entrepreneurial bricolage, is also positively moderated by the empowering effect of the DEE. The findings of this study provide insightful information and can be used as a guide for tactics meant to improve the long-term viability of digital entrepreneurship inside the DEE.

Ianioglo (2022) found that currently, much emphasis is placed on ecosystem conditions that foster innovation and entrepreneurship. This chapter offers a critical analysis and enhances the comprehension of the ideas of the innovation ecosystem and entrepreneurial ecosystem. The entrepreneurial ecosystem comprises a network of participants that engage within a geographically defined entrepreneurial milieu and elements that foster the advancement of productive entrepreneurship. Innovation ecosystems consist of groups of interrelated participants that facilitate innovation processes and generate technologies and innovations. The innovation ecosystem emphasizes value creation via invention, whereas the entrepreneurship ecosystem concentrates on fostering entrepreneurship development. The chapter elucidates the distinctions, as well as the linkages and interactions, between the two ideas. The framework, components, and aspects of both entrepreneurial and innovation ecosystems are also discussed.

Gachanja et al. (2020) investigated the moderating influence of the Innovation Ecosystem (IE) on the correlation between Knowledge Entrepreneurship (KE) and Innovation Performance (IP) in manufacturing enterprises in Kenya. The research was based on complexity theory. Mixed methods research employing a cross-sectional design was implemented. The target population comprised 828 manufacturing enterprises. Purposive and stratified random sampling was employed to ascertain a sample size of 115 companies. The research indicated that IE significantly moderates

the relationship between KE and IP in Kenyan manufacturing enterprises. Collaboration and networking among business, research institutions, and universities should be enhanced to foster intellectual property and augment the competitiveness of enterprises. The sample size is relatively tiny in comparison to the population. The findings of this research indicate that the innovation system is a critical factor influencing innovation performance.

Guan et al. (2019) found that in China, a new generation of entrepreneurs is progressively emerging as the primary force in intergenerational succession. New generation entrepreneurs possess distinct educational backgrounds, growing experiences, and personality traits compared to their predecessors. They possess the historical mandate of an innovative generation. Consequently, it is crucial to identify the primary elements affecting their inventive activity and determine methods to stimulate such conduct. This study employed grounded theory and in-depth interviews, utilizing NVivo 11 for the analysis of recorded materials. Following a sequence of procedures comprising open coding, spindle coding, selective coding, and theoretical saturation testing, a theoretical model of innovative behaviour and performance for next generation entrepreneurs was developed. This study aimed to enhance the theory of entrepreneurial innovation behaviour and offer direction to the government in fostering the innovative spirit and capabilities of the new generation of entrepreneurs. The research indicated that the personal characteristics and educational background of new generation entrepreneurs influence their opinions of innovation. Risk awareness, comprehension of innovation content, and social capital will impact innovation behaviours. Innovative activities subsequently result in alterations in organizational performance. Consequently, the government should offer increased possibilities for emerging entrepreneurs to enhance their expertise, social resources, and innovative environment.

2.9 Research Gap

Upon evaluating the pertinent literature that was already published, it was discovered that a few studies had been done on startups and the entrepreneurial ecosystem. The studies' key areas of attention were Business Sustainability of Start-

Ups, Start-Up Life Cycle and Challenges, Drivers, Challenges, and Supporting Elements of the Indian Start-Up Ecosystem, as well as Kerala Start-Up Issues and Prospects. How to Launch and Run Start-Up Businesses in India; the start-up ecosystem in Kerala with regard to incubators; Development of Entrepreneurship and Startup Prospects in Kerala's Industrial Economy; The role of institutions in fostering new businesses; the Indian start-up ecosystem; regional start-up ecosystems; the function of startups in Kerala's burgeoning entrepreneurial scene; etc. The Kerala Start-up Mission hasn't been the subject of any thorough investigations. Additionally, the plans, initiatives, activities, and support of KSUM have not previously been examined from a research perspective. Further the psychological concepts of entrepreneurs in the form of mediating and moderating constructs in this context have not taken for any research study so far. It was discovered that none of the three major universities in Kerala had ever conducted study on KSUM or the entrepreneurial ecosystem, notably the start-up ecosystem of Kerala. The impact of KSUM on the startup ecosystem has not yet been thoroughly investigated. As a result, a study on Kerala's KSUM and entrepreneurial ecosystem is required. There is a strong perception that the subject of the current study has a significant research gap.

2.10 Conclusion

The numerous studies conducted on the Kerala Startup Mission and the entrepreneurial eco system are presented in this chapter. This chapter made it easier to understand the issues, the research process, and the findings. It has provided precise guidance for the design of the current investigation. The theoretical analysis of all significant prior research investigations that were linked and pertinent was presented in this chapter. It listed the main conclusions, methodology, and objectives of each study. The literature review was used to find the variables for the current study. It also assisted in creating the study's measurement scale. It also pointed out the deficiencies in these studies, which led to the creation of the current study to close the knowledge gap. As a result, this chapter is crucial and unavoidable in a research investigation.

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Chapter 3

THEORETICAL FRAMEWORK OF THE STUDY

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3.1 Introduction

Unemployment constitutes a significant economic and social challenge in India, particularly among the educated youth. To stimulate economic growth and job creation, it is imperative to nurture more entrepreneurs. Hence, the government must foster innovation and invest in the education of future workers. The development of entrepreneurship can be a crucial factor in combating unemployment and fostering economic advancement by converting inventive concepts into new company ventures or startups, thereby creating jobs. Consequently, the government must cultivate a conducive climate for the advancement of startups and alter the mindset of educated millennials to pursue self-employment instead of seeking traditional employment.

3.2 Strat-Up

The term "startup" denotes a corporation in the nascent phase of its operations. Startups are established by one or more entrepreneurs aiming to create a product or service that they perceive to have market demand. These companies typically commence operations with substantial expenses and restricted income, prompting them to seek funding from diverse sources, including angel investors and venture capitalists. Startups generally necessitate multiple years to achieve profitability, so substantial and high-risk expenditures are often essential for initiation.

3.2.1 Definition

An entity shall be considered as a Startup:

- If it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India.

- Up to ten years from the date of its incorporation/registration.
- If its turnover for any of the financial years since incorporation/ registration has not exceeded rupees 100 Crore.
- If it is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation.
- Provided that any such entity formed by splitting up or reconstruction of a business already in existence shall not be considered a 'startup' (DPIIT, 2019).

A startup is a venture initiated by an entrepreneur to explore, create and elevate to a scalable business model. Entrepreneurship encompasses all new enterprises, including self-employment and those not aiming for public offerings, whereas startups are new ventures designed to expand significantly beyond the sole founder. Initially, startups encounter significant uncertainty and have elevated failure rates; yet, a handful achieve success and prominence, exemplified by unicorns. Startups often originate from a founder or co-founders who possess a solution to an issue. The founder of a startup will do market validation through problem interviews, solution interviews and the creation of a Minimal Viable Product (MVP) to refine and substantiate their business models. The launch phase may be protracted; therefore, persistent effort is necessary. In the long term, maintaining effort is particularly difficult due to elevated failure rates and unpredictable results. A business plan delineates the actions required and the strategies necessary to realize a future concept. Generally, these strategies delineate the initial three to five years of the business approach.

3.2.2 Characteristics of a Start-up

A startup is a company in its nascent phase of operation. Founders typically finance their firms and may seek external investment prior to launch. Funding sources encompass familial and social networks, angel investors, venture capitalists, crowdfunding platforms and loans. Startups must elevate their legal framework and

the location of their operations. Startups have a significant risk of failure; nevertheless, they can also offer distinctive work environments with advantageous perks, an emphasis on innovation, and excellent learning opportunities.

Startups may utilize seed funding to finance research and refine their company strategies. Market research ascertains the demand for a product or service. A detailed business plan delineates the company's mission statement, vision, objectives, along with the management and marketing strategies. Startups are enterprises concentrated on a certain product or service that the founders aim to introduce to the market. These entities generally lack a completely established business model and, importantly, do not possess sufficient capital to go to the subsequent stage of business development. Majority of these companies receive early funding from their founders. Numerous entrepreneurs seek supplementary funding from other sources, including family and friends.

3.2.3 Startups in India

For decades, India has been recognized for its ICT expertise and, more recently, for its swift economic development driven by digital transformation and innovation. In conjunction with its recent swift economic advancement, it has emerged as one of the largest startup ecosystems globally. The Indian startup ecosystem has progressively developed in recent years due to a growing number of angel investors, venture capital funds, incubators and accelerators, alongside government initiatives like Digital India, Starup India, and Smart Cities, which will enhance startup and investment activities across various cities and sectors. The increase in startup investments and the emergence of unicorns is a result of rising spending power, enhanced mobile internet usage, access to new consumer markets, social media proliferation, technology advancements and advantageous consumer demographics.

The recent surge of startups commenced about 2004, when Silicon Valley Bank established its inaugural office in Bengaluru. Since that time, the momentum of investment in startups has escalated. As of 2015, India boosted 10,000 startups, nearly equivalent to the figure in the Peoples Republic of China (PRC). It also

included eight 'unicorns'- startups valued at $1 billion or more- in the sectors of e-commerce market places, transport and mobility, logistics and hyper delivery, ad tech, digital banking and finance, online aggregators and analytics.

In August 2019, Indian entrepreneurs secured $1.4 billion through 50 transactions, a significant rise from $182 million across 32 transactions the previous year (IVCA-EY 2019), representing a sevenfold growth. According to IVCA-EY (2019), India boasts over 50,000 companies, with 3,500 seeing a 30% annual growth rate, positioning it as the world's third-largest ecosystem, following the United States and the People's Republic of China.

3.2.4 The Critical Juncture for Indian Startups

The years 2014 and 2015 are seen as a pivotal moment for the Indian startup ecosystem, marked by the development of six unicorns during that period. Since then, the Indian startup environment has progressed consistently due to various fundamental aspects, including:

Demographic dividend: 600 million individuals remain under the age of 25, accompanied by increasing internet, smartphone and financial accessibility. The market size is expanding due to a burgeoning middle class with rising disposable income and more social media usage, and evolving consumer demographics that were previously unreachable, coupled with some of the lowest mobile and data tariffs globally, incorporation of startups and a growing number of active domestic and overseas angel investors and venture capital financiers. Political will: enhancement of business facilitation and a supportive innovation ecosystem via the implementation of digital technologies and government initiatives such as Startup India and Digital India, alongside the establishment of regulatory frameworks. Spillover impacts from substantial publicly traded (and privately held) technology companies: numerous angel investors and an expanding cohort of seasoned serial entrepreneurs. Higher education: India possesses a substantial reservoir of engineering and technical graduates, however many require additional training prior to employment. The emergence of startup hubs: the agglomeration effect in Tier 1 cities has resulted in

the formation of substantial clusters of startups, investors and supporting infrastructure. Linkages among industry, academia and government: an increase in university and industry-led incubators and accelerators, together with the establishment of government patent hubs.

A significant transformation in enhancing the accessibility of digital services to the general populace was catalyzed by the upheaval in the telecommunication sector, primarily instigated by the entry of Reliance Jio and its data price war in 2016. The near commoditization of the internet provided Indians with the most affordable data plans globally and created a completely new user demographic. Recent years have seen an increase in the value of private investments and the quantity of venture capital funds, both domestically and internationally. An intriguing trend has emerged from the East, notable including Japan's SoftBank Group, which had spent over $8 billion by the conclusion of 2018, alongside China's Tencent investment holding firm and Singapore's sovereign wealth funds, GIC and Temasek. As the Chinese startup market becomes saturated and overheated, while more developed economies such as Japan and the Republic of Korea gradually develop their startup ecosystems, India has emerged as a compelling destination among emerging markets.

Notwithstanding its swift growth and dynamism, India's startup environment remains immature. Historically, Indian entrepreneurs have not prioritized addressing local issues or engaging with advanced technologies. This hesitance can be partially ascribed to the absence of substantial venture capital, due to a scarcity of affluent, determined and enduring investors. Moreover, alterations in consumer behaviour, competitive pricing, extended gestation periods, and financial depletion, particularly due to the varied interest of stakeholders under a democratic and decentralized framework, hindered the implementation of reforms at a pace comparable to that of the People's Republic of China.

India has emerged as one of the foremost startup ecosystems globally, boasting over 20,000 registered startups nationwide. The union government is adopting a supportive attitude for the startup community and, as part of this initiative, several

projects have been launched to enhance this sector. 'Startup India' was the most ambitious effort launched by the union government to stimulate the startup ecosystem. The initiative was unveiled by Prime Minister Shri Narendra Modi during his Independence Day speech on 15th August, 2015, and the mission's blueprint was published on 16th January, 2016, at an event in Delhi. The 'Startup India' initiative was launched to support and inspire the nations startup community. The Starup India action plan encompasses several features, including the launch of a mobile application for expedited startup registration within a day, subsidized patent registration, government funding (fund of funds), tax exemptions and the reduction or elimination of corporate tax for new manufacturing and small business units.

3.2.5 Role of Startups in the growth of Indian Economy

A startup is an enterprise focused on the development, commercialization and creation of innovative products, services, or technologies driven by intellectual property or new technology. In the past two decades, the Indian startup ecosystem has expanded swiftly, with increased support across all dimensions. Startups operate with a broader business ecosystem aimed at producing significant solutions, so serving as catalysts for socio-economic progress and transformation. Startups, as hubs of innovation, create employment possibilities, which in turn bolster the economy; a robust economy directly influences the development of cities where these startups are situated. For example, examine how Infosys transformed the city of Bangalore. Consequently, to foster the startup culture in India and bolster the Indian economy, the Government of India has implemented different initiatives.

The specific role of startups in the growth and development of the Indian economy can be gauged from the following observations:

a) **Job creation:** India possesses 112 million individuals of working age between 20 to 24 years, in contrast to China's 94 million. The lack of government employment is propelling the nation's startup culture among this demographic dividend. As of August 29, 2022, India had become the world's third largest startup ecosystem, with over 77,000 DPIIT- recognized startups across 656

districts. These startups are concurrently generating more employment opportunities than large corporations or firms within the same sector. Consequently, addressing the unemployment issues in developing countries such as India.

b) **Recent Investments:** Numerous multinational organisations are currently outsourcing their operations to small enterprises to concentrate on their core capabilities. This trend has prompted both Indian venture investors and numerous multinational firms to attentively observe the advancements of Indian startups for potential investment opportunities. For instance, Accenture allocated 1.35 million dollars to startups in the past year, enabling them to exert a substantial influence on both the Indian and worldwide markets.

c) **Research and Development:** Startups significantly subsidize Research and Development (R&D) in nations such as India, as they often engage with high-tech knowledge-intensive services. The startup's R&D staff functions as an innovation catalyst, ensuring the company remains current. Consequently, startups promote a pragmatic methodology or autonomous inquiry with academic institutions. This encourages students or researchers to implement their ideas through collaboration with the startup, which significantly aids in fostering economic growth.

d) **Improved GDP:** Notwithstanding heightened inflationary pressures due to increasing global food and fuel costs, India's Gross Domestic Product (GDP) is projected to expand by 6.9% in the Fiscal Year (FY) 2022-23 and 6.2% in FY 2023-24. Given that GDP significantly influences a nation's economic development, fostering and endorsing further startup activities will facilitate domestic revenue growth and enhance the circulation of consumer money within the country,

e) **Making technological advantages accessible to all:** Numerous entrepreneurs not only propel innovation and technology but also illustrate how their advantages extend to the most isolated customers. Fintech businesses are now

extending their solutions to rural regions, facilitating the accessibility of financial services in Tier 2 and Tier 3 cities. Hesa, a Fintech and Agritech business, addresses all rural challenges by bridging the rural-urban divide with technology and labor. It effectively facilitates banking transactions, manages supply chains, and enhances the visibility of farmers' rural products. Likewise, e-commerce businesses like Zypp employ electric vehicle technology to ensure last-mile delivery is sustainable and devoid of emissions. These innovative firms have facilitated local entrepreneurs in rural areas to market and sell their products more easily. Local enterprise has transcended regional boundaries and is now positioned to compete globally, contributing to India's economic fortification.

f) **Enhanced Workplace Culture:** The phrase 'startup culture' evokes images of flexible work hours, informal clothing codes, and a congenial, relaxed workplace atmosphere. In contrast to the rigid and oppressive culture of the pre-startup economy, the ability to address one's superior by name appears to be a refreshing change. Startups also implemented the concept of limitless vacation days and employee benefits like gym memberships and team-building activities like off-site retreats, and other incentives. The era of arriving at work precisely at 9 am and departing at 6 pm has ended. Startup employees benefit from the flexibility of arriving at work at their convenience and departing at their discretion, provided they complete their tasks. Startups enable their employees to harness and demonstrate creativity in the workplace. It also provides opportunities for significant career advancement and skill development. This is ideal for recent graduates or individuals entering the workforce. This enhanced in-office experience has compelled older, more conventional enterprises to upgrade as well.

National Startup Day is an opportune moment to acknowledge the positive contributions entrepreneurs have made to both workplace culture and the broader corporate landscape.

g) **Community Engagement:** Regardless of the location a business selects for its activities, that area is likely to undergo a rapid surge in growth. This is due to the establishment of a comprehensive micro-economy surrounding each startup. The most exemplary instance of this is the city of Bangalore. Bangalore two decades ago was a tranquil city renowned for its parks and temperate. Currently, it serves as the IT Capital of the nation, hosting thousands of enterprises operating from its technology parks. When a firm establishes itself in a small town or hamlet, it generates revenue and fosters development in that locality. The cycle of wealth and expansion perpetuates itself, leading to the emergence of additional enterprises and further financial growth. Startups generate employment opportunities, enabling individuals to earn income for themselves and their family.

h) **Wealth Generation:** Investments in startups have consistently increased over the previous few years. Notwithstanding the prevailing financial winter, substantial capital is being allocated to India's entrepreneurs. On what destination does all this money allocate? Startups allocate funds for recruiting staff, initiating and maintaining operations, leasing commercial real estate, among other expenses. Every rupee expended by a startup is allocated to others. Even unsuccessful firms make substantial contributions to their local economies.

Consider the instance of a little internet bakery that distributes cookies and baked products to consumers throughout India. This bakery procures its flour, sugar, butter, and other raw materials from local suppliers on a monthly basis. These local vendors can generate substantial income by providing goods to the bakery. Consequently, local suppliers can use their earnings towards recruiting additional staff, thereby increasing their production of flour and sugar. The new employees now possess a source of revenue that they can allocate towards baked items from the bakery. Startups produce money through a self-sustaining cycle that perpetuates economic growth.

i) **Self-sufficiency:** Each startup that introduces a novel, inventive concept to enhance the lives of the Indian populace advances us toward a self-sustaining

economy. BoAt is a firm that produces high-quality audio equipment, such as earbuds and speakers, at affordable costs. Purchasing from BoAt and other Indian enterprises bolsters our economy and sustains monetary circulation. Indian enterprises and products have the potential to access the global market, hence fostering economic progress.

The nuanced impact of startups on the Indian Economy

- When a startup generates employment for local residents, it simultaneously initiates the procurement of goods and services, so enhancing the influx of cash and income to the government and subsequently stimulating the economy.
- When multiple startups flourish in a specific place, the market in that area also experiences growth. The influx of citizens seeking employment significantly alters the city's infrastructure facilities.
- As infrastructure improves, various guesthouses, homestays, culinary establishments, and transport services emerge, generating abundant employment opportunities and augmenting the city's earnings.
- Startups develop creative solutions and technologies that improve individual's quality of life. Numerous firms in India are functioning in rural regions with the objective of bolstering the local society and economy.
- When Indian startups fulfil the need for a necessary product or service, it diminishes the importation of that foreign product or service. This not only reduces cash flow to another nation but also enhances capital circulation inside the Indian market, which is essential for the growth of the Indian economy.

Final assessment: Policies conducive to startups in India do not invariably require substantial financial resources or incentives. They require assistance from accomplished entrepreneurs and strategic investors across all phases of development, including business planning, community engagement, and establishing connections with proficient business mentors. Given India's vast and diversified population,

which includes several skilled persons seeking employment, it is imperative to cultivate state ecosystems through the implementation of a startup policy, a startup site, and a hotline in each State. Establishing incubation centers, co-working spaces, entrepreneurial cells and fostering an entrepreneurial ethos in students from a young age is increasingly essential.

3.3 Kerala Start up Mission (KSUM)

Kerala is leading in the execution of several creative technology projects, e-governance efforts, e-literacy programs and the establishment of advanced technological infrastructure. The initial action to cultivate the startup ecosystem occurred in April 2006 with the creation of Department of Science and Technology (DST) sanctioned Incubator called Technopark Technology Business Incubator. The State government, recognizing the significance of fostering startups, has elevated the Incubator to the State Nodal Agency and rebranded it as the Kerala Startup Mission (KSUM).

Since 2015, KSUM has aimed to identify, assist, cultivate, and build companies across the State. Over the past decade, KSUM has facilitated an increase in the number of new entrepreneurs in the state, enabling the development of viable and scalable technologies that address specific problems and societal challenges. Recognizing the numerous obstacles and problems encountered by startups in our ecosystem, KSUM has developed several programs that address the needs of these enterprises. These programs encompass the complete life cycle of a startup, from its conception phase to its ultimate establishment stage. With over a decade of expertise in the startup environment, KSUM has effectively addressed startup requirements by anticipating future demands and formulating policies.

KSUM hosts many incubators, innovation zones, and accelerators to assist businesses by establishing premier infrastructure facilities throughout the state. The Maker Village, India's largest electronic hardware incubator and Electronics System Design and Manufacturing (ESDM) facility, is backed by KSUM to assist hardware companies.

The establishment of the Kerala Startup Mission has served as a catalyst for the enhancement of the startup ecosystem in the state, resulting in significant growth in the number of new firms and investments since the organization's inception. The diverse measures undertaken by the Kerala Startup Mission have fostered an optimal ecosystem for entrepreneurs, culminating in Kerala's distinction as the leading performer in the Startup India, DPIIT state startup rankings for 2018 and 2019. The Kerala Startup Mission has established itself as an integral component of both Kerala's and India's technology startup industry, with over 4000 registered firms, INR 20 crore in grants given, an INR 1,000 crore fund of funds, more than 63 incubators, and 10 lakh square feet of office space allocated.

The 'Digital Hub' at the Technology Innovation Zone in Kochi, established by the Kerala Startup Mission, is intended to serve as a center for design and prototyping. The 4,00,000 sq. ft. facility, which includes the operational Integrated Startup Complex, can accommodate 365 startups. KSUM possesses campuses at Thiruvananthapuram, Kozhikode, Palakkad and Kasargod. The diverse creative policies and activities have been instrumental in positioning KSUM as the leader of innovation in Kerala. The Kerala Startup Mission plays a crucial role in positioning India as a technology powerhouse, competing globally, and in offering superior facilities to lure inventive talent to the country.

Table 3.1

KSUM- Key Highlights

Particulars	Number/Amount
Number of Aspiring Entrepreneurs	30K+
Number of Startups	4K+
Fund of Funds for Startups (FoF) created by the State Government	$101 Mn+
Venture Capital Funding	$551 Mn+
Job created by startups	40K+
Innovation Grant provided by the State Government	$2.8 Mn
Number of active Incubators in the State	63
Number of IEDCs/Mini Incubators operating in the State	375+

Source: Kerala Startup Ecosystem Report 2022

3.3.1 Services of KSUM

The various Schemes, Programs, Events and Support Services provided by KSUM are explained as under:

A. Startups Schemes

To assist entrepreneurs in their entrepreneurial journey, the Kerala Startup Mission has implemented numerous Schemes to support them.

a) **Seed Fund for Women Entrepreneurs:** The Government of Kerala has launched the Seed Support scheme to offer financial assistance to startups, promoting the establishment and growth of innovative, technology-driven enterprises that will enhance the state's economy through venture creation, job creation, and the attraction of private investment. This initiative is executed by the Kerala Startup Mission, the principal agency of the Government of Kerala for startup-related endeavors and programs. This initiative aims to prolong the moratorium period for the seed monies provided by the KSUM from one year to two years.

b) **Innovation and Entrepreneurship Development Centres (IEDC):** The Innovation and Entrepreneurship Development Centres (IEDC) are established platforms inside Engineering, Management, Arts & Science Colleges, and Polytechnics designed to offer students opportunities for experimentation and innovation. IEDCs serve as the initial launch pad for a student's entrepreneurial path, granting access to advanced technology, premier infrastructure, exceptional mentorship, early-stage finance and international visibility. The Innovation and Entrepreneurship Development Centres (IEDC) is a premier initiative of the Kerala Startup Mission aimed at promoting innovation and entrepreneurship within the student and academic communities of educational institutions in Kerala. It serves as a comprehensive program that significantly contributes to cultivating an innovation culture in academic settings. The Innovation and Entrepreneurship Development Centres (IEDC) is designed to enhance innovation and entrepreneurial culture inside educational institutions and to

establish institutional frameworks that support techno-entrepreneurship for wealth and employment production. The IEDCs are created in academic institutions throughout Kerala that possess the necessary knowledge facilities.

- **Vision:** To cultivate an innovation culture among innovators by familiarizing them with cutting-edge technology and establishing the Institution as a Learning and Innovation Platform through the provision of technically proficient and skilled entrepreneurs.
- **Purpose:** The IEDCs will serve as an aspirational platform for student entrepreneurs and technologically adept innovators to enhance and refine their entrepreneurial skill sets. The chosen innovators will be immersed in innovation culture, emerging technology, and business principles, with the underlying idea that the delta will evolve into an entrepreneur, while other skilled individuals will secure high-level positions due to the exposure and skills they gain.
- **Mission:** To establish IEDC as an Innovation Platform and to cultivate future founders by fostering Innovation, Technology, and Business Education within the student community.

c) **Innovation Grant:** The Government of Kerala has launched the Innovation Grant scheme to offer financial support to startups and entrepreneurs, facilitating the transformation of their unique concepts into established enterprises. An innovation grant is not a monetary award for merely possessing an idea. The innovation award aims to assist innovators and startups in developing prototypes or products and scaling them into fully-fledged companies.

Types of Grants

- **Idea Grant:** For startups in the ideation and design phase or proof of concept stage, progressing to a minimum feasible prototype. The grant amount is up to Rs.3 lakhs.

- **Idea Grant (Student Innovator):** For students engaged in the Ideation and Design Stage or the Proof-of-Concept stage leading to Minimum Viable Prototype Development. The grant amount is up to Rs. 2 lakhs.
- **Productization Grant:** Designed for startups aiming to transform their minimum viable prototype into a completed product with initial traction or income. The grant amount is up to Rs.7 lakhs.
- **Women/Transgender Productization Grant:** Designed for women and transgender startups aiming to transform their Minimum Viable Prototype into a finished product. This grant will supplement the existing productization grant. The grant amount is up to Rs.12 lakhs.
- **Market Acceleration Grant:** Designed for startups aiming to enhance their revenue growth. The grant amount is up to Rs.10 lakhs.
- **Scale-up Grant:** Designed for startup to expand and optimize revenue. The grant amount is up to Rs.15 lakhs.

d) **Seed Fund:** The Government of Kerala has launched the Seed Support Scheme to offer financial aid to startups, promoting the establishment and growth of innovative, technology-driven enterprises that will enhance the state's economy through venture creation, job growth, and the attraction of private investment. This initiative is executed by the Kerala Startup Mission, the principal agency of the Government of Kerala for startup-related activities and programs.

e) **Research and Development Grant (R&D Grant):** This is awarded to hardware startups with a substantial research and development component. Each firm may receive funding of up to INR 30 lakh, with nomination recommendations provided during the quarterly evaluations. To be eligible for the funding, businesses must possess a functional prototype of their product and be affiliated with at least one sanctioned incubator inside the state. Applicants are required to provide a comprehensive business plan detailing the intended use of the funds—at least 50% of the grant must be allocated to

hardware, with a maximum of 20% permitted for marketing expenditures. R&D grants are not permissible for funding personnel or recruitment expenses. Priority is afforded to startups who have obtained patents or are in the process of scaling their product.

f) **Fund of Funds:** KSUM is collaborating with SEBI-accredited Alternative Investment Funds (AIFs) to invest in startups from Kerala. The state government will serve as a limited partner for the funds. KSUM will solicit a Request for Proposal from SEBI-accredited AIFs contingent upon Government permission. The Request for Proposal (RFP) document is available for download on the KSUM website via the e-tender portal of the Government of Kerala. Applicants must thoroughly review all instructions, forms, terms, requirements, and additional details in the tender document. A pre-submission meeting will be convened for interested applicants to offer clarifications concerning the tender. The AIFs must submit their proposals electronically via the Government of Kerala's e-tendering platform or directly to KSUM, as stipulated in the RFP document, prior to the submission deadline.

g) **Patent Reimbursement:** The Kerala Government, via the Kerala Startup Mission, has initiated the Patent Support Scheme, which offers assistance to businesses and student entrepreneurs who successfully get a patent. The Patent Support System aims to assist startup and student entrepreneurs by reimbursing patent expenses, including consulting fees, up to a maximum of Rs. 2 lakhs for each Indian patent granted. Reimbursement of up to Rs. 10 lakhs will be provided for awarded foreign patents pertaining to a single subject area. The reimbursement will occur in three phases: filing, prosecution, and award.

h) **Assistance for Rural Innovators:** Rural technologies are innovations originating from the rural sector or directly applicable to it, which can be enhanced and refined for broader applications and job creation within the rural domain.

- Assistance for Rural Innovations via Innovation Grants: The Government of Kerala has launched the Innovation Grant scheme to offer financial

support to startups and entrepreneurs for transforming their unique concepts into established enterprises. This initiative is executed by the Kerala Startup Mission, the principal agency of the Government of Kerala for startup-related activities and programs.

- Innovation grants are not monetary awards for merely conceiving an idea. The fund aims to assist inventors in developing prototypes or products and establishing enterprises. This program is accessible to concepts related to Grassroot Innovations and Rural Innovations.
- Assistance for Rural Innovations via the Green Innovation Fund Program. The Green Innovation Fund (GIF) is a unique program designed specifically for impact companies aligned with Sustainable Development Goals, seeking to pilot and develop their products with the experience of UNDP and KSUM. The GIF is a collaborative effort of KSUM, Haritha Keralam Mission, and UNDP India as part of the Gol-GEF-UNDP India High Range Mountain Landscape project (IHRML), focused on creating technology-based products to solve deficiencies in the High Range regions.

i) **Marketing Support Program:** The Kerala Startup Mission has introduced a strategy to subsidize product video development, aiming to assist companies with their marketing endeavours. Entities with quality products in the initial revenue generation phase will be eligible for the program.

The assistance offered for the program is as follows: • Product videos • Explainer videos • KSUM will contribute 70% of the real cost, capped at 1.5 lakh, to each business. A maximum of 2 videos may be produced through the initiative for startup products. The program will be accessible for new projects and movies created by entrepreneurs, to be executed by the empanelled agency of KSUM.

Method of participation: The startup is to select the agency for video content production. Startups should confer with the agency to delineate the requirements and finish the project. The agency will provide an estimate for the video

content of KSUM, and the startup must remit 30% of the quoted sum as registration costs upon receiving the invoice from the agency. The startup, agency and KSUM will establish a tripartite arrangement. Upon executing the agreement and obtaining the invoice for 70% of the payment, KSUM shall remit 40% of the specified sum to the agency. Upon satisfactory completion of the task, KSUM will disburse the remaining 30% of the quoted price to the agency upon receipt of the completion letter from the startup.

B. Startup Programs

The Kerala Startup Mission organises diverse programs for startups to impart essential skills for establishing a world-class firm.

a) **Physical Incubation:** The Kerala Startup Mission is allocating office space to businesses registered in Kerala to assist them in their entrepreneurial journey by offering incubation and scale-up space support at a subsidized rate. At now, KSUM offers co-working and dedicated enclosed cabin spaces for early-stage and scaleup enterprises.

b) **Accelerators:** Acceleration aims to assist established entrepreneurs in expediting their growth by offering tailored coaching, securing finance backing, and implementing a time-constrained intense program culminating in a Demo Day. Accelerators facilitate the rapid growth of established entities.

c) **Corporate Social Responsibility:** The government has implemented various procedures under the Companies Act, 2013, allowing corporations to allocate their CSR funding to sanctioned TBIs and registered non-profit organizations that serve as start-up assistance entities in designated sectors. The KSUM CSR Program facilitates corporations in allocating their CSR cash to encourage creative ideas through startups.

d) **Student Programs:** KSUM offer students programs to inculcate entrepreneurial culture among students.

- **IDEA Fest:** This Fest offers student innovators the chance to participate in a structured program and present their ideas to an expert panel. Participants can

get grants of up to 2 lakhs, along with mentorship, laboratory support, and additional product development assistance from KSUM.

- **INSPIRE:** Inspire is a regional gathering of innovators held across multiple campuses. The aim of the Inspire programme is to fortify student communities by enhancing innovators' understanding of the strengths and weaknesses of IEDCs. Inspire offers students the opportunity to learn about various initiatives and support provided by Startup Mission to innovators.
- **Faculty Development Program:** KSUM, in collaboration with its partners, offers a Faculty Development Programme for Nodal Officers and Assistant Nodal Officers throughout the state. The aim of these Faculty Development programs was to enhance the capabilities of those affiliated with IEDC. The faculties had training on multiple facets of creating an innovation ecosystem and managing a successful IEDC.
- **i-Talk:** It is a curated talk series organized by Kerala Startup Mission to honour entrepreneurship and foster innovation among students. The i-Talk series will feature narratives on inspiration, innovation, and investment. This will be a three-segment discussion session with professionals from the fields of innovation, investment, and inspiration.
- **WhyHack:** WhyHack is a hackathon organized by the Kerala Startup Mission to identify optimal technological solutions for urgent societal issues. This will occur in collaboration with community partners quarterly.
- **SALT:** Startup Awareness and Leadership Training, is a program specifically tailored for 9th-grade kids. The SALT program seeks to raise awareness of entrepreneurial prospects among school pupils and to foster a scientific mindset in young individuals.
- **LEAP:** The Local Entrepreneurship Advancement Programme (LEAP) offers IEDC a chance to establish its presence in the region's entrepreneurial scene. LEAP offers different IEDCs an expanded framework to formulate

their own programs and projects. The IEDC must engage community organizations, Local Self Governments, and Alumni in the design and execution of the program.

- **IGNITE:** It is a program by the Kerala Startup Mission aimed at educating alumni networks on startup financing and fostering local angel networks in Kerala, with the support of educational institutions in the region. IEDC may spearhead the establishment of an angel network by engaging its alumni and other high-net-worth individuals. The IEDC can establish an IGNITE fund to assist student innovators with the backing of alumni.
- **SMILE**: It is a program aiming at providing mentorship help to first-time innovators from esteemed startup founders and corporate leaders. Chosen mentors from both startups and corporations will provide consistent coaching and assistance to selected entrepreneurs.
- **RISE:** RISE is a gathering of innovators within institutions to acknowledge outstanding achievements of students and business entrepreneurs. The IEDC may extend invitations to local innovators and startup entrepreneurs for the meetup. The purpose of the event is to acknowledge the overlooked contributors of the region and foster a sense of pride among innovators.

C. Starup Events

Events are essential for fostering startups. They offer an ideal networking platform for company founders. The Kerala Startups Mission conducts numerous events annually to offer startups visibility to stakeholders.

a) **Huddle:** Huddle India serves as the epicentre for entrepreneurs, technological expertise, and premier investors, executives, and media personnel. The conference includes main stage presentations, ancillary events such as networking sessions, roundtable talks, and facilitated workshops designed to assist startups in establishing connections with appropriate investors and corporations.

b) **Seeding Kerala:** It is a two-day event centered on investors. On the first day, a general track designated for all registered startups and a separate track for investors are conducted. Members of the HNI network and investors nationwide are invited to observe the promising startups from the state.

c) **Investor Cafe:** The Investor Cafe serves as a platform for businesses seeking capital to engage with investors and secure funding. It provides individualized speed dating opportunities for businesses to secure funding. Angel networks and venture capitalists from throughout India engage in the event.

d) **Corporate Roundtable:** The Corporate Roundtable will provide chosen Startups the opportunity to engage and network with sector expertise and Ti Charter Members around India. The objective is to disseminate success narratives, seek clarifications, and exchange ideas. On the final Friday of each month, selected company founders will have the opportunity to network with business leaders.

D. Startup Support Services

a) **Government as a Market Place:** Kerala has significantly advanced the development of B2G companies within the state. The Government of Kerala has launched a pioneering effort allowing Government departments to directly acquire from startups, marking the first instance of such a program by any State Government in India. This originates from the Kerala State IT Policy 2017, which formalized governmental procurement from startups.

Kerala is one of the progressive states that has effectively integrated and executed the Startup direct procurement for government agencies and organizations. This has been designated as one of the best practices in the States Startup Ranking by DPIIT for Public Procurement. The Kerala Government has emerged as a prominent early adopter of startup innovations. The government's adoption of creative startup goods has fostered creativity inside its ranks, hence motivating other departments to collaborate with startups. The successful collaboration with startups has resulted in the

establishment of other divisions to investigate innovative goods from these firms.

The Government of Kerala has issued several Government Orders (GO) to establish the system, which has been effectively implemented.

- Relaxation for Startups in Participating in Public Tenders
  - Relaxation in Tender Fee and Earnest Money Deposit
  - Relaxation in Prior Experience and Turnover
- Direct procurement

  The Government of Kerala has authorized its departments to procure products directly from startups registered with the Kerala Startup Mission for amounts up to ₹ 50 lakhs, exclusive of GST, without a tendering process, contingent upon approval from the technical committee established under GO (Ms) No 2/2022/SPD dated 05.07.2022.
- Limited Tender Process

  The Government of Kerala has authorized Government Departments, Boards, PSUs, Corporations, etc., to acquire Startup Products valued up to ₹ 300 Lakhs via a limited tender process, restricted to businesses registered under the Kerala Startup Mission.

b) **Fab Lab:** Best Machines to meet the needs: The Fab Academy instructs on the principles and applications of digital fabrication. It was created to impart practical skills in fabrication laboratories, originating as an outreach initiative from MIT's Center for Bits and Atoms, comprising a six-day intensive training program that instructs the fundamentals of digital fabrication. The lessons are arranged on Saturdays over a duration of six weeks. A practical workshop series where participants will engage in numerous prototype techniques, including 3D printing, laser cutting, screen printing, and the design and fabrication of bespoke printed circuit boards.

c) **Future Lab:** Machine Learning and Deep Learning were advancing and beginning to be implemented throughout the years 2016-2017. KSUM has started an initiative known as the Future Technologies Lab, which is a research and development facility focused on Industry 4.0 technologies such as artificial Intelligence, robotics, augmented reality/virtual reality, brain-computer interfaces, the Internet of Things and cybersecurity. KSUM provides a diverse and dynamic community of entrepreneurs and technology specialists engaged in artificial intelligence and other emerging technologies. This facilitated peer learning which proved highly effective and enabled startups to swiftly comprehend the expertise required to develop a product that people desire, together with crucial practical startup guidance.

d) **Startup Service Partner:** To simplify your startup experience, KSUM has collaborated with premier solution providers to facilitate access to substantial savings on tools and services essential for launching your firm.

Google Cloud Startup Program aims to assist entrepreneurs in developing and expanding through the utilisation of Google Cloud.

Amazon Web Services, a subsidiary of Amazon, offers on-demand cloud computing platforms to people, corporations, and governments on a metered pay-as-you-go model.

The Microsoft for startups initiative is designed to optimally assist technology firms that meet the following criteria:

- Business to Business Sales Model
- Achieved product-market fit and gained customer traction
- Externally financed at Seed, Series A, B, or C stage, or a validated equivalent

Digital Ocean Cloud Services with the following benefits:

- $1,000 credit applicable to any company participating in your program: The credits will possess a one-year validity period, expiring thereafter. Individuals and companies are qualified for only one credit and cannot redeem numerous credits, even if they operate multiple accounts.

These credits will be applicable solely to individuals or corporations that have not previously utilized Digital Ocean credits.

Collect. Chat (https://collect.chat/product) facilitates the creation of interactive chatbots for websites. There is an absence of coding, artificial intelligence, and machine learning. You merely create the conversational interface and integrate the chatbot into your website. The chatbot will automate discussions on your website and gather leads and comments using this conversational interface.

Preliminary access to the Comet Chat platform for KSUM startups has the following advantages.

- Education and Advancement: Specialized training sessions that may encompass knowledge sharing, lessons gained, organizational development and sustainability, growth, and new initiatives.
- Mentoring: Mentoring sessions conducted by our Co-Founders, contingent upon availability.
- Designated Slack channel: Availability of a dedicated Slack channel for technical support and on-demand training with the Product & Engineering Team as needed.
- ClearTax provides taxation and financial solutions to individuals, enterprises, and organizations in India. ClearTax will assist startups with comprehensive compliance and legal matters, allowing them to focus on business development.
- Razorpay enables online enterprises to accept and process digital payments via payment methods such as debit cards, credit cards, net banking, UPI, and prepaid digital wallets. Razorpay payment solutions are compatible with integration into both web and mobile applications.
- M Talkz services enhance your Brand Recognition and Startup Enterprise with India's Premier SMS Provider Utilize the Premium Startup Offer to elevate your burgeoning business to new heights. Receive a complementary communication API package with each product.

- SMS partner services provide a complementary communication API package with each product. Replenish up to 25,000 complimentary SMS credits per month for a duration of six months.
- Startups utilizing the HubSpot Growth Platform enhance customer acquisition and retention with HubSpot's software, educational materials, and comprehensive integrations. All available at startup-friendly prices with discounts of up to 90%.
- Rakuten Rapid API, the largest API marketplace globally, hosts over 10,000 APIs and boasts a developer community exceeding 1 million members. It might considerably expedite your product development process.
- Zoho One provides a comprehensive suite of over 40 integrated business and productivity tools for your entire enterprise. Activate an application to enhance a procedure. Subsequently, integrate several applications to enable collaboration among teams, enhance customer satisfaction, oversee financial management, and optimize productivity.
- OVHcloud is a global, hyper-scale cloud service delivering superior performance and value to enterprises. Established in 1999, the organization oversees 28 data centers across 12 locations on 4 continents, operates its own worldwide fiber optic network, and administers the complete supply chain for online hosting. A centralized location for processing payments. Our payment solution is compatible with several company platforms, including shopping carts, ERP, and CRM systems, among others. It is simple to establish a connection, enabling fast payment processing.
- Freshworks is a prominent developer of cloud-based software for customer and staff engagement, located in San Mateo, California. The company's cloud-based suite is utilized by more than 150,000 enterprises globally, including the NHS, Honda, Rightmove, Hugo Boss, Citizens Advice, Toshiba, and Cisco.

- Webtile is a free, lightweight, portable, and embeddable micro-website that can be produced in about two minutes. Webtile is engineered for rapidity and is rapidly emerging as the favoured medium for busy individuals to comprehend things more effectively than a traditional website. Simply generate your presentations using concise spoken language, use images and videos, and include contact details to complete the task.
- Testvox specializes on delivering software testing solutions to software firms. Testvox will assist startups in generating mobile application performance test reports.

Presentation Monk assists start-ups in creating compelling and engaging presentations that can significantly influence successful commercial transactions, product launches, or important investments.

3.4 Entrepreneurial Ecosystem

Entrepreneurial ecosystems are a strategy aimed at fostering economic development through the promotion of entrepreneurship, small business expansion, and innovation. Ecosystems signify a novel trajectory for entrepreneurship research, enhancing understanding of the intricate contextual environments influencing the entrepreneurship process, while also offering valuable insights for policy discussions regarding the impact of high-growth entrepreneurship on regional economic development.

Our definition of an entrepreneurial ecosystem, derived from a synthesis of existing literature, is as follows: a network of interconnected entrepreneurial actors (both potential and established), entrepreneurial organizations (e.g., firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial entities), and entrepreneurial processes (e.g., business birth rates, numbers of high-growth firms, levels of 'blockbuster entrepreneurship,' prevalence of serial entrepreneurs, degree of sell-out mentality within firms, and levels of entrepreneurial ambition) that formally and informally coalesce to connect, mediate, and govern

performance within the local entrepreneurial environment (Mason & Brown, 2014; Stam, 2015).

A variety of models of entrepreneurial ecosystems presently exist. Daniel Isenberg of Babson College has created a significant method known as 'entrepreneurship ecosystem strategy for economic development' (2011). He asserts that this methodology is an innovative and economical method for fostering economic growth. Isenberg posits that this strategy may either 'replace' or serve as a 'pre-condition' for the effective implementation of cluster strategies, innovation systems, knowledge economy, or national competitiveness policies (Isenberg, 2011). He delineates six categories within the entrepreneurial ecosystem: a supportive culture, facilitating policies and leadership, access to suitable financing, high-quality human capital, favourable marketplaces for products, and a variety of institutional supports. These generic domains consist of numerous elements interacting in intricate and unique manners. Consequently, recognizing generic causal pathways holds less significance. He thus underscores the significance of context: each ecosystem arises under a distinct set of characteristics and circumstances.

A universally accepted definition of entrepreneurial ecosystems has not yet emerged among researchers or practitioners. The initial element of the phrase is entrepreneurial: a process wherein prospects for the creation of new goods and services are investigated, assessed, and utilized (Shane and Venkataraman 2000). The entrepreneurial ecosystem perspective frequently restricts entrepreneurship to 'high-growth start-ups' or 'scale-ups', asserting that this form of entrepreneurship is a significant contributor to innovation, productivity enhancement, and employment (World Economic Forum 2013). This assertion appears overly restrictive: networks of inventive start-ups or entrepreneurial employees may also constitute productive entrepreneurship (Baumol 1993), and even unsuccessful ventures may yield societal benefits (Davidsson 2004). Nonetheless, the research on entrepreneurship increasingly highlights innovative and growth-oriented entrepreneurship.

The term ecosystem derives from biology, where it is described as 'a biotic community, its physical surroundings, and all interactions among the complex of living and non-living components' (Tansley 1935). In applying the metaphor to organizational community ecology, Hawley (1950) incorporated three fundamental characteristics of ecosystems: co-evolution and mutualistic interdependence within a complex, layered structure of varied organizations and actors. A community ecology perspective, akin to biological ecology, emphasizes the co-evolutionary dynamics of various interrelated organizations and institutions that engage in mutualism, fulfilling distinct yet complementary functions that facilitate emergence, growth, and survival within a larger framework of community evolution (Astley and Van de Ven 1983; Freeman and Audia 2006). This mutualistic interdependence encompasses both cooperative and competitive interactions with partisan, distributed, and embedded entities pursuing their individual interests within the ecosystem, all of which enhance the system's complexity. For instance, to establish new enterprises in a specific area, entrepreneurs cultivate mutualistic interdependencies for knowledge with scientific communities, for financial resources from venture capitalists and investors, for skilled human resources from universities and training institutions, for regulatory approval and licensing from various government agencies, for components and distribution from supply chains, and for product sales from informed consumers (Isenberg, 2011; Autio et al., 2018; Spigel, 2017). Entrepreneurs rely on these elements, which in turn depend on entrepreneurs. All actors engaged in these factors play vital roles in cultivating and maintaining an entrepreneurial ecosystem.

Organizational ecologists assert that a discernible community arises when a population in a region has a cohesive identity, stemming from the reciprocal interdependence of symbiotically linked entities with complementing distinctions (Astley and Van de Ven 1983). This requires a technique for examining entrepreneurial ecosystems as a subset of a larger array of complex systems, specifically artificial systems as opposed to natural systems (Simon 1962). As human made constructs, entrepreneurial ecosystems highlight the unique functions of agency and institutions.

The evolutionary process by which participants get involved in the formation of an entrepreneurial ecosystem can initiate in several manners. The variation depends on the business and technology under development (Woolley 2017). For instance, it may commence with the deliberate goals and innovative concepts of entrepreneurs, who engage in a series of actions to acquire the requisite resources, expertise, and endorsements essential for establishing a financially sustainable business. During these activities, the trajectories of independent entrepreneurs, each pursuing their unique purposes and concepts, converge. These intersections present opportunities for engagement and identifying avenues for fostering both collaborative and competitive connections. Interactions may occasionally be initiated by an ecosystem leader (Nambisan and Baron 2013), while at other times, they arise from a process of collaborative mutual adaptation among diverse and distributed stakeholders who become integrated into the ecosystem as it evolves over time (Van de Ven and Garud 1993). Partisan mutual adjustment is a method of organizing individuals (a) without centralized oversight, (b) lacking a unifying objective, and (c) devoid of comprehensive regulations governing their interactions (Lindblom 1965).

Cooperative partnerships develop among players who can attain mutual advantages by combining their functional specializations. Competitive relationships arise as alternate business avenues become apparent, prompting many entrepreneurs to 'put their bets' on and pursue these divergent pathways. It is crucial to highlight that at the nascent phase of industrial development, applied research and development is characterized by significant uncertainty and frequently relies on fundamental science and technology. The technological alternative selected by an entrepreneur or firm significantly relies on various clusters of foundational research institutions, including universities, laboratories, and disciplines, which have been generating and guiding the accumulation of fundamental knowledge, techniques, and experience related to that specific technological alternative (Nelson, 1993; Audretsch & Feldman, 1996; Etzkowitz & Leydesdorff, 2000).

As the quantity of organizational units and participants reaches a crucial threshold, a complex network of collaborative and competing relationships starts to develop. This network is acknowledged as a novel domain, manifesting as a hierarchical, loosely connected structure. Hierarchy within an ecosystem is a matter of degree, and certain components may exhibit minimal, if any, hierarchical structure. Hierarchy frequently results from institutional limitations established by political and governmental regulatory entities. Hierarchy also arises in interactions with pivotal linking-pin corporations that either establish themselves as dominating industry leaders or regulate access to essential resources (capital, expertise, technology) required by other enterprises within the ecosystem. Loose coupling enhances both adaptability and resilience within the ecosystem. The connections between component subsystems are only as robust or close as required for the system's survival. In his complexity architecture, Simon (1962) examined how a loosely connected system offers short-term independence of subsystems while ensuring long-term aggregate reliance. The overall system may exhibit considerable stability, owing to the lack of robust connections across elements and subsystems; but individual subsystems can rapidly adapt to local environmental changes. Consequently, in a complex, varied and dynamic environment, a loosely connected ecosystem exhibits tremendous adaptability.

3.4.1 Entrepreneurial Ecosystem Models

We succinctly examine six models from the literature pertaining to entrepreneurial ecosystem frameworks. All the models are well known. Below is the list of all six models which are later discussed in this section.

a) Ecosystem domains by Isenberg (2010)
b) Ecosystem Pillars by World Economic Forum (2013)
c) Six + Six entrepreneurship ecosystem model by Koltai (2016)
d) Ecosystem attributes by Spigel (2017)
e) Innovation-driven entrepreneurship approach by Murray and Budden (2017)
f) Entrepreneurial ecosystem model by Stam and Van de Ven (2021)

a) Ecosystem domains by Isenberg (2010)

Daniel Isenberg is a pioneer in researching and developing policy within the entrepreneurial ecosystem. His model illustrates a static system indicating that the entrepreneurial ecosystem comprises six domains: policy, market, finance, human capital, support and culture, which are thought to foster entrepreneurship. Certain aspects depicted in the model resemble biotic factors in natural ecosystems, such as educators and bankers, while other elements, like infrastructure and culture, represent abiotic factors (Isenberg, 2016)

Isenberg (2016) critiques the conflation of entrepreneurship with startups, asserting that the core of entrepreneurship lies in growth, which occurs when business actors generate exceptional value for customers and secure significant economic value for themselves, whether by recombining assets, repurposing existing assets, acquiring new assets, or creating new assets.

Isenberg (2016) asserts that his entrepreneurship ecosystem model parallels natural ecosystems by lacking central control, featuring diverse sources of purpose, and providing several methods to fulfil participants requirements.

b) Ecosystem Pillars by World Economic Forum (2013)

A distinct entrepreneurial ecosystem model has been established by academics at the World Economic Forum. The report explicitly states that the following two questions regarding entrepreneurial ecosystems have been pivotal:

Question 1 How can entrepreneurs discern the disparities among global entrepreneurial ecosystems regarding the accessibility of the diverse components that constitute an ecosystem?

Question 2 Which components of an entrepreneurial ecosystem do entrepreneurs consider most critical for the growth and success of their enterprises?

The World Economic Forum's (2013) model of entrepreneurial ecosystem advanced the study on entrepreneurial ecosystems in two significant ways:

- Entrepreneurs were queried regarding the two aforementioned core questions, whereas previous analyses of entrepreneurial ecosystems do not utilize direct input from entrepreneurs to substantiate their arguments.
- Entrepreneurs polled were posed with both aforementioned issues, despite some prior studies concentrating just on the first question. Nevertheless, without addressing the second question, policy-makers cannot comprehend the primary element contributing to the growth and success of entrepreneurial enterprises.

This research identifies three essential pillars for the success of entrepreneurial firms: (1) accessible markets, (2) human capital, and (3) fundraising and finance. The study team responsible for data collecting utilized two distinct sources of information.

- An online survey involving 1000 individuals with significant expertise in early-stage startups, utilizing the Stanford Graduate School of Business alumni database for a two-phase survey, along with supplementary databases from Endeavor, Pakistan and Australia.
- Executive cases derived from a poll of founders and senior executives of 43 early-stage companies, aimed at identifying their growth and the role of entrepreneurial ecosystems in facilitating this growth.

The World Economic Forum's concept of entrepreneurial ecosystems consists of eight pillars: accessible markets, human capital, fundraising and financing, support systems, regulatory framework and infrastructure, education and training, important universities, and cultural supports. While certain pillars resemble Isenberg's domains, the inclusion of large institutions as a catalyst pillar constitutes an enhancement to this model.

c) Six + Six entrepreneurship ecosystem model by Koltai (2016)

This approach was designed by Steven Koltai, the creator and director of the Global Entrepreneurship Program for the U.S. Department of State. The model is less frequently mentioned by scholars in comparison to other models. Koltai's model

(Koltai, 2016) consists of six pillars and six categories of actors. The six pillars comprise: identify, train, connect and sustain, fund, enable, and celebrate entrepreneurs, whereas the six categories of actors include: NGOs, foundations, university, investors, government, and corporations.

The initial pillar of the approach is termed identification, which encompasses pertinent efforts aimed at uncovering new entrepreneurs or innovative company concepts. The second pillar is training, which posits that knowledge transfer is unattainable without educational resources, and training can manifest in various forms, such as business hubs, aid programs, and mentorship. The subsequent element is connect and sustain, the third pillar of the model. In this context, "connect" pertains to the entirety of information flow networks connecting entrepreneurs, government entities, financiers, and others. The sustain refers to non-financial assistance, including coaching, training, and business support services, provided by incubators and accelerators to facilitate the growth of entrepreneurs' firms.

The fund constitutes the fourth pillar, encompassing all forms of finance (e.g., debt, grants, equity) and access to cash for every stage of a venture to initiate or expand a business.

The fifth pillar, termed enable, pertains to the legal, fiscal, and regulatory frameworks that affect entrepreneurial operations, as well as policies that may encourage entrepreneurs to formalize their businesses (Khattab and Al-Magli, 2017).

The final pillar is termed celebration, which is a crucial aspect for various civilizations. Entrepreneurship should be esteemed as a commendable and feasible career trajectory, so motivating aspiring entrepreneurs to invest greater effort into their business concepts.

The author contends that entrepreneurial ecosystems are crucial in fostering elevated levels of entrepreneurship at local, regional, and national scales. Koltai (2016) asserts that the US government may facilitate the establishment of ecosystems in developing nations, so fostering entrepreneurship and, consequently, job creation that integrates idle young into the workforce. This, in itself, will result in economic

growth and enhanced stability in these nations. Koltai (2016) posits that to enhance the amount and quality of high-growth, job-generating businesses, it is essential to cultivate each of the six pillars of his Six + Six model.

d) Ecosystem attributes by Spigel (2017)

Spigel (2017) contends that "entrepreneurial ecosystems consist of social, political, economic, and cultural components within a region that facilitate the development and expansion of innovative startups and motivate emerging entrepreneurs and other stakeholders to undertake the risks associated with initiating, financing, and supporting high-risk ventures" (Spigel, 2017).

Spigel (2017) classifies ecosystem traits into three categories:

- **Cultural:** These characteristics encompass the foundational attitudes and perspectives of entrepreneurship within a particular region, categorised into two primary attributes: cultural perspectives and historical contexts of entrepreneurship.
- **Social:** These characteristics comprise resources obtained through or integrated inside networks, categorized into four primary attributes: networks, investment money, mentors and dealmakers, and workforce talent.
- **Material:** These traits possess a tangible presence and are categorized into four primary components: Universities, support services and facilities, policy and governance, and open markets.

Spigel (2017) posits that ecosystem consist of cultural, social and material traits that furnish advantages and resources to entrepreneurs, and their interconnections facilitate the ecosystem's sustainability throughout time.

e) Innovation-driven entrepreneurship approach by Murray and Budden (2017)

This model, devised by MIT academics Murray and Buden (2017) employs the terms 'innovation ecosystem' and entrepreneurship ecosystem' (iEcosystems)

interchangeably. The innovation-driven entrepreneurship strategy underscores a holistic comprehension of the 'system', which is divided into four fundamental components that contribute to 'comparative advantage' and consequently, varying degrees of 'impact' within an iEcosystem. Foundational institutions occupy the base of the triangle and consist of institutions, laws, practices, and norms that are frequently overlooked but guarantee investment protection, ultimately benefiting the economy. They primarily encompass the rule of law, property rights, financial institutions, the freedom to innovate, and overall facilitation of economic operations.

Innovation Capacity (I-Cap) constitutes one of the two engines of the 'system,' referring to the ability of a location—be it a city, region, or nation—to generate new ideas and transition them from 'inception to impact,' encompassing economic, social, and/or environmental outcomes. Innovation capacity encompasses both the advancement and the conversion of scientific 'solutions' into practical goods, technologies, and/or services that effectively address issues. Entrepreneurship Capacity (E-Cap) serves as a component of the broader entrepreneurial capability, which also bolsters the innovation-driven aspect of entrepreneurship capacity. Both E-Cap and I-Cap are established on fundamental institutions, and their integration of, and connections between, innovation and entrepreneurial capabilities within a geographic area generates impact.

Comparative advantage refers to the distinct areas of economic strength that differentiate a region's economy from others. In 'innovation-driven entrepreneurship ecosystems' (iEcosystems), such 'comparative advantage' represents a unique strength in both innovation and entrepreneurial capabilities. For example, comparative advantage may arise from geographical clusters or industrial sectors, such as those in medical sciences, IT services, or education. The impact arises from the integration of E-Cap and I-Cap, along with core comparative advantages, frequently implemented through 'program and policy interventions' (PPIs) that utilize various measuring methodologies.

The influence can be quantified using economic or social development measures, with GDP per capita being the most prevalent metric, exemplified by the Social Progress Index (SPI) and the UN Sustainable Development Goals (SDGs).

f) Entrepreneurial ecosystem model by Stam and Van de Ven (2021)

Expanding upon previous scholarly research Stam and Van de Ven (2021) present a comprehensive model of entrepreneurial ecosystems comprising ten components and entrepreneurial outcomes. Their approach was founded on the concept of infrastructure for entrepreneurship. Their entrepreneurial ecosystem approach is founded on a social system framework and includes the institutional arrangements and resource endowment components of the infrastructure.

The component of institutional arrangements comprises three pillars: formal institutions, culture, and network elements. The resource endowment component encompasses physical infrastructure, finance, leadership, talent, knowledge, intermediate services, and demand aspects. The third component, termed productive entrepreneurship, represents the output of the entrepreneurial ecosystem, wherein entrepreneurial businesses commercialize discoveries and generate new value.

Stam and Van de Ven (2021) formulate their entrepreneurial ecosystem causal model on three hypotheses:

- Co-evolutionary notion- it underscores the co-evolution and reciprocal interdependence of components within entrepreneurial ecosystems.
- The upward causation proposition- emphasizes how the ten aspects of the entrepreneurial ecosystem influence productive entrepreneurship, a concept referred to by authors as upward causation: the structure impacting the agency.
- The downward causation proposition- examines how successful entrepreneurs serve as role models and network facilitators, which are viewed as positive feedback effects on the financial, cultural, leadership, and networking components of entrepreneurial ecosystems. This phenomenon is termed downward causation, where agency influences structure.

The model proposed by Stam and Van de Ven (2021) is the most structured and developed representation of the entrepreneurial ecosystem to date, as it is founded on several techniques and models referenced in the literature.

3.4.2 Factors of Entrepreneurial Ecosystem

After analysing the notion of the entrepreneurial ecosystem and the six aforementioned models, the following factors of the entrepreneurial ecosystem may be identified. These factors constitute the main components of the entrepreneurial ecosystem. Comprehending the essence of the ecosystem through these variables enables entrepreneurs to expand their enterprises and ultimately enhance the national economy. This aims to identify the primary domains of the entrepreneurial ecosystem and their influence on entrepreneurship. Entrepreneurs often lack awareness of the critical components of the ecosystem and fail to align their enterprises with the business flow for enhanced growth. The entrepreneurial environment should be regarded as the amalgamation of diverse elements.

a) Finance

Finance is essential for the commencement and expansion of enterprise. Ideas can only be implemented, and opportunities can only be seized, when there is adequate capital for investment. Entrepreneurs often depend on external financing, which include cash obtained from outside the organization, such as bank loans, investments from individuals or firms, equity sales, or grants. Kozmetsky, Gill, and Smilor (1985) proposed several stages of venture capital funding for entrepreneurship: Seed funding, Start-up Financing, and First, Second, Third, and Fourth Stage Financing. Seed financing is intended to validate the concept, start-up financing is aimed at product development and initial marketing, while subsequent financing stages are designated for project commercialization, working capital management, project expansion, and ultimately investing in companies preparing for an initial public offering.

"The significance of finance is paramount in the advancement of entrepreneurship and Micro, Small, and Medium Enterprises (MSMEs)" (Somoye,

2013). Somoye (2013) concludes that a robust relationship exists between entrepreneurship growth and access to finance, based on a 30-year time series analysis. “The literature provides ample evidence that financing entrepreneurship can result in significant increases in employment, productivity, and, subsequently, positively influence economic growth” (Somoye, 2013).

King and Levine (1993) examined processes by which financial systems influence long-term economic growth. In their conception, the financial systems impact entrepreneurship productivity enhancement if four distinct ways. Financial systems evaluate prospective entrepreneurs for financing promising enterprises. It employs requisite resources to finance such projects. It promotes investors to alleviate risk via innovations and it reveals the advantageous prospects of pursuing innovation instead than perpetuating existing offerings. King and Levine (1993) posited that superior financial institutions enhance the likelihood of successful innovation, hence expediting economic growth. While financing is essential for any entrepreneurial endeavour, it is not the only essence of entrepreneurship. Additional aspects must be taken into account for the advancement and expansion of entrepreneurship inside a specific nation. “Access to capital or finance is essential, yet insufficient for successful entrepreneurial development” (Onakoya, Fasanya, Abdulrahman, 2013).

b) Business Support System

Chowdhury, Audretsch, and Belitski (2018) assert that institutional support is crucial for promoting entrepreneurship within the nation. Empirical evidence from their study paper indicates that alterations in institutional quality significantly influence entrepreneurial quality and quantity in developing nations. The phrase "support" includes conferences, infrastructures, business associations, business development centers, and experts. A multitude of scholars have examined the function of support systems in promoting entrepreneurship. Increased assistance correlates with the growth and development of entrepreneurship. Jansen and Weber (2009) asserted that the success of entrepreneurship, whether through innovation, survival, or enterprise expansion, is contingent upon the nature of the support

systems received. Aidis, Estrin, & Mickiewicz, (2008) also found that inadequate institutional support has hindered the emergence of entrepreneurs particularly in socialist nations.

Kshetri and Dholakia (2011) noted that entrepreneurship in developing nations encounters distinct contexts and institutional frameworks that are significantly different from those in wealthy countries. It indicates a diminished level of support and an unfavourable environment for entrepreneurship in rising economies. The establishment of institutions conducive to entrepreneurship signifies the occurrence of catching-up processes within the Chinese economy (Kshetri & Dholakia, 2011). China has surpassed India in the entrepreneurial landscape due to more institutional backing for entrepreneurship. The presence of various support variables enhances entrepreneurship and elevates the morale of entrepreneurs, particularly in developing nations. Khan and Alam (2005) have contextualized the situation in Bangladesh.

Socio-economic factors, including uniform commercial law, minimal regulations, corruption, societal and familial support, robust banking with accessible credit, social integration, social status, substantive democracy, free trade with minimal tariffs, enterprise zones, available technology, and strong telecommunications and distribution networks, are crucial for fostering entrepreneurship. Khan et al. (2005).

Large enterprises in developing countries significantly enhance productivity by leveraging globally available technologies (Berry et al., 2002). However, this is less apparent for SMEs, yet such technological support has facilitated entrepreneurial activities, particularly for large enterprises.

Education significantly bolsters entrepreneurship when academic institutions offer practical, entrepreneurial training to students, thereby motivating them and promoting entrepreneurial activity within a nation.

Universities play a vital role in advancing entrepreneurship education to motivate students to pursue self-employment once graduation. Consequently, the objective of higher education institutions is not solely to cultivate graduates as job seekers, but also as employment producers (Sahban, Ramalu, & Syahputra, 2016).

Mutai (2011) argued that enhancing the technological foundation for micro and small enterprises necessitates access to finance, an appropriate regulatory framework, infrastructural services, and essential utilities, which will promote the micro and small enterprise sector and contribute to sustainable economic growth.

c) Policy Environment

The policy is a collection of ideas or plans that has been collectively endorsed by a group of individuals, institutions, or the government. Although the dynamism and success of entrepreneurs rely on their traits, skills, and competencies, their endeavours are influenced by government policy in several ways. The existing tax and tariff policies, along with monetary and fiscal policies, directly influence an enterprise's operations. Economic growth is the foremost aim of every national government as it enhances employment opportunities and the spending ability of individuals. Economic growth can alone be attained through the advancement and cultivation of entrepreneurship inside the specific nation. Supportive government policies on business, taxation, legislation, and education will promote entrepreneurship throughout the nation. Ribeiro-Soriano and Galindo-Martin (2012) stated, "Good governance is a necessary prerequisite to support and stimulate entrepreneurial activity that positively impacts economic growth." Kshetri and Dholakia (2011) stated, "Various theoretical contributions and empirical studies have established the consensus that the government can mitigate barriers to entrepreneurship associated with skills, information, market access, and infrastructure through both legal and non-legal means."

The government can enact either broad or particular policies to promote entrepreneurship inside the nation. General policies include regulations impacting all industries and commerce, such as tax policy, labour legislation, and market policy, which sustain an appropriate entrepreneurial climate. Specific policies are those formulated by a particular institution for a distinct organization with specific objectives. "Entrepreneurship serves as a tool for policymakers to foster economic growth." (Ribeiro-Soriano and Galindo-Martin, 2012). Modifications and enhancements in economic development policies foster entrepreneurship and enterprises, ultimately contributing to the advancement of a nation's economy.

d) Markets

The phrase market primarily includes reference customers, distribution channels, and local business networks. “Entrepreneurs require initial customers for product and service definition, as well as for references; additionally, revenue from a profitable customer represents the most favourable form of financing for the entrepreneur” (Isenberg, 2011). For a business to thrive, it needs supporting clients; particularly in entrepreneurship, a new offering may only be effectively disseminated in the market when initial customers provide favourable endorsements. "The initial successful reference typically indicates additional business opportunities” (Ruokolainen & Igel, 2004). They are the trailblazers and they formulate opinions regarding the new product. Satisfaction with a new product prompts referrals to others, which is crucial for start-ups. Customer referencing has been pivotal in industrial marketing, as Jalkala and Salminen (2010) concluded that customer references are essential marketing assets for industrial suppliers. They enhance the supplier's market credibility through various functions and facilitate internal processes that promote organizational learning and efficiency.

Distribution is regarded as a crucial component of marketing, as noted by Dent (2011), who asserts that around fifty percent of the cost of a product is attributable to distribution. The distribution process delivers products from the point of manufacture to the point of consumption, making the role of the distribution channel highly significant. Contemporary consumer behaviour has evolved due to the rise of digital marketing, particularly for digital items such as books, newspapers, magazines, films, music, and graphic content, resulting in significantly advanced distribution channels and mechanisms. Due to innovation, heightened technological sophistication, and various environmental changes, market and distribution mechanisms have grown increasingly complex. As Musso (2010) stated, “private labels, online marketplaces, and the organizing of multiples are three aspects where the roles of manufacturers, wholesalers, retailers, and consumers are becoming more blurred”. Musso (2010) stated that rapidly advancing technologies are creating fresh perspectives on significant changes in consumer habits, purchasing behaviours,

corporate interactions, and time management. These alterations will necessitate organizations to seek new organizational frameworks, innovative management of channel partnerships, and novel communication strategies.

Bizhanova et al. (2019) underscored the substantial effects of digital marketing on firms, including a considerable expansion in the range and demographics of target clients, a marked increase in sales, alterations in the form and extent of rivalry, and a diminished necessity for materials and expenses.

Local business networking is crucial, particularly for new companies, as they often lack adequate knowledge and experience in the specific area. Success necessitates establishing relationships with existing networks. La Rocca and Perna (2014) assert that "the process of embedding in the existing network occurs through the cultivation of business relationships with various partners in the network". The successful functioning of a new enterprise depends on market approval in the specific locale; "Collaborating with others for a new business necessitates, first and foremost, recognition and acceptance by certain stakeholders within the network". The authors concluded that establishing a new node in the pertinent network necessitates the development of essential business ties, the acceptance of the new company as a partner within these relationships, and the acquisition of an identity and status in the relevant business network.

Aaboen and Lind (2011) concluded that new ventures capable of establishing robust networks can reap numerous advantages, such as utilizing shared resources to significantly reduce costs, accessing additional potential customers, having associates who serve as advocates to promote their new products or services, and leveraging initial customers as a source of financing, thereby diminishing reliance on alternative funding sources. Zcan (1995) asserts in his research paper that studies emphasize the necessity of business networks for entrepreneurship, indicating that such networks enhance the mobility and competitive capacity of small firms. He contends that by adopting a slightly extroverted approach, these firms can secure access to business connections and long-term associations while simultaneously

specializing in local content. Elfring and Hulsink (2003) stated, "A network is one of the most powerful assets that anyone can possess: it provides access to power, information, knowledge, and capital as well as other networks".

e) Human Capital

"Human capital encompasses the aggregate of knowledge and skills acquired through education or experience that an entrepreneur possesses and can utilize in specific entrepreneurial endeavours" (Dimov, 2017). The Oxford Dictionary defines human capital as "the skills, knowledge, and experience held by an individual or population, considered in relation to their value or cost to an organization or country." Goldin (2016) characterized human capital as "the accumulation of productive skills, talents, health, and expertise within the labour force, analogous to how physical capital comprises the inventory of plants, equipment, machines, and tools." All these definitions underscore the significance of human capital in an entrepreneurial context, since the success of an organization predominantly relies on the availability of skilled human resources. Baron (2000) asserts that the success of entrepreneurs depends on their capacity for divergent thinking and their social acumen. "Human capital has been extensively and consistently employed to forecast outcomes including participation in entrepreneurial endeavours, advancement in ventures, and the emergence, performance, and sustainability of ventures" (Dimov, 2017)

Obisi and Anyim (2012) stated that the growth and sustainability of entrepreneurship are contingent upon adequate training and development of human capital. Therefore, the initiation, performance, continuity, and growth of entrepreneurial endeavours depend on human capital. Human capital should not be viewed solely from the entrepreneurs' perspective, since it includes both entrepreneurs and professionals, who mutually enhance each other's contributions. The human-capital stock of an economy is influenced by both entrepreneurs and professionals. Entrepreneurs contribute innovative ideas, products, and methodologies to the economy, whereas professionals apply their expertise to enable commercial transactions. Both competencies are essential for a robust economy.

Entrepreneurship and entrepreneurial education influence the cultivation of skilled and motivated human capital in the field of entrepreneurship. Martin, Mcnally, and Kay (2013) conducted a quantitative assessment of entrepreneurship education and training literature, demonstrating its significant correlation with many aspects of entrepreneurial human capital and outcomes. Martin, Mcnally, and Kay (2013) concluded that their findings supported the idea that the building of entrepreneurship-specific human capital can be altered by entrepreneurship-specific education. “Human capital is enhanced through training and experience; success narratives motivate subsequent generations, fostering societal tolerance for risk, failure, and wealth generation, while entrepreneurial endeavours thrive and evolve into venture-friendly clients” (Isenberg, 2011).

The significance of human capital in entrepreneurship is substantial; nevertheless, limited research has been undertaken in this domain. Marvel, Davis, & Sproul (2016) asserted that "despite the extensive history of human capital in the economics literature, very few studies in this domain have incorporated human capital, entrepreneurship, and other economic theories". Marvel et al. (2016) concluded that their systematic evaluation of the human capital entrepreneurship research stream reveals current progress, prospective research gaps, and a trajectory for future investigation. These underscored the necessity for extensive further investigation in the domains of human capital and entrepreneurship.

f) Infrastructure

Infrastructure is a fundamental component of the entrepreneurial ecosystem’s dynamics. It engages with all elements of the ecosystem, enhancing several parameters and facilitating their roles in economic growth via entrepreneurship. By enhancing the accessibility, reliability and quality of infrastructure, governments and key stakeholders can cultivate a climate that promotes entrepreneurship, thereby facilitating the establishment and expansion of enterprises.

Identical entrepreneurial outcomes may arise from various combinations of paths (Woodside et al., 2016). The primary features of elements inside the

entrepreneurial ecosystem are dynamics and complexity. A bidirectional interaction develops between infrastructure and commercial potential. On one hand, as high lightened by Glaeser and Shleifer (2001), accessible infrastructure is appealing to the labour force. Conversely, a rise in the workforce results in an expanded market potential attributable to population expansion. Thus, a significant demand for physical infrastructure is unavoidable. Physical infrastructure is intricately connected to the internet. According to Glaeser, the influx of recruited labour can create economies of scale, hence enhancing investments in internet infrastructure. (Glaeser et al,, 2015). Concurrently, clearly delineated property rights, dependable accounting, and legal services constitute the foundation of a commercial infrastructure that guarantees the security of business transactions, promotes investment in research and development (R&D), and fosters innovation to generate new business opportunities and cultivate competitive products and/or services.

A well-developed physical infrastructure is essential for facilitating economic contact and entrepreneurship (Audretsch et al., 2015). Addressing the requirements of each ecosystem- whether technological or otherwise- is a critical success factor, particularly in achieving global interconnectedness and infusing the essential global knowledge to foster world-class startups, which is a fundamental component of Global Market Search. Physical infrastructure is a composite metric encompassing indications of road and railway accessibility potential, as well as the volume of passenger flights (Annoni & Dijkstra 2013). Motorway accessibility encompasses the population residing in adjacent areas, adjusted for journey time via motorways, whilst railway accessibility pertains to the population in surrounding territories, modified by transit time along trains. Flight accessibility encompasses proximity to the airport, available destinations, and the frequency of flights within a designated timeframe. It also encompasses access to fundamental infrastructure like water, power, and telecommunications/broadband services.

g) Business Environment

The business environment, as defined by the Donor Committee for Enterprise Development (DCED), is ‘a set of policy, legal, institutional, and regulatory

circumstances that control company activities.' It encompasses the administration and enforcement mechanisms instituted to execute government policies, together with the institutional frameworks that affect the operations of principal players (e.g. government agencies).

The functional areas of business environment reforms encompass: streamlining business registration and licensing processes, enhancing tax policies and administration, facilitating improved access to finance, refining labour laws and their administration, elevating the overall quality of regulatory governance, optimising land titles, registers and administration, expediting access to commercial courts and alternative dispute-resolution mechanisms, expanding public-private dialogue, and augmenting access to market information. The business environment constitutes a component of the investment climate, which encompasses a wider perspective on a nation's competitiveness.

The DCED identifies seven domains within the investment climate: financial markets- encompassing access to finance and financial regulations, the rule of law- which pertains to legal rights that may deter corruption or govern the business registration process, human resources and skills- including the technical and vocational education of participants, economic predictability- referring to overall macroeconomic stability and growth trajectories, infrastructure- denoting technical structures such as roads, telecommunications and energy, political situation- which provides planning security and enhances risk tolerance among MSMEs, labour markets- indicating the availability of skilled workers and effective alignment between labour supply and demand.

The business environment and investment climate both impact the entrepreneurial ecosystem and must be considered in its study. It is advisable to concentrate primarily on the business environment for the mapping, as this domain is more amenable to intervention within the context of Private Sector Development (PSD) programme. Furthermore, the mapping should closely examine the most pertinent investment climate components that could be targeted for interventions, specifically:

economic predictability, political conditions and the labour market, from the standpoint of a PSD program.

The business environment and investment climate can be evaluated at regional, national and sectoral levels. Thus far, the majority of assessments and reports predominantly concentrate on the national level. Limited analyses concentrate on urban areas. Nonetheless, this is evolving, as an increasing number of cities are positioning themselves as 'entrepreneurial hubs' (e.g., Berlin). Traditional business climate surveys frequently overlook a detailed examination of the roles of various actors, their respective capabilities, and their interactions with one another. This is a crucial element to examine for a comprehensive understanding of the entrepreneurial environment. Consequently, this guide addresses the issue as a component of 'interacting actors', the second of the three parts.

h) Research and Development/ Innovation

An invention typically enables an entrepreneurial firm to compete with better resourced incumbents or to establish an entirely new market for a novel product. Both transformational and transactional leadership styles can foster innovation in entrepreneurial companies, although the latter is considered detrimental to innovation in large organisations (Kang & Choi, 2015). Private ownership or acquisition by a private entity generally fosters innovation more effectively, while an initial public offering typically diminishes the quality of innovation within a company.

Entrepreneurial ideas originate from advanced technology resources, insights into client needs, the underutilisation of inventions within huge corporations, and research conducted at universities. The innovativeness of a startup is inversely correlated with its survival and heightened uncertainty diminishes risky innovation among entrepreneurial enterprises. The efficacy of the company's inaugural product is vital to its survival.

Technological foresight: Transforming an idea into a successful innovation frequently hinges on a comprehensive technological vision, necessitating the capacity to envision the future and to effectively communicate this vision at appropriate moments

(Garud & Giuliani, 2014). The talent for technology visioning clarifies and legitimizes originally ambiguous opportunities, enabling their capture before competitors. Successful entrepreneurial innovation is influenced not just by an entrepreneur's ambition, vision and capability but also by a multitude of additional elements.

Effectuation versus causal reasoning: Entrepreneurial innovation may be propelled by the presence of novel, intriguing resources lacking a specific problem to address, or by a well-defined issue that guides initiatives from the outset. For example, although science and technology frequently yield fundamental inventions, market demand and complementary assets are essential for these to transform into innovations. Conversely, pure demand pull necessitates the development of sufficient technological skills for an invention to materialize. The equilibrium between effectuation logic and causal logic typically requires adjustment over time as the company and its product evolve.

Cooperation: Successful innovation is frequently linked to robust social networks and knowledge acquisition beyond the local area functional connections with service intermediaries such as technology service firms, accounting and financial service firms, and law firms, as well as collaboration with user communities. The inclusion of pertinent scientists in the founding team of a firm aiming to commercialize an invention derived from academic research significantly increases the likelihood of success. A prominent scientist can significantly enhance an entrepreneurial startup; however, the dynamics between the scientist and the remaining team members must be meticulously controlled.

Bricolage: Entrepreneurs frequently rely on bricolage and the inventive recombination of constrained resources, as well as a disdain for formal protocols, to introduce an innovation to the market. Companies creating physical items should explore integrating industrial design and cost engineering, as this combination enhances the efficiency and effectiveness of product development in nascent enterprises (Marion and Meyer, 2011). Proper emphasis on aesthetic design enhances the favourable view of new products, leading to improved product performance.

i) Entrepreneurial Culture

The influence of culture on entrepreneurship has garnered significant interest in academic studies. A multitude of researchers have correlated the connection between culture and entrepreneurship throughout several literatures. Culture encompasses the practices, norms, values, arts, and social interactions that are collectively exhibited as behaviour within a specific nation, area, or society. Culture is organization-specific, characterized by a distinct set of behaviours adhered to by all members, referred to as corporate culture.

Hayton et al. (2002) conducted a review of the relationship between culture and entrepreneurship by empirically studying various literatures published in journals focused on entrepreneurial content and cultural behaviour, aiming to elucidate the impact of culture on entrepreneurship. Hayton et al. (2002) have delineated six areas for further investigation to improve comprehension of the interplay between culture and entrepreneurship, which include: emphasizing the relationship between cultural factors and their influence on overall entrepreneurship; creating distinct courses focused on the cultural dimensions relevant to entrepreneurship; utilizing large sample sizes and sophisticated multidimensional analyses in future research; fostering a knowledgeable and well-developed perspective on culture and entrepreneurship; constructing a comprehensive theoretical framework linking culture to entrepreneurial outcomes; and analysing the relationship between national and organizational cultures and their effects on intrapreneurship.

Policymakers should also take into account the cultural dimensions of society when formulating entrepreneurship policies. “The effectiveness of policy may be constrained in part by cultural factors that are beyond the influence of policymakers. Conversely, long-term policies aimed at fostering entrepreneurship may be tailored to the cultural predispositions inherent in a specific society” (Thurik, & Dejardin, 2011). The government ought to initiate the development of business-friendly and supporting cultures at both national and regional levels to foster entrepreneurship and an entrepreneurial attitude inside the country. “Culture seemingly influences

entrepreneurial potential, creating disparities across national and regional boundaries. A preliminary conclusion is that a "supportive" national culture will, all else being equal, enhance a country's entrepreneurial potential" (Mueller & Thomas, 2001).

An individual's orientation and drive towards entrepreneurship are shaped by cultural factors. "Certain cultures, especially those characterized by low uncertainty avoidance and individualism, seem to provide greater support for entrepreneurs compared to other cultural configurations" (Mueller & Thomas 2001). Individuals with an internal locus of control are observed to be more engaged in entrepreneurship than those with an external locus of control. Numerous paths remain to investigate the impact of culture on entrepreneurship for future research. "We assert that significant elements and expressions of culture, along with their impact on entrepreneurial results, remain largely unexamined, presenting fresh avenues for academic investigation" (George & Zahra, 2002).

3.5 Entrepreneurial Traits

The psychological aspects of entrepreneurs include the qualities required of them in the context of their business ventures. The success of business largely depends on these reflections of their mind since they determine the direction and progress of the business. The constructs include mediating and moderating constructs.

3.5.1 Mediating Constructs

A mediating variable, or intervening variable, is a tertiary variable that elucidates the relationship between an independent variable and a dependent variable. A mediating variable elucidates the mechanism by which the independent variable affects the dependent variable in the absence of a direct relationship between them. Mediation analysis is a statistical technique employed to evaluate the theoretical and empirical underpinnings of intervention initiatives. A mediating variable conveys the influence of an independent variable on a dependent variable.

A variable qualifies as a mediator:

- If it is influenced by an independent variable
- It influences the dependent variable.
- The statistical association between the dependent and independent variables is more pronounced when examined than when disregarded.

The mediating Variables considered for this study include Attitude, Motivation and Self-Efficacy.

a) Attitude

Attitude towards entrepreneurship denotes the overall sentiment or viewpoint individuals possess regarding the initiation and management of their own enterprises. Diverse elements pertaining to personal attributes, cultural influences, educational experiences, and governmental legislation impact individual attitudes toward entrepreneurship. Attitude refers to an individual's favourable or negative assessment of the execution of specific behaviours. The attitude towards entrepreneurship reflects an individual's aspiration to become an entrepreneur, which precedes entrepreneurial intention and shapes the individual's behavioural intentions (Ajzen & Madden, 1986). The disposition towards entrepreneurship exhibited a favourable correlation with entrepreneurial intention. Individuals with a favourable disposition towards entrepreneurship favour self-employment.

Entrepreneurial ecosystems are essential for promoting entrepreneurship and the economic advancement of a nation. Established entrepreneurial ecosystems significantly enhance income development, job generation, and competitiveness. Entrepreneurs and their start-up enterprises are crucial to the entrepreneurial ecosystem, despite the presence of numerous participants. Consequently, initiatives to promote entrepreneurial endeavours should focus on these stakeholders (Isenberg, 2010; Audretsch and Belitski, 2018).

Kansheba and Wald (2022) aimed to investigate the direct impact of Entrepreneurial Ecosystem quality on early-stage and high-growth entrepreneurial activity. The study advocates for a novel viewpoint on the existing EE paradigm by

proposing the potential mediating role of entrepreneurial attitude. The findings indicate a favourable correlation between EE quality and productive entrepreneurship concerning early stage and high growth entrepreneurial activities. Furthermore, the results demonstrate that this link is positively mediated by the entrepreneurial mentality, albeit indirectly and in a complementary manner. This indicates that the impact of entrepreneurial ecosystem quality on promoting entrepreneurship, both in the early stages and throughout scaling, is more evident through the mediating effect. The data indicate that the magnitude of the mediation effect is more significant in high-growth entrepreneurial activities than in the early-stage ones. The observed data suggest a potential rationale for the conclusion reached by Draghici et al. (2014) that industrialized economies exhibit a higher prevalence of high-growth start-ups compared to emerging nations. The findings elucidate the claim by Jose et al. (2019) that, notwithstanding the influx of numerous new start-ups engaging in early-stage entrepreneurial endeavours in developing economies, these enterprises struggle to achieve significant growth owing to the inadequate entrepreneurial disposition of their proprietors.

According to Isenberg (2011), research and policy should prioritize opportunity-driven entrepreneurial activities that are distinguished by economic value creation and growth ambitions among new entrepreneurs. The premise underlying this focus is that opportunity-driven and high-growth start-ups provide more outcomes (economic effect) than necessity-driven start-ups, which aim primarily to participate in entrepreneurial activities with lower growth ambitions. Acs et al. (2017) assert that early-stage and high-growth entrepreneurial activities are not isolated phenomena; rather, they are shaped by the ecosystems in which entrepreneurs and their associated start-ups function. Furthermore, these ecosystems are defined by a general and particular array of economic and social structures that reflect a nation's capacity to promote entrepreneurship (Isenberg, 2010) by cultivating entrepreneurial behaviours.

Isenberg (2010) asserts that a dynamic entrepreneurial ecosystem influences behaviour through the success and failure narratives of seasoned entrepreneurs,

hence enhancing the entrepreneurial comprehension and knowledge of prospective and emerging entrepreneurs. Conversely, a low entrepreneurial mentality has been linked to unsupportive entrepreneurial settings. Atiese et al. (2018) indicates that inadequate entrepreneurial ecosystems prevalent in many emerging nations result from insufficient technology innovation and a lack of supportive entrepreneurial culture. Sussan and Acs (2017) contend that in regions with low levels of information technology, entrepreneurial networking is impeded, leading to stagnant venture growth. Castillo et al. (2017) further argue that, in contrast to civilizations with unsupportive cultural norms and values regarding entrepreneurial behaviours, societies that integrate entrepreneurial behaviour into their culture promote creativity, innovation, and investment in entrepreneurship.

The entrepreneurial education ecosystem addresses the internal operations of the institution in relation to its many stakeholders. It encompasses interactions among students, educators, institutions, communities, external organizations, educational processes, and the broader society. Research studies have demonstrated a strong impact of enterprise education on entrepreneurial mindset. The perspective on entrepreneurship was examined through the cognitive, affective, and behavioural components (Botsaris & Vamvaka, 2016). Moreover, personality features are identified as a significant impact in shaping attitudes toward entrepreneurship. Personality characteristics profoundly affect entrepreneurial intentions. Entrepreneurs exhibit essential attributes such as risk-taking, innovation, proactiveness, resilience, and independence. Openness to experience, self-efficacy, and networking abilities are other crucial factors. Entrepreneurs demonstrate an elevated risk tolerance, prioritize autonomy, and maintain a proactive approach to capitalizing on possibilities. They exhibit resilience in surmounting obstacles and are receptive to novel concepts and experiences. Confidence in their capabilities propels them onward, while robust interpersonal skills facilitate networking and resource procurement. Although not deterministic, these characteristics influence entrepreneurial actions and goals, hence contributing to success in businesses.

This study carefully examines the aspects of attitude, including the profound sense of fulfilment associated with entrepreneurship. The satisfaction derived from creating distinctive company ventures, demonstrating professionalism and accountability, contributing substantial value to society, and the allure of entrepreneurship.

b) Motivation

Challenges are inherent in entrepreneurship, and possessing the incentive to initiate a new venture is one such challenge. Johnson (1990) characterised motivation as the desire or inclination to organise, manipulate, and comprehend concepts or entities swiftly and autonomously. Shane et al. (2003) categorised entrepreneurial motivations into general factors (vision, drive, locus of control, passion, need for achievement, and need for independence) and task-specific factors (self-efficacy and goal setting). Research indicates that entrepreneurial motives differ between nations (Hessels et al., 2008) characterised intention as aspiration shaped by a collection of reasons, resulting in actual behaviour.

A further study revealed that women entrepreneurs, demonstrated psychological traits such as creativity, risk propensity, success drive, problem-solving abilities, and perseverance, which served as motivating factors for initiating a firm. Various research indicate that entrepreneurial motivations significantly influence the development of entrepreneurial intention, as evidenced by the works of Nabi and Linan (2013), Solesvik (2013), and Antonioli et al. (2016). Characteristics such as entrepreneurial orientation and motivation facilitate the transformation of accessible chances into productive endeavours (Eijdenberg, 2016). Individual Entrepreneurial Orientation (IEO) significantly influences personal motivation (Marques et al., 2018), propelling individuals to engage in entrepreneurial endeavours. Marques et al. (2013), Lages et al. (2017), Malik et al. (2016) and Marques et al., (2018) discovered a positive correlation between IEO and entrepreneurial intentions, which fosters the ambition to initiate a new endeavour. Hankinson et al. (2013) examined the principal factors affecting business performance and concluded that, although the majority of owner-managers expressed satisfaction with their work conditions, their motivational constructs varied; social status and remuneration were deemed significant, independence

was regarded as essential, whereas power, contributions to the national economy, and job creation were viewed as non-objectives. This study concludes that motivation affects business performance, with various motivational elements differing among business owner-managers. Empirical evidence indicates that individual motivation serves as an autonomous predictor of performance (Verkuyten et al., 2001). Motivation is a force that propels individuals to attain superior performance and surmount challenges associated with change. Motivational factors affect high-performance levels. Intrinsic motivation and autonomous extrinsic motivation correlate positively with performance, but controlled extrinsic motivation correlates negatively with performance (Wing et al., 2010). The preceding theoretical and empirical study indicates that entrepreneurial motivation influences business performance.

The study specifically considers motivational factors, including the enjoyment derived from a profound sense of accomplishment in entrepreneurial work, intrinsic motivation associated with the autonomy gained as an entrepreneur, the ability to attain a distinguished societal position through enterprise, empowerment through complete control of the business, and motivation stemming from the opportunity to exercise creativity in commercial pursuits.

c) Self-Efficacy

Entrepreneurial self-efficacy is a crucial motivator in the entrepreneurial process, as it compels individuals to confront the uncertainties of the business environment, necessitating preparation, diligence, and perseverance (Bandura, 2006). Krueger and Dickson (1994) assert that elevated levels of entrepreneurial self-efficacy (ESE) correlate with strategic risk-taking. Individuals possessing a robust sense of entrepreneurial self-efficacy exhibit heightened intrinsic desire for entrepreneurial endeavours and pursuits. A person with elevated emotional stamina is inclined to invest considerable effort over an extended duration, endure challenges, and formulate more efficient plans and strategies for their endeavours, hence facilitating achievement in their selected pursuits. Self-efficacy (SE) inspires individuals to modify their behaviour and have confidence in their skills to undertake

tasks and fulfil their responsibilities (Chen et al., 1998; Forbes, 2005). Self-efficacy is an individual's determination to effectively regulate a particular state and circumstance utilizing their existing talents (Bandura, 1977). Social cognitive theory posits that self-efficacy is a prerequisite for behavioural regulation. Consequently, self-efficacy influences all human endeavours aimed at fulfilling objectives, whereas diminished self-efficacy hinders task accomplishment (McGee et. al., 2009). Self-efficacy as a construct is pertinent in analysing entrepreneurial inclination and aids in evaluating an individual's potential to transition into the purpose of becoming an entrepreneur. In entrepreneurial literature, ESE may be preferred over SE (Taneja et. al., 2023). Research on ESE contributes to understanding its relationship with Entrepreneurial Intention (EI) expanded upon Bird's (1988) model of EI proposed that entrepreneurial self-efficacy (ESE) mediates the effectiveness of EI in fostering entrepreneurship. The conceptualisation of ESE as articulated by Bandura (1977), is broadly recognized and serves as the foundation for entrepreneurial research. Based on Bandura (1977) and others, entrepreneurial self-efficacy (ESE) can be defined as possessing the requisite competencies that can affect an individual's confidence in successfully establishing a new enterprise (Taneja et. al., 2023).

Multiple scholars have examined the correlation between ESE and EI (Hockerts, 2018) emphasizing a robust affirmative relationship between ESE and EI. Palmer et al. (2019) emphasized that limited ESE studies investigate gender disparities. This study investigates the relationship between Emotional Self-Efficacy (ESE) and Emotional Stability (ES) by analysing students with high Emotional Intelligence (EI) and assessing gender differences in ESE concerning its sub-constructs. The study employed the McGee et al. (2009) scale to assess students' ESE, conceptualizing ESE as a multidimensional entity. 1). Searching: The phase of concept generation, encompassing the creative aptitude and innovative capacity of prospective entrepreneurs. 2). Planning: the stage in which an entrepreneur formulates a comprehensive blueprint for actualizing the concept. 3). Marshalling: The operational phase during which all resources (financial, human, and others) are consolidated to

implement the strategy. 4). Implementing personnel and finance: The fourth and fifth phases pertain to an individual's capacity to manage the financial resources and staff inside an organization.

The study examines specific factors of Self-Efficacy, including the ability to implement innovative and practical ideas, the competence to proficiently lead a technical team in developing an innovative product, adeptness in utilizing problem-solving skills, confidence in managing unforeseen circumstances, and knowledge of appropriate financial appraisal for a startup.

3.5.2 Moderating Constructs

A moderating variable is a tertiary variable that affects the relationship between an independent variable and a dependent variable. It is sometimes referred to as an interaction variable. A moderating variable influences the intensity and orientation of the interaction.

Incorporating mediators and moderators in your research enables a comprehensive analysis beyond the mere examination of a dyadic relationship between two variables, providing a more nuanced understanding of reality. These factors are crucial to examine when analysing intricate correlational or causal links among variables.

The moderating Variables considered for this study include Risk tolerance and Innovativeness.

a) Risk Tolerance

The concept of risk tolerance is prevalent and subject to various interpretations. Risk tolerance is synonymous with risk aversion (Helms, 2003; Ray, 1994; Wagner & Sternberg, 2004). Weber and Milliman (1997) shown that elevated risk aversion, synonymous with diminished risk tolerance, is anticipated to reduce the likelihood of entrepreneurship. A commonly utilised measure of risk aversion is 'fear of failure', an empirical operationalisation created by the GEM. The GEM survey question assessing fear of failure aims to quantify how the prospect of failure deters

entrepreneurial endeavours (Hessels et al., 2011). The measurement of this variable is not novel, as numerous studies have utilised it, derived from the GEM survey, to establish a significant negative correlation between the empirical operationalisation of fear of failure and entrepreneurship (De Clercq & Arenius, 2006; Kollinger & Minniti, 2006; Levie, 2007). Previous study indicates that entrepreneurs exhibit more risk tolerance than wage workers, a concept strongly aligned with Frank Knight's perspective.

Knight (1921) defined entrepreneurship as "the system whereby the assured and audacious 'assume the risk' or 'insure' a designated income in exchange for an allocation of the actual outcomes" (i.e. Profit). This assertion positioned Knight among the pioneers in clarifying the connection between entrepreneurship and risk. In his research, Knight highlighted financial incentives associated with risk, and the Knightian entrepreneurship theory emphasized entrepreneurial judgment in the context of uncertainty. Knight's view has served as the foundation for numerous subsequent models. One of these models was established by Kihlstrom and Laffont (1979). Their approach delineated the trade-off for entrepreneurs between obtaining full profits from a high-risk investment or earning a salary as an employee. Each individual had to determine whether to accept the potential reward from a risky endeavour or to opt for the security of a fixed monthly salary as an employee. Both Knight (1921) and Kihlstrom and Laffont (1979) conceptualized the entrepreneur as a risk bearer.

Nonetheless, other studies, such as those conducted by Macko and Tyszka (2009), which examined psychological factors like self-confidence and experience through the assessment of risk-taking in skill-related contexts, asserted that there is a minimal difference in risk attitudes between entrepreneurs and wage workers in laboratory settings. This minor variation arises from the affirmative correlation between self-confidence and risk-taking in skill-based contexts. In naturalistic business risk scenarios, they reaffirmed prior observations, asserting that entrepreneurs exhibit greater risk tolerance that wage workers. These findings align with Palich and Bagdby (1995), indicating that entrepreneurs often exhibit a lack

of awareness regarding dangers, demonstrating a tolerance for risk in their businesses.

Increased research has been conducted regarding the correlation between risk perception and entrepreneurship. Consistent with the laboratory emphasis of Macko and Tyszka (2009) on the psychological dimensions of the relationship between risk perception and entrepreneurship, Caliendo et al. (2010) posited an inverse U-shaped correlation between risk attitude and entrepreneurial survival. The study established that individuals with either a high or low risk propensity exhibit a diminished likelihood of perseverance as entrepreneurs in comparison to those with a moderate risk propensity. The subsequent part will examine the concept of entrepreneurship in relation to risk tolerance.

The components of Risk Tolerance examined in this study encompass the readiness to seize optimal business opportunities, a high degree of adaptability in navigating unpredictable circumstances despite the potential for financial gain or loss, and deriving satisfaction from confronting challenging situations that may entail inherent risks. Lack of apprehension over debt, readiness to jeopardize financial resources to capitalize on fresh opportunities

b) Innovativeness

The investigation of the innovative behaviours of new generation entrepreneurs is in the preliminary phase. Guan (2019) in their research predominantly emphasizes the following aspects: The primary emphasis is on the present circumstances and development of the emerging generation of entrepreneurs. Wang (2018) examined the traits of the new generation of private entrepreneurs, identified the challenges they encounter in their development, and proposed a strategy to foster their healthy growth. The second pertains to the impediments faced by the new generation of entrepreneurs in their innovative endeavours. He et al. (2009) examined the impediments to the innovative behaviours of private entrepreneurs in China, beginning with their innovation practices. Luan et al. (2018) examined the fundamental circumstances of new generation entrepreneurs and identified several

challenges encountered in innovative entrepreneurship: insufficient accountability, minimal motivation among company entities, and a deficiency in innovative experience and concepts. The third factor is the impact of innovative drive and political direction from the new generation of entrepreneurs. Gui et al. (2018) examined the factors impacting the innovation inventions of new generation private entrepreneurs.

By analysing pertinent studies on entrepreneurial innovation, the essence of the innovation intentions of the new generation was delineated, and a model of innovation intention for new generation private entrepreneurs was developed based on the theory of planned behaviour. This study fully investigated the elements impacting the innovative willingness of the new generation of private entrepreneurs from three aspects: behavioural attitudes, subjective norms, and perceived actions. Lal and Ronald W (2005) examined the value orientation and political direction of the emerging generation of entrepreneurs. They discovered that varying governmental directives affected the traits of new generation entrepreneurs and therefore altered their value orientations. The fourth pertains to the influence of corporate innovation on employment. Aldieri and Vinci (2018) discovered that robust creative initiatives can generate additional employment opportunities to facilitate the comprehensive sustainable development of organizations. Piva and Vivarelli (2018) discovered a favourable correlation between innovation and employment, particularly pronounced when product innovation serves as a proxy for technological development. The fifth pertains to the elements influencing the inventive conduct of new generation entrepreneurs. Kanter (1988) demonstrates that the kind of organizational culture—be it traditional or change-oriented, proud or inferior—along with its capacity to provide employees with a sense of security and values, influences their innovative behaviour.

Additional research indicates that leadership support and organisational atmosphere foster innovative behaviour. Miotti and Schachwald (2003) discovered that entrepreneur's collaborative innovation with their stakeholders significantly influences organisational performance. Shanker and Roy discovered that inventive

work behaviour mediates the association between the organisational climate for innovation and organisational performance. Hogan and Coote (2014) demonstrated a significant finding on the role of organisational culture layers, namely inventive behaviours, in partially mediating the impact of innovation-supportive values on firm performance metrics. Audretsch et al. (2014) posited that innovative behaviours are the critical determinants of corporate growth, particularly emphasizing that innovation strategies and behaviours influence the future growth potential and survival chances of enterprises. They evaluated four primary categories of corporate growth: organisational expansion; establishment of new ventures; mergers and acquisitions of existing firms; dissemination and exchange of product or process-oriented innovation; and fostering enterprise development.

The study specifically examined the components of innovativeness, including the pursuit of innovative workflows, techniques, and technologies, as well as their significance. The process of acquiring new skills is more significant than generating novel ideas, often involving the contemplation of creative applications for commonplace items and finding excitement in projects that diverge from previous endeavours.

Apart from the moderating and mediating constructs as discussed above, entrepreneurial performance is also considered for the study. A brief explanation about entrepreneurial performance is given as under:

3.6 Entrepreneurial Performance

Entrepreneurial performance pertains to the execution, accomplishment, or conclusion of entrepreneurial endeavours, encompassing both success and failure. It also pertains to the achievement of entrepreneurial objectives through the utilization of established mechanisms and accessible resources. Entrepreneurial performance is characterized as the attainment of established entrepreneurial objectives it leverages existing chances to expand the business. Performance serves as a criterion by which the founder evaluates success. The notion of entrepreneurial performance has been used interchangeably to denote new venture survival, growth, and organizational success within the field of entrepreneurship.

The performance of small firms is an extensively examined area in contemporary entrepreneurship research (Capon, Farly, and Hoeng, 1990; Cooper and Gascon, 1992; Lerner, Brush, and Histich, 1997; Singh, Reynolds, and Muhammad, 2001). Performance and success appear to be conceptualized, operationalized, and assessed in many manners. Capon et al. (1990) analysed over 320 empirical studies on performance published between 1921 and 1987. Authors employ diverse theoretical frameworks and utilize varying sets of variables in their research. They analyse the relationship between environmental, strategic, and organizational factors and financial success. Chandler and Hanks (1994) contend that models of individual work performance suggest that performance is determined by skill, motivation, and opportunity. The efficacy of a company founder is assessed by the organization's performance which is subsequently affected by the environment in which the organization arises (Covin & Slevin, 1989; Hofer & Sandberg, 1987). Chandler and Hanks (1994) contend that a more comprehensive understanding of the founder's function in connection to business performance necessitates study and theoretical advancement at three analytical levels: individual, organizational, and environmental. It necessitates cross-level and multi-level theories to elucidate the interrelations among constructs at various levels of study. Cooper and Gascon (1994) performed a literature study on the individual elements influencing performance. This encompasses elements such as experience, education, parental occupation, gender, race, age, and the entrepreneur's objectives. This overview, derived from prior studies on performance (Stevenson & Jarillo, 1990; Vesper, 1990; Gartner, 1985; Cooper et al., 1991), found that individual traits like as motivation, risk management capability, and planning are significant determinants of performance. A comprehensive review of recent research on entrepreneurial performance, encompassing over 70 empirical investigations, is presented and observed the deficiency in discourse regarding the conceptual significance of performance, but discussions on suitable metrics were more prevalent. Labels such as strategy, resources, motivation, and environment encompass the bulk of variables in research. These labels should be regarded as theoretical entities or variables at a high degree of abstraction, capable of assuming various theoretical expressions. An overview of the prominent

theoretical views in entrepreneurship is offered here. Theoretical perspectives are more expansive, less constrictive, and operate at a higher level of abstraction than the mere accumulation of ideas. They concentrate on overarching themes and their interrelations. Astley and Van de Ven (1983) referred to them as "meta-theoretical" constants. Theoretical perspectives are assessed based on their ability to elucidate and forecast performance.

The startup exemplifies the practice of entrepreneurship. Entrepreneurs and their startups play a crucial role in the economy by generating employment, creating money, and promoting innovation within the sector, attributable to their rapid responsiveness, growth orientation, and significant flexibility. In a knowledge-driven economy, technology-oriented businesses can substantially enhance economic and societal progress. Startups possess a competitive advantage over legacy enterprises in terms of operational speed and market entry of their business models.

Firm performance is an important subject in strategic management. Firm performance serves as a benchmark or criterion for assessing corporate strategy. Firm performance is the ultimate outcome of actions, encompassing the concrete results of the strategic management process. Firm performance often encompasses two dimensions: financial and non-financial. Emphasis may vary depending on the context in which it happens. Financial performance is applicable to large or established organizations; however, for new enterprises or startups, the financial dimension is not a primary concern about firm performance due to limited resources, but rather focuses on growth. Research on startup performance has proliferated since 1994, although remains uneven and dispersed across various disciplines, both scientifically and empirically.

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Chapter 4

DATA ANALYSIS AND INTERPRETATION

Chapter 4

DATA ANALYSIS AND INTERPRETATION

The Analysis and Interpretation of Primary Data are presented in this Chapter. This Chapter consists of Parts of Analysis which cover the Objectives of the Study. Each Part again consists of an Introduction and Conclusion to facilitate easy understanding of the Analysis of Data.

Part **I**

SCHEMES, PROGRAMS, EVENTS AND SUPPORT SERVICES OF KERALA STARTUP MISSION FOR PROMOTING ENTREPRENEURSHIP IN KERALA

4.I.1 Introduction

Entrepreneurship has acquired considerable traction as a crucial driver of economic development, employment generation and innovation, particularly in emerging economies such as India. Recognizing its transformative potential, the state of Kerala has launched various institutional mechanisms to foster a thriving start-up ecosystem. At the forefront of this initiative is the Kerala Start-up Mission, which operates as the state's nodal agency for entrepreneurship development. Kerala Start-up Mission is committed to creating a robust entrepreneurial framework through a wide range of schemes, programs, events and support systems that assist aspiring and existing entrepreneurs.

This Part aims to examine the key interventions of Kerala Start-up Mission in promoting entrepreneurship across Kerala. It explores the design, reach, and impact of its support services, including funding assistance, incubation facilities, training workshops, networking events, and policy-level support. By analyzing these components, the Part intends to assess how effectively Kerala Start-up Mission facilitates innovation, reduces entry barriers for start-ups, and contributes to building a sustainable entrepreneurial ecosystem in the State.

4.I.2 Objective Covered in Part I

Objective 1: To examine the schemes, programs, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala.

4.I.3 Statistical Tools for Data Analysis

The study employs a blend of descriptive and inferential statistical tools to analyse the constructs of interest.

4.I.3.1 Descriptive Analysis Techniques

- **Mean scores** were used to capture the central tendency of schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala.
- **Standard deviation** was calculated to assess the degree of variation in responses.

4.I.3.2 Inferential Analysis Methods

- **One-sample t-tests** were utilized to determine whether the observed mean values significantly deviated from a fixed reference point (set at 3 in this case).
- **Independent t-tests** facilitated the comparison of mean scores between two distinct demographic categories.
- **One-way ANOVA** was applied to explore statistical differences across several socio-demographic groups.
- **Tukey's HSD post hoc test** was used to pinpoint specific group differences when ANOVA results indicated significance.

4.I.4 Constructs Studied

4.I.4.1 Schemes

Schemes refer to structured initiatives, usually backed by government funding, aimed at supporting start-ups through various stages of their development. The

Kerala Start-up Mission offers several schemes such as the Innovation Grant Scheme, Productization Grant, and Seed Funding Scheme. These schemes are designed to provide financial assistance, encourage product development, and support the commercialization of innovative ideas. By addressing early-stage financial constraints, these schemes aim to stimulate entrepreneurship and foster a culture of innovation among aspiring business founders in Kerala.

4.I.4.2 Programs

Programs are planned and organized activities or training modules conducted to build entrepreneurial skills and knowledge. The Kerala Start-up Mission organizes programmes like entrepreneurship development training, business acceleration programmes, technology innovation fellowships, and start-up bootcamps. These programmes focus on skill development, business planning, financial literacy, market access, and team building. They serve to equip entrepreneurs with the necessary tools and expertise to develop, launch, and scale their start-up ventures successfully.

4.I.4.3 Events

Events are interactive gatherings or forums designed to facilitate networking, collaboration, and exposure within the entrepreneurial ecosystem. The Kerala Start-up Mission conducts various events such as innovation challenges, idea pitching competitions, start-up exhibitions, investor meetups, and technology fairs. These events create valuable opportunities for start-ups to connect with mentors, investors, industry leaders, and other stakeholders. They also provide a platform for showcasing innovations, gathering feedback, and gaining visibility in both local and global markets.

4.I.4.4 Support Services

Support services encompass the ongoing assistance provided to start-ups beyond just financial aid. The Kerala Start-up Mission offers a comprehensive range of support services including access to incubation centres, co-working spaces, legal advisory services, intellectual property rights assistance, technical mentorship, and

market linkage support. These services are crucial in helping start-ups overcome operational challenges, comply with regulatory requirements, and sustain long-term growth. The support system ensures that entrepreneurs have access to the infrastructure, guidance, and resources needed to thrive in a competitive business environment.

Section A

Profile of Socio-Demographic and Organisational Properties

The Profile of socio-demographic and organizational properties include Gender, Age, Educational Qualification, Annual Income, Year of Starting the Venture, Owner of the Organization, Type of Firm, Size of Industry, Form of Organization, Area of unit Situated, Scope of Sales, Capital Investment, Location of the Firm, and Income generation. The Profile is analysed as shown below:

Table 4.1

Profile of socio-demographic and organizational properties

Variables	Category	No of Respondents	Percentage (%)
Gender	Male	340	88.5
	Female	44	11.5
	Total	**384**	**100**
Age	20 to 35	140	36.4
	36 to 50	188	49.0
	>50	56	14.6
	Total	**384**	**100**
Educational Qualification	Degree	150	39.1
	PG	182	47.4
	Professional	52	13.5
	Total	**384**	**100**
Annual Income	Up to 120000	48	12.5
	120001 to 300000	50	13.0
	300001 to 500000	72	18.8
	>500000	214	55.7
	Total	**384**	**100**

Variables	Category	No of Respondents	Percentage (%)
Year of Starting the Venture	Below 5 years	274	71.4
	Above 5 years	110	28.6
	Total	**384**	**100**
Owner of the Organization	Male	336	87.5
	Female	48	12.5
	Total	**384**	**100**
Type of Firm	Manufacturing	146	38.0
	Service	238	62.0
	Total	**384**	**100**
Size of Industry	Small	298	77.6
	Medium	54	14.1
	Large	32	8.3
	Total	**384**	**100**
Form of Organization	Private Company	306	79.7
	Partnership	78	20.3
	Total	**384**	**100**
Area of unit Situated	Urban	174	45.3
	Rural	90	23.4
	Semi-urban	120	31.3
	Total	**384**	**100**
Scope of Sales	Regional	48	12.5
	National	192	50.0
	International	144	37.5
	Total	**384**	**100**
Capital Investment	Up to 10Lakhs	232	60.4
	11 to 99Lakhs	152	39.6
	Total	**384**	**100**
Location of the Firm	Corporation	158	41.1
	Municipality	114	29.7
	Panchayath	112	29.2
	Total	**384**	**100**
Income generation	Yes	282	73.4
	No	102	26.6
	Total	**384**	**100**

1) **Gender**: - Out of 384 respondents, 88.5% are male and 11.5% are female, indicating that the majority of the participants in the study are male.

2) **Age**: - Respondents aged 36 to 50 years constitute the largest group at 49.0%, followed by those aged 20 to 35 at 36.5%. The smallest group is those aged above 50 years, representing 14.6% of the total sample.

3) **Educational Qualification**: - Among the respondents, 47.4% hold postgraduate degrees, 39.1% have completed graduation, and 13.5% have professional qualifications, showing a higher proportion of postgraduate-educated individuals.

4) **Annual Income**: - A majority of respondents (55.7%) report an annual income above ₹ 5,00,000, while the smallest group (12.5%) earns up to ₹ 1,20,000 annually. The other segments include 18.8% earning ₹ 3,00,001–₹ 5,00,000 and 13.0% earning ₹ 1,20,001–₹3,00,000.

5) **Year of Starting the Venture**: - Most respondents (71.4%) started their ventures within the past five years, while 28.6% have been operating their businesses for more than five years.

6) **Owner of the Organization**: - Among the business owners surveyed, 87.5% are male and 12.5% are female, reflecting a higher proportion of male ownership in the sample.

7) **Type of Firm**: - Service sector businesses constitute 62.0% of the total, whereas manufacturing firms represent 38.0%, showing a higher representation of service-oriented ventures.

8) **Size of Industry**: - Small-scale enterprises form the largest group at 77.6%, followed by medium enterprises at 14.1% and large enterprises at 8.3%.

9) **Form of Organization**: - Private companies account for 79.7% of the firms in the sample, while partnerships constitute the remaining 20.3%.

10) **Area of Unit Situated**: - Business units are situated across different categories: 45.3% in Urban areas, 31.3% under semi-urban area, and 23.4% in rural area.

11) **Scope of Sales**: - Half of the respondents (50.0%) operate at the national level, 37.5% at the international level, and 12.5% at the regional level.

12) **Capital Investment**: - Firms with capital investment up to ₹ 10 Lakhs make up 60.4% of the sample, while 39.6% have invested between ₹ 11 Lakhs and ₹ 99 Lakhs.

13) **Location of the Firm**: - Firms are distributed as follows: 41.1% are located in corporation areas, 29.7% in municipalities, and 29.2% in panchayats.

14) **Income Generation**: - A total of 73.4% of respondents report generating income from their ventures, while 26.6% have not reported income generation at the time of the study.

Section B

Extent of Schemes, Programmes, Events and Support Services of Kerala Start up Mission for promoting Entrepreneurship in Kerala

The services of KSUM include Schemes, Programs, Events, and Support Service which are the most important factors of entrepreneurial Services offered by Kerala Start up Mission. These services are meant to promote entrepreneurship in Kerala.

The related Hypothesis and One Sample Test in respect of these services are given as under:

Ho: There is no significant difference between observed and assumed schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.2

One sample t-test for measuring the significant difference between observed and assumed schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Mean	SD	Mean difference (Gap)	t-value	P value	Rank based on mean
Schemes	3.20	1.09	0.20	3.68	<0.001**	IV
Programs	3.33	0.92	0.33	7.10	<0.001**	II
Events	3.34	1.00	0.34	6.71	<0.001**	I
Support Service	3.23	0.95	0.23	4.92	<0.001**	III

***denotes significant at 1% level; Test value-3*

The one-sample t-test results indicate a statistically significant difference between the observed mean scores and the assumed test value (3.00) for all four components of the Kerala Startup Mission's entrepreneurial development services. Specifically, the mean score for Schemes is 3.20 ($t = 3.68$, $p < 0.001$), Programs is 3.33 ($t = 7.10$, $p < 0.001$), Events is 3.34 ($t = 6.71$, $p < 0.001$), and Support Services is 3.23 ($t = 4.92$, $p < 0.001$). All p-values are below the 0.01 threshold, indicating these differences are highly significant. Among the four, Events received the highest ranking based on mean score, followed by Programs, Support Services, and Schemes. Thus, the null hypothesis stating no significant difference is rejected for all factors.

In practical terms, these findings suggest that the various offerings of the Kerala Startup Mission namely its schemes, programs, events, and support services are perceived as marginally better than average (i.e., slightly above the neutral benchmark of 3). The higher mean scores, especially for Events and Programs, imply greater visibility or effectiveness of these aspects in fostering entrepreneurship. Though the statistical significance is strong, the actual mean differences are modest, pointing to a scope for further enhancement in quality, accessibility, or relevance of these services. Therefore, while the initiatives are performing positively, continuous improvement is necessary to maximize impact and meet entrepreneurial expectations more fully.

Section C

Extent of Schemes, Programmes, Events and Support Services across Socio-Demographic and Organisational Properties

The following socio-demographic and organizational properties factors are used for cross comparison analysis.

1) Gender
2) Age
3) Education

4) Types of firm
5) Form of organization
6) Capital investment
7) Size of the industry
8) Scope of sales
9) Location of the firm
10) Year of establishment /Experience in the field

4.I.C.1 Extent of Schemes, Programmes, Events and Support Services across Gender

Ho: There is no substantial disparity in the perception of male and female entrepreneurs regarding the schemes, programmes, events and support services of Kerala Start up Mission to promote entrepreneurship in Kerala

Table 4.3

Independent T test for significant difference between perception of male and female entrepreneurs with respect to the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Gender	Mean	SD	t-value	p value
Schemes	Male	3.19	1.08	-0.74	0.457^{NS}
	Female	3.31	1.18		
Programs	Male	3.31	0.91	-0.99	0.322^{NS}
	Female	3.45	1.00		
Events	Male	3.35	0.99	0.54	0.586^{NS}
	Female	3.27	1.09		
Support Service	Male	3.25	0.92	0.56	0.572^{NS}
	Female	3.16	1.15		

^{NS} *denotes Not Significant at 5% level*

The independent sample t-test compared the perceptions of male and female entrepreneurs regarding four key service areas of Kerala Start-up Mission: schemes, programs, events, and support services. Across all dimensions, the mean scores were relatively close between genders. For "Schemes," males had a mean of 3.19 (SD=1.08) and females 3.31 (SD=1.18), with a t-value of -0.74 and a non-significant p-value of 0.457. Similarly, for "Programs," males scored 3.31 (SD=0.91) and females 3.45 (SD=1.00), with a t-value of -0.99 and p=0.322. "Events" showed a near identical pattern with t=0.54, p=0.586, and "Support Services" had a t-value of 0.56 with p=0.572. All p-values are above 0.05, indicating no statistically significant differences in perceptions between male and female respondents.

In simple terms, male and female entrepreneurs perceive the Kerala Start-up Mission's initiatives be it schemes, programs, events, or support services similarly. This consistency in perception suggests a gender-neutral approach in the communication and delivery of these services. The findings are practically important as they indicate that both men and women entrepreneurs have equal access and response to Start Ups offerings, and no group feels notably disadvantaged or underserved. This alignment helps in sustaining inclusive entrepreneurship promotion strategies in Kerala.

The null hypothesis states that there is no substantial disparity between the attitudes of male and female entrepreneurs on the services offered by the Kerala Start-up Mission. Since the p-values for all four service areas are greater than the 0.05 significance level, the null hypothesis is accepted for each case. Consequently, it can be concluded that gender does not substantially affect the view of the Kerala Start-up Mission's entrepreneurial support services.

4.I.C.2 Extent of Schemes, Programmes, Events and Support Services across Age

Ho: There is no significant difference between perception of entrepreneurs with various age group regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.4

ANOVA for significant difference between perception of entrepreneurs with various age group regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Age	Mean	SD	F value	p value
Schemes	20 to 35	3.11	1.11	5.16	0.006**
	36 to 50	3.37	1.07		
	>50	2.87	1.06		
Programs	20 to 35	3.26	0.91	3.15	0.044*
	36 to 50	3.44	0.94		
	>50	3.13	0.83		
Events	20 to 35	3.25	0.96	2.27	0.105^{NS}
	36 to 50	3.45	1.07		
	>50	3.19	0.82		
Support Service	20 to 35	3.13	0.90	5.45	0.005**
	36 to 50	3.39	0.99		
	>50	2.98	0.85		

**denotes significant at 5% level; **denotes significant at 1% level; ^{NS} denotes Not Significant*

The ANOVA results provided in the table show the F-values and corresponding p-values for each factor of entrepreneurial development (ED) services under Kerala Start-up Mission based on different age groups of entrepreneurs. For "Schemes", the F-value is 5.16 with a p-value of 0.006, which is significant at the 1% level. For "Programs", the F-value is 3.15 with a p-value of

0.044, significant at the 5% level. The factor "Events" shows an F-value of 2.27 and a p-value of 0.105, which is not statistically significant. Lastly, "Support Services" displays a significant difference with an F-value of 5.45 and p-value of 0.005, again significant at the 1% level.

From a practical standpoint, the statistically significant p-values for schemes, programs, and support services suggest that entrepreneurs in different age groups do perceive these services differently, even if the exact nature of the differences requires further post hoc analysis. This means that age-specific customization or differentiated communication strategies may be beneficial when Start Ups mission designs or promotes schemes and support initiatives. However, the non-significant result for the "events" category implies that events conducted by Start Ups mission are generally perceived similarly across age groups, reflecting a uniform impact or appeal of events among all entrepreneurs irrespective of age.

The hypothesis stated is: There is no significant difference between perception of entrepreneurs with various age group regarding the schemes, programmes, events and support services of Kerala Start up Mission. Based on the ANOVA results:

The hypothesis is rejected for Schemes ($p = 0.006$), Programs ($p = 0.044$), and Support Services ($p = 0.005$) as these show statistically significant differences. The hypothesis is accepted for Events($p=0.105$), as there is no significant difference observed. Thus, the hypothesis is partially rejected, indicating that perceptions do vary by age for most services, except for events.

Table 4.5

Post Hoc Test for measuring the exact significant difference between perception of entrepreneurs with various age group regarding the schemes, programmes and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Age (I)	Age (J)	Mean difference (I-J)	Std. error	p value
Schemes	20 to 35 (Mean = 3.11)	36 to 50 (Mean = 3.37)	-0.253	0.121	0.094^{NS}
		>50 (Mean = 2.87)	0.238	0.171	0.347^{NS}
	36 to 50 (Mean = 3.37)	>50 (Mean = 2.87)	0.491	0.165	0.009**
Programs	20 to 35 (Mean = 3.26)	36 to 50 (Mean = 3.44)	-0.182	0.102	0.177^{NS}
		>50 (Mean = 3.13)	0.130	0.145	0.642^{NS}
	36 to 50 (Mean = 3.44)	>50 (Mean = 3.13)	0.312	0.139	0.049*
Support Service	20 to 35 (Mean = 3.13)	36 to 50 (Mean = 3.39)	-0.257	0.105	0.039*
		>50 (Mean = 2.98)	0.153	0.148	0.558^{NS}
	36 to 50 (Mean = 3.39)	>50 (Mean = 2.98)	0.411	0.143	0.012*

**denotes significant at 5% level; **denotes significant at 1% level; ^{NS} denotes Not Significant*

The post hoc test results present a detailed comparison of how different age groups perceive the entrepreneurial services provided by the Kerala Start-up Mission. For the factor "Schemes", the only statistically significant difference is found between the 36 to 50 and above 50 age groups (p = 0.009), indicating a meaningful disparity in perception. Other comparisons within this factor, such as between 20 to 35 and 36 to 50 (p = 0.094) and 20 to 35 and above 50 (p = 0.347), are not statistically significant. Under the "Programs" category, a significant difference is observed between the 36 to 50 and above 50 groups (p = 0.049), while other comparisons show non-significant results (p = 0.177 and p = 0.642). For "Support Services," both the

20 to 35 vs 36 to 50 (p = 0.039) and 36 to 50 vs above 50 (p = 0.012) comparisons are statistically significant, suggesting notable differences in perception.

In the cases where significant differences were identified, the mean scores provide further clarity. For "Schemes," entrepreneurs aged 36 to 50 (Mean = 3.37) have a substantially more favourable perception than those above 50 (Mean = 2.87), with a mean difference of 0.491. Regarding "Programs," the same 36 to 50 age group (Mean = 3.44) perceives the services more positively than those above 50 (Mean = 3.13), with a mean difference of 0.312. In the "Support Services" category, entrepreneurs aged 36 to 50 (Mean = 3.39) again report higher satisfaction compared to both the 20 to 35 group (Mean = 3.13; mean difference = 0.257) and the above 50 group (Mean = 2.98; mean difference = 0.411). These consistent patterns reflect that entrepreneur aged 36 to 50 view the schemes, programs, and support services more positively than their younger and older counterparts.

From a practical standpoint, these findings suggest that the 36 to 50 age group is the most receptive and satisfied with the Kerala Start-up Mission's offerings. Their higher perceptions may stem from a combination of greater business experience, better resource access, and more frequent engagement with institutional support mechanisms. Conversely, entrepreneurs above 50 exhibit lower perception levels, possibly due to lower technological familiarity or less alignment with the newer entrepreneurial ecosystem. Meanwhile, the 20 to 35 group, though digitally savvy, may lack maturity or exposure to fully engage with the offerings. These differences indicate a clear need for age-tailored outreach and service delivery strategies to ensure equitable access and satisfaction across all age segments.

In conclusion, the hypothesis asserting that there is no substantial difference in the attitudes of entrepreneurs across different age groups about the Kerala Start-up Mission’s services is partially refuted. Statistically significant differences are observed for Schemes, Programs, and Support Services, particularly involving the 36 to 50 vs above 50 comparisons and the 20 to 35 vs 36 to 50 comparison for support services. These findings affirm that age plays a significant role in shaping perceptions, and thus, policy design and communication strategies must account for such demographic nuances to enhance the effectiveness and inclusiveness of entrepreneurial development services.

4.I.C.3 Extent of Schemes, Programmes, Events and Support Services across Education

Ho: There is no significant difference between perception of entrepreneurs with varying educational background regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.6

ANOVA for significant difference between perception of entrepreneurs with varying educational background regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Educational Qualification	Mean	SD	F value	p value
Schemes	Degree	3.35	1.08	1.81	0.061^{NS}
	PG	3.07	1.11		
	Professional	3.26	1.01		
Programs	Degree	3.41	0.83	0.88	0.414^{NS}
	PG	3.27	0.95		
	Professional	3.32	1.06		
Events	Degree	3.41	0.91	0.74	0.476^{NS}
	PG	3.28	1.09		
	Professional	3.37	0.96		
Support Service	Degree	3.29	0.86	0.45	0.635^{NS}
	PG	3.20	1.05		
	Professional	3.18	0.84		

^{NS} denotes Not Significant

In the given table, the F-values and corresponding p-values assess whether there is a significant difference in the perception of entrepreneurs with different educational qualifications (Degree, Postgraduate, and Professional) towards the entrepreneurial services offered by the Kerala Start-up Mission. For all four factors Schemes ($F = 1.81$, $p = 0.061$), Programs ($F = 0.88$, $p = 0.414$), Events ($F = 0.74$, $p = 0.476$), and Support Services ($F = 0.45$, $p = 0.635$) the p-values are above the 0.05 threshold, indicating no statistically significant difference among the groups.

From a practical point of view, this means that entrepreneurs across different educational backgrounds perceive the schemes, programs, events, and support services of the Kerala Start-up Mission in a similar manner. Whether an individual holds a degree, a postgraduate qualification, or a professional certification, their experience and perception of the support offered by the Kerala Start-up Mission do not differ in any meaningful statistical way. This suggests that the Mission's initiatives are uniformly accessible and understandable across varying levels of formal education, which is an encouraging sign of inclusivity.

The statistical results support the acceptance of the premise that there is no significant variation in the perception of entrepreneurs with differing educational background concerning the services of Kerala Start-up Mission. As none of the service categories showed a significant p-value, we conclude that educational background does not significantly influence how these entrepreneurial services are perceived.

4.I.C.4 Extent of Schemes, Programmes, Events and Support Services across Type of Firm

Ho: There is no significant difference between manufacturing and service firms regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.7

Independent T test for significant difference between manufacturing and service firms regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Type of Firm	Mean	SD	t-value	p value
Schemes	Manufacturing	3.36	1.12	2.22	0.027*
	Service	3.10	1.06		
Programs	Manufacturing	3.31	0.93	-0.26	0.789^{NS}
	Service	3.34	0.91		
Events	Manufacturing	3.37	1.03	0.43	0.668^{NS}
	Service	3.32	0.99		
Support Service	Manufacturing	3.29	0.97	0.94	0.348^{NS}
	Service	3.20	0.94		

**denotes significant at 5% level; ^{NS} denotes Not Significant*

In the given table, the independent t-test results compare the perceptions of manufacturing and service firms regarding the entrepreneurial services offered by the Kerala Start-up Mission. Among the four service components evaluated Schemes, Programs, Events, and Support Services a statistically significant difference is observed only in the "Schemes" factor, with a t-value of 2.22 and a p-value of 0.027, which is significant at the 5% level. The remaining factors that Programs ($p = 0.789$), Events ($p = 0.668$), and Support Services ($p = 0.348$) have p-values well above the 0.05 threshold, indicating no statistically significant difference in the perceptions of these services between the two types of firms.

In practical terms, this finding suggests that manufacturing and service-based entrepreneurs perceive most of the Kerala Start-up Mission's services similarly, particularly in the areas of programs, events, and support services, where no meaningful difference in perception was found. However, there is a notable variation in how these two sectors view the "Schemes", which could be attributed to sector-specific challenges, needs, or the applicability of available schemes. This indicates that schemes may need to be better tailored or communicated differently to service-sector entrepreneurs to enhance their relevance and impact across both sectors.

The statistical results partially refute the hypothesis that there is no substantial difference between manufacturing and service enterprises about the services of Kerala Start-up Mission. Since a significant difference was found only for the Schemes factor and not for the other three service components, the results support partial acceptance and partial rejection of the hypothesis. This implies that while most services are perceived similarly by both types of firms, there is a sectoral difference in the perception of schemes that warrants attention from policymakers.

4.I.C.5 Extent of Schemes, Programmes, Events and Support Services across Form of Organisation

Ho: There is no significant difference between private company and Partnership firm regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.8

Independent T test for significant difference between private company and Partnership firm regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Form of Organization	Mean	SD	t-value	p value
Schemes	Private Company	3.26	1.07	2.14	0.032*
	Partnership	2.96	1.15		
Programs	Private Company	3.38	0.89	2.08	0.038*
	Partnership	3.14	0.99		
Events	Private Company	3.40	1.00	2.20	0.028*
	Partnership	3.12	1.00		
Support Service	Private Company	3.30	0.94	2.50	0.013*
	Partnership	3.00	0.93		

**denotes significant at 5% level*

The independent sample t-test results in the given table compare the perceptions of entrepreneurs from private companies and partnership firms regarding the various services provided by the Kerala Start-up Mission. The results show statistically significant differences across all four service factors: Schemes ($p = 0.032$), Programmes ($p = 0.038$), Events ($p = 0.028$), and Support Services ($p = 0.013$). In each case, the p-value is less than the 0.05 significance level, indicating that the perceptions of these two types of organizational forms differ meaningfully for all aspects of the support offered by the Kerala Start-up Mission.

In practical terms, these findings suggest that entrepreneurs operating private companies consistently perceive the services more favourably than those involved in partnership firms. This may be due to differences in access, exposure, organizational resources, or alignment of services with business needs. The consistent pattern across

schemes, programmes, events, and support services implies that partnership firms may be less engaged or less satisfied with how these services are structured or delivered. This indicates a need for Kerala Start-up Mission to re-evaluate the accessibility, communication, and relevance of its services for partnership-based enterprises, ensuring more inclusive and equitable entrepreneurship development across business structures.

The statistical evidence leads to the rejection of the hypothesis asserting no substantial difference between private company and partnership firm regarding the schemes, programmes, events, and support services of Kerala Start-up Mission. The p-values for all service components are below the accepted significance threshold, which confirms that the form of organization significantly affects perception. These results highlight the necessity for differentiated policy approaches and customized interventions to address the unique needs and perceptions of both private companies and partnership firms in the state's entrepreneurial ecosystem.

4.I.C.6 Extent of Schemes, Programmes, Events and Support Services across Capital Investment

Ho: There is no significant difference between entrepreneurs with different capital investment regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.9

Independent T test for significant difference between entrepreneurs with different capital investment regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Capital Investment	Mean	SD	t-value	p value
Schemes	Up to 10Lakhs	3.22	1.05	0.31	0.751^{NS}
	11 to 99Lakhs	3.18	1.16		
Programs	Up to 10Lakhs	3.37	0.87	0.94	0.345^{NS}
	11 to 99Lakhs	3.27	0.99		
Events	Up to 10Lakhs	3.37	0.95	0.61	0.539^{NS}
	11 to 99Lakhs	3.30	1.08		
Support Service	Up to 10Lakhs	3.26	0.92	0.75	0.450^{NS}
	11 to 99Lakhs	3.19	0.98		

^{NS} *denotes Not Significant*

The independent sample t-test results compare the perceptions of entrepreneurs based on their level of capital investment specifically those who invested up to ten lakhs and those who invested between eleven and ninety-nine lakhs with respect to the various services offered by the Kerala Start-up Mission. Across all four service categories that Schemes ($p = 0.751$), Programmes ($p = 0.345$), Events ($p = 0.539$), and Support Services ($p = 0.450$)—the p-values are well above the standard significance level of 0.05. This indicates that none of the differences in mean perceptions between the two capital investment groups are statistically significant.

From a practical standpoint, this suggests that entrepreneurs perceive the Kerala Start-up Mission's schemes, programmes, events, and support services similarly, regardless of their level of capital investment. Whether an entrepreneur has invested a smaller amount (up to ten lakhs) or a comparatively larger amount (up to ninety-nine lakhs), their evaluation of the Mission's offerings remains consistent. This points to a uniform delivery and acceptance of services that appear to be effectively designed to meet the expectations and needs of businesses irrespective of their initial investment levels. It also indicates that the Kerala Start-up Mission has ensured an equitable framework in providing support services that resonate equally with both small and medium-level investors.

The results support the premise that there is no substantial difference among entrepreneurs with varying financial investments about the schemes, programmes, events, and support services of Kerala Start-up Mission. Since the p-values for all the service components are not statistically significant, there is no evidence to suggest that capital investment size influences perception of the Kerala Start-up Mission's support offerings. This reinforces the idea that the services are perceived as inclusive and fairly distributed, which is a positive outcome for entrepreneurship promotion efforts in the state.

4.I.C.7 Extent of Schemes, Programmes, Events and Support Services across Size of Industry

Ho: There is no significant difference between various size of industries regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.10

ANOVA for significant difference between various size of industries regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Size of Industry	Mean	SD	F value	p value
Schemes	Small	3.20	1.13	0.10	0.899^{NS}
	Medium	3.17	1.06		
	Large	3.28	0.82		
Programs	Small	3.34	0.92	0.16	0.847^{NS}
	Medium	3.26	1.03		
	Large	3.32	0.68		
Events	Small	3.32	1.01	0.36	0.692^{NS}
	Medium	3.45	1.00		
	Large	3.31	0.94		
Support Service	Small	3.20	0.95	0.90	0.407^{NS}
	Medium	3.38	1.02		
	Large	3.29	0.82		

^{NS} *denotes Not Significant*

The table displays the outcomes of a one-way analysis of variance (ANOVA) aimed at assessing the statistically significant differences in the perception of entrepreneurial services provided by the Kerala Start-up Mission among entrepreneurs in small, medium, and big sectors. The analysis covers four key service areas: Schemes, Programmes, Events, and Support Services. For all four factors, the p-values are well above the conventional significance level of 0.05 Schemes ($p = 0.899$), Programmes ($p = 0.847$), Events ($p = 0.692$), and Support Services ($p = 0.407$). These results indicate that there are no statistically significant differences in the perception of Kerala Start-up Mission's services across different sizes of industries.

It denotes that the entrepreneurs across small, medium, and large-scale industries perceive the services of the Kerala Start-up Mission in a largely consistent manner. This

implies that the various schemes, programmes, events, and support services are equally relevant, accessible, and beneficial regardless of the scale of the enterprise. Such uniformity in perception may reflect the Kerala Start-up Mission's success in designing services that are broad-based and inclusive, ensuring that entrepreneurs from industries of all sizes are effectively engaged and supported in their entrepreneurial journey.

Based on the statistical evidence, the hypothesis asserting that there is no substantial difference among entrepreneurs of varying industry sizes about the schemes, programmes, events, and support services of Kerala Start-up Mission is accepted. Since all p-values are not statistically significant, the results do not support the existence of any notable perceptual variation based on the size of the industry. This reinforces the Kerala Start-up Mission's position as a provider of equitable and well-balanced entrepreneurial support, catering uniformly to enterprises of varying investment levels and operational scales.

4.I.C.8 Extent of Schemes, Programmes, Events and Support Services across Scope of Sales

Ho: There is no significant difference between entrepreneurs with various scope of sales regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.11

ANOVA for significant difference between entrepreneurs with various scope of sales regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Scope of Sales	Mean	SD	F value	p value
Schemes	Regional	3.12	1.20	1.48	0.228^{NS}
	National	3.13	1.04		
	International	3.33	1.11		
Programs	Regional	3.10	1.07	1.34	0.127^{NS}
	National	3.33	0.84		
	International	3.41	0.96		
Events	Regional	3.33	1.05	0.08	0.991^{NS}
	National	3.35	0.97		
	International	3.34	1.04		
Support Service	Regional	3.03	1.00	1.46	0.233^{NS}
	National	3.24	0.91		
	International	3.30	0.98		

^{NS} *denotes Not Significant*

The table displays the outcomes of one-way analysis of variance (ANOVA) performed to examine whether the perception of Kerala Start-up Mission's services differs significantly among entrepreneurs operating at regional, national, and international levels of sales. For each of the four service components Schemes, Programmes, Events, and Support Services the p-values are greater than the standard threshold of 0.05. Specifically, the p-values are: Schemes ($p = 0.228$), Programmes ($p = 0.127$), Events ($p = 0.991$), and Support Services ($p = 0.233$). These values indicate that none of the differences in perception across sales scopes are statistically significant.

From a practical perspective, this means that the Kerala Start-up Mission's services are perceived consistently by entrepreneurs irrespective of whether they operate on a regional, national, or international scale. This uniformity in perception suggests that the schemes, programmes, events, and support services are designed in such a way that they cater effectively to enterprises with varying market outreach. Entrepreneurs across all sales scopes appear to find the offerings equally accessible and relevant, pointing to a balanced and inclusive service delivery framework by the Kerala Start-up Mission that does not disproportionately favour any specific market segment.

Based on the above analysis, the hypothesis asserting the absence of a major difference among entrepreneurs with various scope of sales regarding the services of Kerala Start-up Mission is accepted. Since all p-values are statistically non-significant, there is no evidence to suggest that the scope of sales (regional, national, or international) influences how entrepreneurs perceive the entrepreneurial services provided. This finding highlights the effectiveness of the Kerala Start-up Mission in maintaining equitable support mechanisms across the diverse operational scales of enterprises.

4.I.C.9 Extent of Schemes, Programmes, Events and Support Services across Location of the Firm

Ho: There is no significant difference between entrepreneurs with operating their business in various locations regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.12

ANOVA for significant difference between entrepreneurs with operating their business in various locations regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Location of the Firm	Mean	SD	F value	p value
Schemes	Corporation	3.12	1.15	1.56	0.140^{NS}
	Municipality	3.15	1.05		
	Panchayath	3.37	1.04		
Programs	Corporation	3.33	0.95	1.59	0.137^{NS}
	Municipality	3.21	0.82		
	Panchayath	3.45	0.96		
Events	Corporation	3.33	1.01	0.27	0.763^{NS}
	Municipality	3.30	0.95		
	Panchayath	3.40	1.05		
Support Service	Corporation	3.23	0.98	0.71	0.491^{NS}
	Municipality	3.17	0.86		
	Panchayath	3.32	0.98		

^{NS} *denotes Not Significant*

The table displays the outcomes of a one-way analysis of variance (ANOVA) performed to assess any statistically significant changes in the perception of Kerala Start-up Mission's services among entrepreneurs operating in different locations

namely corporation, municipality, and panchayath areas. The analysis covers four service dimensions: Schemes ($p = 0.140$), Programmes ($p = 0.137$), Events ($p = 0.763$), and Support Services ($p = 0.491$). All of the p-values are above the conventional threshold of 0.05, indicating that none of the differences in perception across business locations are statistically significant.

In practical terms, these results suggest that entrepreneurs, regardless of whether they operate in urban corporation areas, semi-urban municipalities, or rural panchayath regions, share a broadly similar perception of the Kerala Start-up Mission's services. This uniformity reflects well on the accessibility and inclusivity of the Mission's schemes, programmes, events, and support services across different geographical regions. The lack of statistically significant differences implies that the Kerala Start-up Mission has ensured equitable service reach and implementation, with no location-based bias or disparity in the way services are experienced by entrepreneurs.

Based on the analysis, the hypothesis that there is no significant difference between entrepreneurs operating their business in various locations regarding the schemes, programmes, events, and support services of Kerala Start-up Mission is accepted. Since all the p-values are non-significant, there is no empirical evidence to suggest that business location influences how these services are perceived. This finding supports the conclusion that the Kerala Start-up Mission delivers its support mechanisms in a geographically balanced and consistent manner, successfully reaching entrepreneurs across all types of local governance regions.

4.I.C.10 Extent of Schemes, Programmes, Events and Support Services across Experience in the Field

Ho: There is no significant difference between entrepreneurs with varying experience in the field regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Table 4.13

Independent T test for significant difference between entrepreneurs with varying experience in the field regarding the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala

Factors of entrepreneurial Services offered by Kerala Start up Mission	Experience in the filed	Mean	SD	t-value	p value
Schemes	Below 5 years	3.25	1.06	1.43	0.154^{NS}
	Above 5 years	3.08	1.17		
Programs	Below 5 years	3.36	0.83	1.01	0.310^{NS}
	Above 5 years	3.25	1.11		
Events	Below 5 years	3.35	0.94	0.33	0.741^{NS}
	Above 5 years	3.31	1.15		
Support Service	Below 5 years	3.24	0.87	0.16	0.873^{NS}
	Above 5 years	3.22	1.12		

^{NS} *denotes Not Significant*

The independent sample t-test results in the table compare the perceptions of entrepreneurs based on their experience in the field specifically those with below five years and above five years of experience regarding the various services offered by the Kerala Start-up Mission. For all four service categories, the p-values are greater than the conventional significance level of 0.05: Schemes ($p = 0.154$), Programmes ($p = 0.310$), Events ($p = 0.741$), and Support Services ($p = 0.873$). These results indicate that none of the differences in perceptions between the two experience groups are statistically significant.

From a practical perspective, the findings suggest that entrepreneurs, regardless of whether they are relatively new in the field or have more than five years

of experience, perceive the Kerala Start-up Mission's services in a similar way. This implies that the support initiatives such as schemes, programmes, events, and services are designed in a manner that is broadly accessible, understandable, and relevant across different experience levels. Entrepreneurs who are just starting out and those who have been active for several years appear to engage with and benefit from these services to a comparable extent, reflecting the Kerala Start-up Mission's inclusive and adaptable approach.

Based on the statistical outcomes, the hypothesis that there is no significant difference between entrepreneurs with varying experience in the field regarding the schemes, programmes, events, and support services of Kerala Start-up Mission is accepted. Since none of the p-values indicate statistically significant differences, there is no evidence to suggest that entrepreneurial experience affects perception of the services provided. This outcome confirms that the Kerala Start-up Mission has effectively created a neutral and universally beneficial service ecosystem, catering to both emerging and established entrepreneurs alike.

4.I.5 Conclusion

This Part has thoroughly examined the various schemes, programmes, events, and support services offered by the Kerala Start-up Mission in its endeavour to promote entrepreneurship across the state. The empirical findings based on one-sample t-tests and cross-sectional analyses highlight that these initiatives are generally perceived positively by entrepreneurs. Statistically significant mean differences suggest that the Kerala Start-up Mission's services are considered slightly above average in effectiveness, particularly with respect to events and programmes, which received higher satisfaction scores.

From a demographic and organizational perspective, the analyses demonstrate a largely inclusive and equitable service delivery. No significant perceptual differences were found across gender, education level, capital investment, business size, scope of sales, location, or experience, affirming the Kerala Start-up Mission's success in providing universally accessible support. Nonetheless, perceptual

differences emerged based on age, type of firm, and form of organization, indicating that certain groups such as entrepreneurs aged above 50 and those in partnership firms may benefit from more targeted communication and support strategies. Overall, the section underscores the Kerala Start-up Mission's critical role in building a supportive entrepreneurial ecosystem while also identifying key areas for strategic enhancement to ensure broader and deeper engagement across diverse entrepreneur segments.

Part **II**

ENTREPRENEURIAL ECOSYSTEM IN KERALA: THE INFLUENCE OF CORE START-UP SERVICES AND PERCEPTIONAL DIVERSITY AMONG ENTREPRENEURS

4.II.1 Introduction

The notion of an entrepreneurial ecosystem has been progressively significant in recent years, as regional and national economies endeavour to establish conditions that foster innovation, enterprise creation, and sustainable economic development. In the context of Kerala, a state known for its high human development indices and educated population, the entrepreneurial ecosystem is shaped by a complex interplay of institutional support, policy environment, market access, and talent availability. Among these, the Kerala Start-up Mission (KSUM) plays a pivotal role by offering structured core support services such as incubation facilities, funding access, mentorship, capacity-building programmes, and digital infrastructure. These initiatives are designed to create a conducive environment for start-up growth and to catalyse entrepreneurial dynamism within the state.

However, the effectiveness and perceived value of such core support services may vary across different segments of the entrepreneurial population. Entrepreneurs' socio-demographic characteristics such as age, gender, educational background, and industry type can influence how they perceive, access, and benefit from institutional interventions. This section aims to explore the extent to which the Kerala Start-up

Mission's core support services have contributed to shaping the entrepreneurial ecosystem, while also analysing how perceptions differ among entrepreneurs from diverse demographic and organizational backgrounds. Through this investigation, the study seeks to provide insights into the inclusivity and impact of support mechanisms, thereby offering policy directions for strengthening ecosystem development in Kerala.

4.II.2 Objective Covered in Part II

Objective 2: To investigate the entrepreneurial ecosystem in the State of Kerala, explore the role of core support services provided by the Kerala Start-up Mission in shaping the ecosystem, and analyze differences in perception among entrepreneurs based on socio-demographic and organisational characteristics

4.II.3 Statistical Tools Employed for Data Analysis

To examine the entrepreneurial ecosystem in Kerala, explore the role of core support services provided by the Kerala Start-up Mission, and analyse variations across socio-demographic profiles of entrepreneurs, the study employed a mix of descriptive and inferential statistical techniques using IBM SPSS 27.

4.II.3.1 Descriptive Statistics

- Used to summarize the data and observe general patterns.
- Included:
- Mean: to measure central tendency.
- Standard Deviation: to assess variability in responses.

4.II.3.2 Inferential Statistics

One-Sample t-Test, Independent Samples t-Test, Analysis of Variance (ANOVA), Post Hoc Test (Tukey's HSD)

4.II.4 Constructs Studied

4.II.4.1 Finance

Theoretically, finance point out to the availability of funds and financial instruments that support business start-up and growth. It includes access to credit, seed funding, venture capital, and subsidies. Operationally, this construct in the study captures how entrepreneurs in Kerala grasp the ease of accessing financial resources, funding opportunities, and financial support offered through the Kerala Start-up Mission or other sources.

4.II.4.2 Business Support Service

Business support services include mentoring, training, incubation, legal assistance, and consultancy services that assist entrepreneurs in building and scaling their undertakings. Operationally, this mention to the support mechanisms provided to entrepreneurs through incubators, accelerators, and expert advisory services available within Kerala's entrepreneurial ecosystem.

4.II.4.3 Policy Environment

Policy environment refers to the regulatory and institutional framework that governs entrepreneurship, including government policies, tax incentives, and ease of doing business. *Operationally*, it evaluates how entrepreneurs in Kerala perceive government rules, start-up policies, and their responsiveness to entrepreneurial needs.

4.II.4.4 Markets

Markets represent the demand side of entrepreneurship, including access to customers, market size, competition, and supply chains. *Operationally*, this construct evaluates the opportunities available to entrepreneurs in Kerala to reach and expand in local, national, and international markets.

4.II.4.5 Human Capital

Theoretically, human capital consists of the skills, knowledge, education, and experience possessed by individuals that develop entrepreneurial success. This captures the availability and competency of skilled labour, workforce readiness, and technical expertise supporting start-up activities in Kerala.

4.II.4.6 Infrastructure

Infrastructure includes the physical and digital systems that support business operations—such as transport, electricity, internet connectivity, and co-working spaces. This reflects entrepreneurs' experiences with the adequacy and accessibility of these basic facilities in Kerala's start-up ecosystem.

4.II.4.7 Business Environment

The business environment encompasses the overall climate in which businesses operate, including stability, transparency, networking opportunities, and regulatory burden. It evaluates entrepreneurs' perceptions of Kerala's economic and administrative environment in terms of business friendliness and institutional support.

4.II.4.8 Research & Development/Innovation

Theoretically, this points out to the generation and application of new knowledge, technologies, and processes that drive entrepreneurial innovation. Operationally, this construct examines the extent to which Kerala's ecosystem promotes innovation, collaboration with research institutions, and access to technology transfer facilities.

4.II.4.9 Entrepreneurial Culture

Entrepreneurial culture refers to societal attitudes, values, and norms that encourage risk-taking, innovation, and the pursuit of business firms. It captures how Kerala's cultural environment supports or hinders entrepreneurship, including acceptance of failure and community support for new ventures.

Section A

Extent of Entrepreneurial Ecosystem in Kerala

The factors of Entrepreneurial Ecosystem with basic statistical treatment are presented as under:

Ho.3: There is no significant difference between observed and assumed factors of entrepreneurial ecosystem in Kerala

Table 4.14

One sample t-test for measuring the significant difference between observed and assumed factors of entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem in Kerala	Mean	SD	Mean difference (Gap)	t-value	p value	Rank based on mean
Finance	2.51	1.03	-0.48	-9.11	<0.001**	IX
Business Support System	3.15	0.98	0.15	3.06	0.002**	II
Policy Environment	3.01	0.93	0.01	0.25	0.799^{NS}	IV
Markets	2.99	0.91	-0.00	-0.18	0.852^{NS}	V
Human Capital	2.89	0.98	-0.10	-2.10	0.036*	VII
Infrastructure	3.35	0.89	0.35	7.84	<0.001**	I
Business Environment	3.02	0.89	0.02	0.65	0.513^{NS}	III
Research and Development	2.79	0.88	-0.20	-4.60	<0.001**	VIII
Entrepreneurial Culture	2.94	0.92	-0.05	-1.10	0.271^{NS}	VI

***denotes significant at 1% level; *denotes significant at 5% level; ^{NS} denotes Not Significant, Test value-3*

The one-sample t-test was used to compare the observed mean scores of entrepreneurial ecosystem factors in Kerala against an assumed neutral test value of 3. The results demonstrate that finance (mean = 2.51, t = -9.11, $p < 0.001$), human capital (mean = 2.89, t = -2.10, $p = 0.036$), and research and development (mean = 2.79, t = -4.60, $p < 0.001$) have significantly lower mean scores, indicating perceived inadequacy in these areas. Conversely, business support system (mean = 3.15, t = 3.06, $p = 0.002$) and infrastructure (mean = 3.35, t = 7.84, $p < 0.001$) scored

significantly higher than the test value, suggesting a strong perception of support in those factors. Other factors such as policy environment (p = 0.799), markets (p = 0.852), business Environment (p = 0.513), and entrepreneurial culture (p = 0.271) did not show any significant difference from the neutral value. Therefore, since significant differences exist in various factors the null hypothesis is rejected.

The findings emphasize mixed perception of the entrepreneurial ecosystem in Kerala. Whereas infrastructure and business support services are recognized as strong pillars fostering entrepreneurship, critical gaps exist in access to finance, the quality of human capital, and innovation through research and development. These are key factors for scaling and sustaining start-ups, and their weakness could restrict entrepreneurial growth. The neutral perception of policy, market access, and culture suggests these areas are yet to reach optimal levels of influence or visibility. The rejection of the null hypothesis confirms that entrepreneurs perceive uneven development across the ecosystem components, underlining the need for more focused policy interventions to balance and strengthen the entire entrepreneurial environment in Kerala.

Section B

Entrepreneurial Ecosystem as Influenced by Kerala Start up Mission Core Services

The main theme of the research is the influence of KSUM on the Entrepreneurial Ecosystem. The effect of such influence is presented here:

4.II.B.1 Entrepreneurial Ecosystem as Influenced by Schemes

Ho: There is no significant difference between low level and high-level schemes offered by the Kerala Start-up mission with respect to factors of entrepreneurial ecosystem in Kerala

Table 4.15

Independent T test for significant difference between low level and high-level schemes with respect to factors of entrepreneurial ecosystem in Kerala

Factors of entrepreneurial ecosystem in Kerala	Low High Schemes	Mean	SD	t-value	p value
Finance	Low level	2.08	0.89	-10.25	<0.001**
	High level	3.04	0.94		
Business support system	Low level	2.79	1.02	-8.47	<0.001**
	High level	3.58	0.75		
Policy Environment	Low level	2.73	0.92	-6.79	<0.001**
	High level	3.34	0.82		
Markets	Low level	2.75	0.94	-5.88	<0.001**
	High level	3.27	0.78		
Human Capital	Low level	2.73	0.92	-3.49	0.001**
	High level	3.08	1.02		
Infrastructure	Low level	3.11	0.96	-6.21	<0.001**
	High level	3.65	0.69		
Business Environment	Low level	2.73	0.81	-7.64	<0.001**
	High level	3.38	0.85		
Research and Development	Low level	2.46	0.82	-8.82	<0.001**
	High level	3.19	0.78		
Entrepreneurial Culture	Low level	2.72	0.91	-5.48	<0.001**
	High level	3.22	0.86		

***denotes significant at 1% level*

The independent t-test examines whether entrepreneurs under low-level and high-level schemes differ significantly in their perception of the entrepreneurial ecosystem in Kerala. All nine factors exhibit statistically significant differences at the 1% level, as indicated by their respective p-values (<0.001 or =0.001). In case of finance factor, entrepreneurs in low-level schemes scored a mean of 2.08 compared to 3.04 in high-level schemes ($t = -10.25$, $p < 0.001$). In business support system, the mean is 2.79 (low) vs 3.58 (high), ($t = -8.47$, $p < 0.001$). For policy environment, scores are 2.73 (low) vs 3.34 (high), ($t = -6.79$, $p < 0.001$).

In case of markets, the mean is 2.75 (low) vs 3.27 (high), ($t = -5.88$, $p < 0.001$). Human capital demonstrates a mean of 2.73 (low) vs 3.08 (high), ($t = -3.49$, $p = 0.001$). For infrastructure, entrepreneurs stated 3.11 (low) vs 3.65 (high), ($t = -6.21$, $p < 0.001$). The business environment scores are 2.73 (low) vs 3.38 (high), ($t = -7.64$, $p < 0.001$). For research and development, the difference is 2.46 (low) vs 3.19 (high), ($t = -8.82$, $p < 0.001$), and in entrepreneurial culture, it is 2.72 (low) vs 3.22 (high), ($t = -5.48$, $p < 0.001$). These consistent differences highlight that entrepreneur in high-level schemes perceive the ecosystem more positively across all dimensions.

The analysis accurately reveals that high-level schemes provide a much more supportive entrepreneurial environment across all critical ecosystem factors ranging from finance and infrastructure to policy and market support. Entrepreneurs in low-level schemes appear to face significant gaps in these areas, which may limit their business growth, access to networks, and innovation potential. These findings suggest that the quality and intensity of support embedded in the scheme level play a critical role in shaping entrepreneurial experiences, confidence, and success outcomes in the state.

The null hypothesis, asserting no substantial difference between low-level and high-level schemes regarding the characteristics of the entrepreneurial ecosystem in Kerala, is rejected for all nine categories. Since each factor of p-value is less than 0.01, we conclude that significant differences exist across the entire ecosystem depending on the scheme level.

4.II.B.2 Entrepreneurial Ecosystem as Influenced by Programs

Ho: There is no significant difference between low level and high-level programs with respect to factors of entrepreneurial ecosystem in Kerala

Table 4.16

Independent T test for significant difference between low level and high-level programs with respect to factors of entrepreneurial ecosystem in Kerala

Factors of entrepreneurial ecosystem in Kerala	Low High Programs	Mean	SD	t-value	p value
Finance	Low level	2.22	0.93	-7.18	<0.001**
	High level	2.94	1.02		
Business support system	Low level	2.84	1.00	-7.94	<0.001**
	High level	3.59	0.78		
Policy Environment	Low level	2.79	0.91	-5.54	<0.001**
	High level	3.31	0.88		
Markets	Low level	2.75	0.92	-6.47	<0.001**
	High level	3.33	0.77		
Human Capital	Low level	2.67	0.94	-5.46	<0.001**
	High level	3.21	0.95		
Infrastructure	Low level	3.13	0.95	-6.18	<0.001**
	High level	3.68	0.68		
Business Environment	Low level	2.78	0.85	-6.69	<0.001**
	High level	3.37	0.83		
Research and Development	Low level	2.53	0.84	-7.35	<0.001**
	High level	3.16	0.81		
Entrepreneurial Culture	Low level	2.72	0.91	-5.95	<0.001**
	High level	3.27	0.84		

***denotes significant at 1% level*

The table exhibits independent t-test results comparing perceptions of various entrepreneurial ecosystem factors between entrepreneurs under low-level and high-level programs. All nine factors show statistically significant differences at the 1% level ($p < 0.001$), stipulating meaningful variation. In the finance factor, entrepreneurs

in low-level programs have a mean score of 2.22, while those in high-level programs score 2.94 (t = -7.18), showing a substantial gap. For business support system, the mean increases from 2.84 (low) to 3.59 (high), (t = -7.94). For policy environment, scores shift from 2.79 to 3.31 (t = -5.54), while markets show a difference from 2.75 to 3.33 (t = -6.47). Similar trends appear in human capital (2.67 to 3.21, t = -5.46), infrastructure (3.13 to 3.68, t = -6.18), business environment (2.78 to 3.37, t = -6.69), research and development (2.53 to 3.16, t = -7.35), and entrepreneurial culture (2.72 to 3.27, t = -5.95). In all cases, entrepreneurs involved in high-level programs perceive the ecosystem more positively.

The findings strongly suggest that high-level entrepreneurial programs in Kerala provide more extensive and impactful support across all ecosystem dimensions. Entrepreneurs in these programs benefit from greater financial aid, better infrastructure, enriched human capital support, improved access to markets, and more favorable policy and institutional environments. In contrast, those in low-level programs appear to face notable gaps in these areas. This has practical relevance for program designers and policymakers it underlines the unequal experience of entrepreneurial support based on the level of program engagement, and the need to uplift and redesign low-tier initiatives to match the effectiveness of higher-level programs.

The null hypothesis, which asserts that no substantial difference exists between low-level and high-level programs regarding the elements of the entrepreneurial ecosystem in Kerala, is rejected for all nine factors. Since all p-values are less than 0.001 and the t-values specify significant differences, the results provide strong statistical evidence that entrepreneurial experiences and support vary notably by program level. This calls for strategic interventions to assure balanced ecosystem development and equitable support across all program tiers.

4.II.B.3 Entrepreneurial Ecosystem as Influenced by Events

Ho: There is no significant difference between low level and high-level events with respect to factors of entrepreneurial ecosystem in Kerala

Table 4.17

Independent T test for significant difference between low level and high-level events with respect to factors of entrepreneurial ecosystem in Kerala

Factors of entrepreneurial ecosystem in Kerala	Low High Events	Mean	SD	t-value	p value
Finance	Low level	2.15	0.89	-8.31	<0.001**
	High level	2.97	1.01		
Business support system	Low level	2.75	0.95	-9.98	<0.001**
	High level	3.65	0.77		
Policy Environment	Low level	2.81	0.93	-4.74	<0.001**
	High level	3.25	0.87		
Markets	Low level	2.70	0.91	-7.49	<0.001**
	High level	3.35	0.77		
Human Capital	Low level	2.70	0.94	-4.33	<0.001**
	High level	3.13	0.98		
Infrastructure	Low level	3.07	0.93	-7.30	<0.001**
	High level	3.70	0.69		
Business Environment	Low level	2.73	0.86	-7.75	<0.001**
	High level	3.40	0.79		
Research and Development	Low level	2.52	0.84	-7.16	<0.001**
	High level	3.13	0.81		
Entrepreneurial Culture	Low level	2.61	0.90	-8.57	<0.001**
	High level	3.36	0.76		

***denotes significant at 1% level*

The independent t-test compares the perceptions of entrepreneurs who participated in low-level events and high-level events with respect to the entrepreneurial ecosystem factors in Kerala. All nine factors exhibit statistically significant differences at the 1% level ($p < 0.001$). In the finance factor, the mean

score increases from 2.15 (low) to 2.97 (high), with a t-value of -8.31. Similarly, business support system shows a significant increase from 2.75 to 3.65 (t = -9.98). For policy environment, the scores rise from 2.81 to 3.25 (t = -4.74), and for markets, from 2.70 to 3.35 (t = -7.49). human capital increases from 2.70 to 3.13 (t = -4.33), and infrastructure from 3.07 to 3.70 (t = -7.30). Business environment improves from 2.73 to 3.40 (t = -7.75), research and development from 2.52 to 3.13 (t = -7.16), and entrepreneurial culture from 2.61 to 3.36 (t = -8.57). Across all factors, entrepreneurs involved in high-level events perceive the ecosystem. These findings strongly indicate that high-level events provide significantly better exposure, support, and perceived value to entrepreneurs across all dimensions of the entrepreneurial ecosystem. Entrepreneurs who attended such events likely gained improved access to funding, mentoring, institutional support, infrastructure, and market linkages. In contrast, those attending low-level events report weaker ecosystem experiences. This emphasizes the critical role of event quality and scale in shaping entrepreneurial perceptions and outcomes. From a policy and planning perspective, this suggests that investing in high-quality events, such as summits, expos, or innovation festivals, can substantially enhance the entrepreneurial climate by enabling deeper engagement, networking, and access to resources.

The null hypothesis, which states that there is no significant difference between low-level and high-level events with respect to factors of the entrepreneurial ecosystem in Kerala is rejected for all nine factors. As all p-values are less than 0.001 and the t-values reflect statistically significant differences, it is evident that entrepreneurs' perceptions vary substantially based on the level of event participation. Therefore, the findings support the conclusion that event influence the effectiveness of the entrepreneurial ecosystem, and improving lower-tier events should be a strategic focus for inclusive entrepreneurial development.

4.II.B.4 Entrepreneurial Ecosystem as Influenced by Support Services

Ho: There is no significant difference between low level and high-level support services with respect to factors of entrepreneurial ecosystem in Kerala

Table 4.18

Independent T test for significant difference between low level and high-level support services with respect to factors of entrepreneurial ecosystem in Kerala

Factors of entrepreneurial ecosystem in Kerala	Low High Support Services	Mean	SD	t-value	p value
Finance	Low level	2.14	0.90	-8.87	<0.001**
	High level	3.00	0.99		
Business support system	Low level	2.75	0.97	-10.21	<0.001**
	High level	3.67	0.73		
Policy Environment	Low level	2.77	0.93	-5.99	<0.001**
	High level	3.32	0.84		
Markets	Low level	2.70	0.93	-7.42	<0.001**
	High level	3.36	0.72		
Human Capital	Low level	2.65	0.96	-5.68	<0.001**
	High level	3.20	0.92		
Infrastructure	Low level	3.03	0.89	-8.92	<0.001**
	High level	3.78	0.69		
Business Environment	Low level	2.71	0.83	-8.52	<0.001**
	High level	3.43	0.80		
Research and Development	Low level	2.50	0.84	-7.73	<0.001**
	High level	3.16	0.80		
Entrepreneurial Culture	Low level	2.66	0.87	-7.17	<0.001**
	High level	3.31	0.86		

***denotes significant at 1% level*

The independent t-test explores differences in perceptions of entrepreneurs who received low-level versus high-level support services across nine entrepreneurial ecosystem factors. All comparisons are statistically significant at the 1% level ($p < 0.001$), showing consistent differences. In finance factor, the mean score rises from 2.14 (low) to 3.00 (high), with a t-value of -8.87. Business support system exhibits a strong increase from 2.75 to 3.67 (t = -10.21). For policy environment, the mean rises from 2.77 to 3.32 (t = -5.99), and for markets, from 2.70 to 3.36 (t = -7.42). Human capital improves from 2.65 to 3.20 (t = -5.68), infrastructure from 3.03 to 3.78 (t = -8.92), business

environment from 2.71 to 3.43 (t = -8.52), research and development from 2.50 to 3.16 (t = -7.73), and entrepreneurial culture from 2.66 to 3.31 (t = -7.17). In all cases, entrepreneurs who attained high-level support services report significantly higher satisfaction and better perceptions across all ecosystem factors.

These results suggest that high-level support services are far more effective in fostering a strong entrepreneurial ecosystem in Kerala. Entrepreneurs benefiting from such services perceive greater financial access, stronger institutional and infrastructure support, improved human capital resources, and a more conducive policy and business environment. Conversely, low-level support services appear insufficient in fully addressing the needs and expectations of entrepreneurs. This highlights the importance of investing in quality, scale, and reach of entrepreneurial support services, ensuring they are well-resourced, responsive, and impactful across all operational levels.

The null hypothesis, which posits that no substantial difference exists between low-level and high-level support services regarding the variables of the entrepreneurial environment in Kerala, is rejected for all nine factors. All p-values are less than 0.001, and the t-values are statistically significant, affirming that the level of support services significantly influences perceptions of entrepreneurs across all ecosystem components. These findings underscore the need to upgrade and standardize support services to ensure that all entrepreneurs, regardless of their access level benefit from a strong and enabling entrepreneurial ecosystem.

Section C

Variation in Entrepreneurial Ecosystem Views across Organisational Properties

The following factors of organizational properties are used for cross comparison analysis with the Entrepreneurial Ecosystem.

1) Form of organization
2) Capital Investment
3) Size of industry

4) Scope of sales
5) Location of the firm
6) Year of establishment

4.II.C.1 Variation in Entrepreneurial Ecosystem views across Form of Organisation

Ho: There is no significant difference between private company and partnership company with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.19

Independent T test for significant difference between private company and partnership company with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Form of Organization	Mean	SD	t-value	P value
Finance	Private Company	2.50	1.08	-0.34	0.728^{NS}
	Partnership	2.55	0.80		
Business Support System	Private Company	3.25	0.99	4.19	<0.001**
	Partnership	2.74	0.87		
Policy Environment	Private Company	3.06	0.94	2.13	0.034*
	Partnership	2.81	0.87		
Markets	Private Company	3.04	0.93	2.23	0.026*
	Partnership	2.78	0.77		
Human Capital	Private Company	2.93	1.02	1.60	0.110^{NS}
	Partnership	2.73	0.77		
Infrastructure	Private Company	3.45	0.88	4.34	<0.001**
	Partnership	2.97	0.82		
Business Environment	Private Company	3.08	0.90	2.32	0.021*
	Partnership	2.82	0.82		
Research and Development	Private Company	2.81	0.88	1.01	0.311^{NS}
	Partnership	2.70	0.90		
Entrepreneurial Culture	Private Company	3.01	0.92	2.66	0.008**
	Partnership	2.70	0.87		

***denotes significant at 1% level; *denotes significant at 5% level; ^{NS} denotes Not Significant*

The independent sample t-test compared private companies and partnership firms on various entrepreneurial ecosystem factors. The results demonstrate significant differences in several areas. For instance, business support system displays a strong significant difference ($t = 4.19$, $p < 0.001$), with private companies stating a higher mean score ($M = 3.25$) than partnerships ($M = 2.74$). Similarly, policy environment ($t = 2.13$, $p = 0.034$), markets ($t = 2.23$, $p = 0.026$), infrastructure ($t = 4.34$, $p < 0.001$), business environment ($t = 2.32$, $p = 0.021$), and entrepreneurial culture ($t = 2.66$, $p = 0.008$) also show significantly higher mean values for private companies compared to partnerships. On the other hand, no significant differences were found in finance ($p = 0.728$), human capital ($p = 0.110$), and research & development ($p = 0.311$), though private companies still had slightly higher mean scores.

These results recommends that private companies in Kerala perceive stronger support from the entrepreneurial ecosystem in terms of institutional and environmental factors such as infrastructure, policy, and market access compared to partnership firms. This could be due to better access to formal support channels, higher scalability potential, and more structured governance frameworks in private companies. Yet, both organizational types perceive similar levels of access to finance and human capital, indicating these are broader ecosystem challenges rather than form specific barriers. The greater ratings in entrepreneurial culture and business environment among private companies imply a more conducive innovation and growth mindset, which is essential for sustaining enterprise success.

The null hypothesis, which stated that there is no significant difference between private companies and partnership firms with respect to the entrepreneurial ecosystem, is partially rejected. It is rejected for the factors: business support system, policy environment, markets, infrastructure, business environment, and entrepreneurial culture as significant differences exist. However, the hypothesis is accepted for finance, human capital, and research and development, where the differences were statistically non-significant. This implies that while

some aspects of the ecosystem are uniformly experienced, others are clearly influenced by the form of organization.

4.II.C.2 Variation in Entrepreneurial Ecosystem views across Capital Investment

Ho: There is no significant difference between organizations having capital investment of up to 10 lakhs and those having 11 to 99 lakhs with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.20

Independent T test for significant difference between organizations having capital investment of up to 10 lakhs and those having11 to 99 lakhs with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Capital Investment	Mean	SD	t-value	P value
Finance	Up to 10Lakhs	2.56	1.04	1.10	0.272^{NS}
	11 to 99Lakhs	2.44	1.01		
Business Support System	Up to 10Lakhs	3.10	1.03	-1.25	0.212^{NS}
	11 to 99Lakhs	3.23	0.90		
Policy Environment	Up to 10Lakhs	3.02	0.98	0.28	0.779^{NS}
	11 to 99Lakhs	2.99	0.85		
Markets	Up to 10Lakhs	2.95	0.91	-0.99	0.322^{NS}
	11 to 99Lakhs	3.04	0.90		
Human Capital	Up to 10Lakhs	2.95	1.03	1.40	0.161^{NS}
	11 to 99Lakhs	2.80	0.90		
Infrastructure	Up to 10Lakhs	3.37	0.88	0.51	0.606^{NS}
	11 to 99Lakhs	3.32	0.91		
Business Environment	Up to 10Lakhs	3.03	0.94	0.23	0.811^{NS}
	11 to 99Lakhs	3.01	0.81		
Research and Development	Up to 10Lakhs	2.79	0.90	0.19	0.845^{NS}
	11 to 99Lakhs	2.78	0.85		
Entrepreneurial Culture	Up to 10Lakhs	2.93	0.97	-0.44	0.659^{NS}
	11 to 99Lakhs	2.97	0.84		

^{NS} *denotes Not Significant*

The independent sample t-test results display that there is no statistically significant difference between organizations with capital investment up to ₹10 lakhs and those between ₹11 to 99 lakhs in any of the nine measured factors of the entrepreneurial ecosystem in Kerala. All p-values are above the level of 0.05, indicating non-significance. However, a comparison of mean scores shows some interesting patterns. Organizations with lower capital investment scored slightly greater in finance (2.56 vs. 2.44), policy environment (3.02 vs. 2.99), human capital (2.95 vs. 2.80), infrastructure (3.37 vs. 3.32), business environment (3.03 vs. 3.01), and research & development (2.79 vs. 2.78). In contrast, organizations with higher capital investment reported slightly better mean scores in business support system (3.23 vs. 3.10), markets (3.04 vs. 2.95), and entrepreneurial culture (2.97 vs. 2.93). Regardless of these variations, none of the differences reached statistical significance.

The results reveal that capital investment alone does not significantly influence how organizations perceive or access components of the entrepreneurial ecosystem in Kerala. The near-similar mean scores reflect a relatively uniform experience across funding levels, implying that both micro and small enterprises encounter similar levels of support and challenges from the ecosystem. This has practical implications for policymakers and ecosystem developers' interventions and resources should be inclusive and targeted equally across investment scales, as small-scale enterprises (under ₹10 lakhs) and moderately capitalized enterprises (₹11to 99 lakhs) do not show marked experiential disparities.

Since none of the factors of the entrepreneurial ecosystem displayed statistically significant differences between the two groups (all p-values > 0.05), the null hypothesis is accepted. This means that there is no significant difference between organizations having capital investment of up to ₹10 lakhs and those with ₹11 to 99 lakhs regarding their experience or perception of the entrepreneurial ecosystem in Kerala.

4.II.C.3 Variation in Entrepreneurial Ecosystem views across Size of Industry

Ho: There is no significant difference among size of industry with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.21

ANOVA for significant difference among size of industry with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Size of Industry	Mean	SD	F value	p value
Finance	Small	2.55	1.02	4.25	0.015*
	Medium	2.62	1.02		
	Large	2.02	1.07		
Business Support System	Small	3.15	1.02	0.00	0.996^{NS}
	Medium	3.16	0.87		
	Large	3.16	0.88		
Policy Environment	Small	2.96	0.94	2.19	0.113^{NS}
	Medium	3.08	0.79		
	Large	3.31	0.99		
Markets	Small	2.98	0.91	0.33	0.714^{NS}
	Medium	3.07	0.77		
	Large	2.91	1.05		
Human Capital	Small	2.88	0.94	0.29	0.743^{NS}
	Medium	2.97	0.99		
	Large	2.81	1.30		
Infrastructure	Small	3.30	0.89	3.11	0.045*
	Medium	3.50	0.96		
	Large	3.65	0.71		
Business Environment	Small	2.99	0.90	0.89	0.409^{NS}
	Medium	3.16	0.84		
	Large	3.09	0.84		
Research and Development	Small	2.80	0.90	1.41	0.243^{NS}
	Medium	2.83	0.81		
	Large	2.54	0.82		
Entrepreneurial Culture	Small	2.91	0.94	2.43	0.089^{NS}
	Medium	2.90	0.94		
	Large	3.29	0.67		

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The ANOVA results presented in the table analyse the statistical differences among small, medium, and large industries in relation to various factors of the entrepreneurial ecosystem in Kerala. Out of the nine ecosystem factors, two factors show statistically significant differences: finance ($F = 4.25$, $p = 0.015$) and infrastructure ($F = 3.11$, $p = 0.045$), as their p-values are below the 0.05 level. This suggests that the perception of entrepreneurs regarding finance and infrastructure support differs based on the size of their enterprise. The remaining factors, business support system ($p = 0.996$), policy environment ($p = 0.113$), markets ($p= 0.714$), human capital ($p= 0.743$), business environment ($p = 0.409$), research and development ($p = 0.243$), and entrepreneurial culture ($p= 0.089$) demonstrate non-significant p-values, suggesting no substantial variation across industry sizes for these dimensions.

The findings suggest that entrepreneurs perceive the finance and infrastructure components of the ecosystem differently depending on the size of their industry. This indicates that industry size likely influences how businesses experience or access these two elements, possibly due to variations in capacity, capital requirements, and infrastructure utilization. For the other ecosystem factors, the absence of statistically significant differences indicates that entrepreneurs, regardless of industry size, experience those dimensions in a broadly similar way. This emphasizes where targeted interventions are needed (finance and infrastructure) versus where common policy approaches may suffice (other ecosystem areas).

The hypothesis asserting that there is no substantial variation in industry size concerning the characteristics of the entrepreneurial ecosystem in Kerala, is partially refuted. Particularly, the hypothesis is rejected for the factors finance and infrastructure, as the p-values for these two are less than 0.05, indicating significant differences based on industry size. For all the other factors, the hypothesis is accepted, as no statistically significant differences were identified. This partial rejection highlights the need to address industry-size-specific disparities in financial and infrastructure support mechanisms.

Table 4.22

Post hoc for significant difference among size of industry with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Size of Industry (I)	Size of Industry (J)	Mean difference (I-J)	Std. error	p value
Finance	Small (Mean = 2.55)	Medium (Mean = 2.62)	-0.077	0.151	0.867^{NS}
		Large (Mean = 2.02)	0.531	0.190	0.015*
	Medium (Mean = 2.62)	Large (Mean = 2.02)	0.608	0.228	0.022*
Infrastructure	Small (Mean = 3.30)	Medium (Mean = 3.50)	-0.199	0.131	0.283^{NS}
		Large (Mean = 3.65)	-0.355	0.165	0.081^{NS}
	Medium (Mean = 3.50)	Large (Mean = 3.65)	-0.156	0.198	0.711^{NS}

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The table exhibits post hoc test results assessing differences in the entrepreneurial ecosystem factors finance and infrastructure among different sizes of industries (small, medium, and large). In case of the finance factor, two comparisons are statistically significant, between small and large industries (p = 0.015), and between medium and large industries (p = 0.022). These p-values are below the 0.05 threshold, stipulating significant differences. However, the difference between small and medium industries for finance (p = 0.867) is not significant. For the infrastructure factor, none of the pairwise comparisons are statistically significant, as all p-values are greater than 0.05 (e.g., small vs. large = 0.081, medium vs. large = 0.711), indicating uniform perception across industry sizes.

Looking at the finance factor, small industries stated a mean score of 2.55, medium industries 2.62, and large industries only 2.02. This shows that large industries have a noticeably lower opinion about financial support than both small and medium industries. The significant difference in mean values tells us that finance-related services and support are perceived more positively by smaller businesses, whereas larger ones might be facing greater challenges such as complex funding procedures, higher credit risks, or limited tailored financial schemes.

The findings highlight a key practical implication: larger industries in Kerala may experience more challenges related to financial support within the entrepreneurial ecosystem compared to their smaller counterparts. This could arise from stricter credit policies, higher funding requirements, and less favourable loan terms. Meanwhile, perceptions related to infrastructure remain consistent across all industry sizes, suggesting that infrastructure-related facilities are equitably accessed. Policymakers and startup missions should focus on enhancing financial access and support mechanisms especially for large-scale enterprises while continuing general infrastructure support across all industry categories.

4.II.C.4 Variation in Entrepreneurial Ecosystem views across Scope of Sales

Ho: There is no significant difference among scope of sales with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.23

ANOVA for significant difference among scope of sales with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Scope of Sales	Mean	SD	F value	p value
Finance	Regional	2.51	1.08	0.54	0.579^{NS}
	National	2.46	1.01		
	International	2.58	1.03		

Factors of Entrepreneurial Ecosystem	Scope of Sales	Mean	SD	F value	p value
Business Support System	Regional	2.75	1.16	4.81	0.009**
	National	3.23	0.98		
	International	3.18	0.90		
Policy Environment	Regional	2.75	1.09	3.75	0.024*
	National	2.97	0.89		
	International	3.15	0.90		
Markets	Regional	2.94	0.89	0.08	0.923^{NS}
	National	3.00	0.92		
	International	2.99	0.90		
Human Capital	Regional	2.76	1.07	0.48	0.619^{NS}
	National	2.90	0.95		
	International	2.91	0.99		
Infrastructure	Regional	3.05	1.01	3.25	0.040*
	National	3.40	0.86		
	International	3.40	0.88		
Business Environment	Regional	2.69	1.05	3.83	0.022*
	National	3.08	0.78		
	International	3.06	0.95		
Research and Development	Regional	2.69	1.02	0.38	0.681^{NS}
	National	2.81	0.79		
	International	2.78	0.94		
Entrepreneurial Culture	Regional	2.70	1.01	4.40	0.013*
	National	3.07	0.87		
	International	2.85	0.93		

***denotes significant at 1% level; *denotes significant at 5% level; ^{NS} denotes Not Significant*

The ANOVA table examines whether entrepreneurs' perceptions of various entrepreneurial ecosystem factors differ based on the scope of their sales (regional, national, and international). Out of the nine factors, five show statistically significant differences, business support system ($F = 4.81$, $p = 0.009$), policy environment ($F = 3.75$, $p = 0.024$), infrastructure ($F = 3.25$, $p = 0.040$), business environment ($F = 3.83$, $p= 0.022$), and entrepreneurial culture ($F = 4.40$, $p = 0.013$). Each of these has a

p-value less than 0.05, suggesting statistically significant variation based on sales scope. The remaining factors finance ($p = 0.579$), markets ($p = 0.923$), human capital ($p = 0.619$), and research and development ($p = 0.681$) exhibit no significant differences, as their p-values exceed the 0.05 threshold.

The results stipulate that perceptions of entrepreneurs' support systems, policy framework, infrastructure, business environment, and entrepreneurial culture are influenced by the extent of their business reach whether operating regionally, nationally, and internationally. This suggests that as businesses expand beyond the local level, their interaction with and exposure to these ecosystem components changes. At the same time, factors such as finance, market dynamics, human capital, and research and development are experienced similarly across different sales scopes, indicating a relatively consistent perception regardless of the geographic coverage of business.

The null hypothesis, which asserts that there is no significant difference among scope of sales with respect to the factors of the entrepreneurial ecosystem in Kerala, is partially rejected. It is rejected for five factors business support system, policy environment, infrastructure, business environment, and entrepreneurial culture where significant differences are identified ($p < 0.05$). For the remaining four factors finance, markets, human capital, and research and development the hypothesis is accepted as no significant differences are observed. This partial rejection indicates that some elements of the ecosystem are perceived differently depending on how widely the enterprise operates.

Table 4.24

Post hoc for significant difference among scope of sales with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Scope of Sales (I)	Scope of Sales(J)	Mean difference (I-J)	Std. error	p value
Business Support System	Regional (Mean = 2.75)	National (Mean = 3.23)	0.045	0.167	0.961^{NS}
		International (Mean = 3.18)	-0.074	0.172	0.903^{NS}
	National (Mean = 3.23)	International (Mean = 3.18)	-0.119	0.114	0.549^{NS}
Policy Environment	Regional (Mean = 2.75)	National (Mean = 2.97)	-0.222	0.149	0.299^{NS}
		International (Mean = 3.15)	-0.402	0.154	0.026*
	National (Mean = 2.97)	International (Mean = 3.15)	-0.180	0.102	0.182^{NS}
Infrastructure	Regional (Mean = 3.05)	National (Mean = 3.40)	-0.348	0.143	0.041*
		International (Mean = 3.40)	-0.350	0.148	0.048*
	National (Mean = 3.40)	International (Mean = 3.40)	-0.001	0.097	1.000^{NS}
Business Environment	Regional (Mean = 2.69)	National (Mean = 3.08)	-0.385	0.143	0.021*
		International (Mean = 3.06)	-0.371	0.148	0.034*
	National (Mean = 3.08)	International (Mean = 3.06)	0.013	0.098	0.989^{NS}
Entrepreneurial Culture	Regional (Mean = 2.70)	National (Mean = 3.07)	-0.371	0.148	0.033*
		International (Mean = 2.85)	-0.143	0.152	0.616^{NS}
	National (Mean = 3.07)	International (Mean = 2.85)	0.228	0.101	0.064^{NS}

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The post hoc analysis examines the differences in entrepreneurial ecosystem factors across entrepreneurs with different scope of sales regional, national, and international. Among the comparisons, the following cases are statistically significant at the 5% level, policy environment: regional vs. international ($p = 0.026$), infrastructure: regional vs. national ($p = 0.041$), and regional vs. international ($p = 0.048$), business environment: regional vs. national ($p = 0.021$), and regional vs. international ($p = 0.034$), entrepreneurial culture: regional vs. national($p=0.033$). Other comparisons such as business support system (all $p>0.5$), policy environment (national vs. international: $p=0.182$), and entrepreneurial culture (national vs. international: $p=0.064$) are not statistically significant.

In case of policy environment, international businesses (mean = 3.15) reported significantly higher perception compared to regional businesses (mean = 2.75). For infrastructure, both national and international businesses (mean = 3.40) scored higher than regional businesses (mean = 3.05). In business environment, national (mean = 3.08) and international (mean = 3.06) businesses rated the ecosystem more favorably than regional firms (mean = 2.69). In the same manner, for entrepreneurial culture, national-level entrepreneurs (mean = 3.07) expressed a stronger positive perception than regional entrepreneurs (mean = 2.70). These comparisons express that entrepreneurs operating on a broader (national or international) scale perceive key ecosystem factors more positively than those who operate only regionally.

The findings accurately suggest that regional entrepreneurs feel less supported or connected to the entrepreneurial ecosystem in areas like policy environment, infrastructure, business environment, and entrepreneurial culture. This may be due to limited exposure, fewer institutional linkages, or weaker support mechanisms at the local level. Alternatively, national and international businesses are likely benefiting from stronger ecosystem services, possibly due to better access to networks, infrastructure, and government support. These insights emphasize the need for localized policy interventions and ecosystem strengthening at the regional level, so that regional entrepreneurs can experience similar levels of support and opportunity as their nationally or internationally operating counterparts.

4.II.C.5 Variation in Entrepreneurial Ecosystem Views Across Location of the Firm

Ho: There is no significant difference among location of the firm with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.25

ANOVA for significant difference among location of the firm with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Location of the Firm	Mean	SD	F value	p value
Finance	Corporation	2.33	0.95	4.25	0.015*
	Municipality	2.62	1.13		
	Panchayath	2.66	1.01		
Business Support System	Corporation	3.05	0.96	1.56	0.210^{NS}
	Municipality	3.16	0.98		
	Panchayath	3.27	1.01		
Policy Environment	Corporation	3.01	1.03	0.01	0.982^{NS}
	Municipality	3.02	0.83		
	Panchayath	3.00	0.87		
Markets	Corporation	2.99	0.95	0.17	0.842^{NS}
	Municipality	2.95	0.89		
	Panchayath	3.02	0.87		
Human Capital	Corporation	2.99	0.94	1.44	0.237^{NS}
	Municipality	2.81	1.04		
	Panchayath	2.83	0.96		
Infrastructure	Corporation	3.46	0.91	2.16	0.116^{NS}
	Municipality	3.23	0.85		
	Panchayath	3.33	0.90		
Business Environment	Corporation	3.00	0.91	0.25	0.779^{NS}
	Municipality	3.07	0.83		
	Panchayath	3.01	0.92		
Research and Development	Corporation	2.80	0.88	0.30	0.739^{NS}
	Municipality	2.82	0.83		
	Panchayath	2.73	0.94		
Entrepreneurial Culture	Corporation	3.00	0.98	0.50	0.605^{NS}
	Municipality	2.90	0.91		
	Panchayath	2.91	0.86		

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The ANOVA results assesses whether the location of the firm (corporation, municipality, or panchayath) leads to significant differences in entrepreneurs' perceptions of various factors of the entrepreneurial ecosystem in Kerala. Among the nine factors, only one, finance shows a statistically significant difference ($F = 4.25$, $p = 0.015$), as the p-value is below the 0.05 threshold. All other ecosystem factors including business support system ($p = 0.210$), policy environment ($p= 0.982$), markets ($p= 0.842$), human capital ($p = 0.237$), infrastructure ($p = 0.116$), business environment ($p = 0.779$), research and development ($p = 0.739$), and entrepreneurial culture ($p = 0.605$) demonstrate non-significant p-values, indicating no substantial differences in these factors based on firm location.

The findings indicate that perception of entrepreneurs in financial support mechanisms significantly differs depending on whether their firms are located in corporation, municipality, and panchayath areas. This specifies that access to and satisfaction with finance-related services is not consistent across locations. However, for all other ecosystem dimensions such as infrastructure, markets, policy environment, human capital, business environment, research and development, entrepreneurial culture and business support systems, the location of the firm does not appear to influence how entrepreneurs experience or rate these factors. This points to a relatively uniform entrepreneurial environment in Kerala for most ecosystem elements, except finance.

The null hypothesis, which posits that no substantial difference exists among firms' location concerning the characteristics of the entrepreneurial ecosystem in Kerala, is partially rejected. It is rejected for the finance factor due to its statistically significant p-value (0.015). For all other ecosystem factors, the p-values are above 0.05, meaning the hypothesis is accepted for those. This partial rejection highlights the need for location-specific enhancements and equalization in financial services to ensure fair support across different types of local governance areas.

Table 4.26

Post hoc for significant difference among location of the firm with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Location of the Firm(I)	Location of the Firm(J)	Mean difference (I-J)	Std. error	p value
Finance	Corporation (Mean = 2.33)	Municipality (Mean = 2.62)	-0.288	0.125	0.059^{NS}
		Panchayath (Mean = 2.66)	-0.329	0.126	0.026*
	Municipality (Mean = 2.62)	Panchayath (Mean = 2.66)	-0.040	0.136	0.952^{NS}

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The post hoc test examines whether perception of entrepreneurs of the finance component of the entrepreneurial ecosystem significantly differs across firms located in corporation, municipality, and panchayath areas. Among the comparisons, a statistically significant difference is found only between corporation and panchayath areas (p = 0.026), specifying a meaningful variation in perception. Yet, the comparisons between corporation and municipality (p = 0.059) and municipality and panchayath (p = 0.952) are not statistically significant, suggesting similar perceptions of finance support in those pairs.

In the significant comparison between corporation (mean = 2.33) and panchayath (mean = 2.66), the mean score is noticeably lower for firms located in corporation areas. This exhibits that entrepreneurs in panchayath regions perceive the financial support environment more favourably than those in urban corporation areas. The positive perception in panchayath areas could be due to targeted rural and semi-urban funding schemes, local-level outreach, or better awareness and access to grassroots financial assistance programs, while entrepreneurs in corporation zones may find formal financial systems more rigid or less inclusive.

This result emphasizes a critical insight: location matters when it comes to the perception of financial support, particularly between highly urbanized corporation areas and more rural panchayath areas. Entrepreneurs in corporation areas may be

experiencing more competitive, bureaucratic, and standardized financial systems that do not adequately address their needs. Conversely, panchayath-based firms may be benefiting from locally implemented development schemes or microfinance initiatives. These findings suggest the need for policy-level customization, urban financial support structures may require simplification or greater flexibility, while successful models from rural areas could be adapted and scaled to urban settings to enhance inclusivity and effectiveness.

4.II.C.6 Variation in Entrepreneurial Ecosystem views across Year of Establishment

Ho: There is no significant difference between ventures established below 5 years and those above 5 years with respect to the factors of the entrepreneurial ecosystem in Kerala.

Table 4.27

Independent T test for significant difference ventures established below 5 years and those above 5 years in terms of the factors of the entrepreneurial ecosystem in Kerala.

Factors of Entrepreneurial Ecosystem	Year of Establishment	Mean	SD	t-value	p value
Finance	Below 5 years	2.50	1.02	-0.31	0.752^{NS}
	Above 5 years	2.54	1.05		
Business Support System	Below 5 years	3.08	0.99	-2.25	0.025*
	Above 5 years	3.33	0.94		
Policy Environment	Below 5 years	3.02	0.94	0.32	0.747^{NS}
	Above 5 years	2.98	0.91		
Markets	Below 5 years	3.00	0.89	0.45	0.646^{NS}
	Above 5 years	2.95	0.96		
Human Capital	Below 5 years	2.86	0.96	-0.95	0.341^{NS}
	Above 5 years	2.96	1.02		
Infrastructure	Below 5 years	3.35	0.89	-0.26	0.790^{NS}
	Above 5 years	3.37	0.89		
Business Environment	Below 5 years	3.05	0.89	0.79	0.428^{NS}
	Above 5 years	2.97	0.90		
Research and Development	Below 5 years	2.83	0.81	1.58	0.114^{NS}
	Above 5 years	2.67	1.03		
Entrepreneurial Culture	Below 5 years	2.95	0.91	0.27	0.782^{NS}
	Above 5 years	2.92	0.96		

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The Independent T-test results disclose that, among the nine factors of the entrepreneurial ecosystem, only one factor, business support system shows a statistically significant difference ($p = 0.025 < 0.05$) between ventures established below 5 years and those above 5 years. The mean score for business support system is higher for ventures older than 5 years ($M = 3.33$) compared to newer ventures ($M = 3.08$), stating that older businesses perceive better support systems. For the remaining eight factors (finance, policy environment, markets, human capital, infrastructure, business environment, research & development, and entrepreneurial culture), p-values are all above 0.05, specifying no significant differences based on years of establishment. The mean scores for these factors also display only minimal variation between the two groups.

In simple words, the only area where a meaningful difference exists is in the business support system, implying that newer ventures may not be experiencing the same level of institutional and infrastructural support (such as mentoring, incubation, or networking assistance) as more established ventures. This states the need for targeted support mechanisms for start-ups and young businesses to bridge the gap. For other factors such as access to finance, human capital, infrastructure, and policy environment, the perceptions are relatively consistent regardless of the age of business, which indicates that entrepreneurial ecosystem in Kerala offers a fairly uniform experience in most areas.

Based on the statistical findings, the null hypothesis is partially rejected with respect to the business support system, where a significant difference was found. Yet, it is accepted for all other factors as no significant differences were observed. Hence, the overall conclusion is that the entrepreneurial ecosystem is perceived similarly by both younger and older ventures, except in the area of business support services where more attention is needed for newer enterprises.

Section D

Variations in Perception of the Entrepreneurial Ecosystem Based on Socio-Demographic Profile of the Entrepreneurs

The following socio-demographic factors are used for cross comparison analysis pf Entrepreneurial ecosystem.

- Gender
- Age
- Educational qualification

4.II.D.1 Variations in Perception of the Entrepreneurial Ecosystem based on Gender

Ho: There is no significant difference between male and female entrepreneurs with respect to factors of entrepreneurial ecosystem in Kerala

Table 4.28

Independent T test for significant difference between male and female entrepreneurs with respect to factors of entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Gender	Mean	SD	t-value	p value
Finance	Male	2.47	1.01	-2.26	0.024*
	Female	2.83	1.10		
Business Support System	Male	3.14	0.96	-0.29	0.765^{NS}
	Female	3.19	1.12		
Policy Environment	Male	3.03	0.92	1.30	0.191^{NS}
	Female	2.84	1.00		
Markets	Male	2.98	0.90	-0.18	0.855^{NS}
	Female	3.01	0.96		
Human Capital	Male	2.90	0.97	0.45	0.648^{NS}
	Female	2.83	1.05		
Infrastructure	Male	3.36	0.88	0.55	0.583^{NS}
	Female	3.29	0.93		
Business Environment	Male	3.03	0.89	0.07	0.940^{NS}
	Female	3.02	0.90		
Research and Development	Male	2.76	0.88	-1.39	0.164^{NS}
	Female	2.95	0.87		
Entrepreneurial Culture	Male	2.93	0.93	-0.52	0.598^{NS}
	Female	3.01	0.87		

**Denotes significant at 5% level; ^{NS} denotes Not Significant*

The independent t-test results show that among the nine factors of the entrepreneurial ecosystem, only finance displays a statistically significant difference between male and female entrepreneurs in Kerala. Female entrepreneurs demonstrated a higher mean score (Mean = 2.83, SD = 1.10) compared to males (Mean = 2.47, SD = 1.01), with a t-value of -2.26 and a p-value of 0.024, which is significant at the 5% level. This indicates that females perceive better access to or satisfaction with financial resources than their male counterparts. For all other factors, including business support system, policy environment, markets, human capital, infrastructure, business environment, research and development, and entrepreneurial culture the p-values are greater than 0.05, indicating no significant difference between the genders. The mean scores across these variables are also closely aligned, reinforcing the absence of gender-based disparity in these areas.

In other words, the only notable gender-based difference relates to finance, where female entrepreneurs perceive more positive access or outcomes. This may be due to targeted financial schemes, subsidies, or support mechanisms designed specifically for women entrepreneurs in Kerala. On the other hand, the lack of significant differences in other areas recommends that the entrepreneurial ecosystem is broadly uniform for both male and female entrepreneurs in terms of infrastructure, policy environment, support systems, and cultural perception. This is a positive indicator of gender neutrality in most ecosystem services and reflects the inclusive nature of entrepreneurial development efforts in the state. Based on the statistical outcomes, the null hypothesis is rejected only in the case of the finance factor. For all other ecosystem components, the hypothesis is accepted, as no statistically significant differences were observed. Therefore, the overall hypothesis is partially rejected, reporting gender-based differences in perceptions of financial support, but not in the broader entrepreneurial ecosystem.

4.II.D.2 Variations in Perception of the Entrepreneurial Ecosystem based on Age of the Entrepreneurs

Ho: There is no significant difference among ages of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.29

ANOVA for significant difference among ages of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Age	Mean	SD	F value	p value
Finance	20 to 35	2.33	1.01	6.17	0.002**
	36 to 50	2.70	0.99		
	>50	2.35	1.10		
Business Support System	20 to 35	2.95	1.03	5.19	0.006**
	36 to 50	3.30	0.96		
	>50	3.13	0.84		
Policy Environment	20 to 35	2.93	0.93	0.79	0.454^{NS}
	36 to 50	3.05	0.98		
	>50	3.07	0.74		
Markets	20 to 35	2.86	0.97	2.93	0.054^{NS}
	36 to 50	3.10	0.87		
	>50	2.94	0.83		
Human Capital	20 to 35	2.84	0.97	1.19	0.305^{NS}
	36 to 50	2.96	1.01		
	>50	2.76	0.90		
Infrastructure	20 to 35	3.30	0.90	0.46	0.628^{NS}
	36 to 50	3.39	0.87		
	>50	3.38	0.93		
Business Environment	20 to 35	2.91	0.93	1.92	0.147^{NS}
	36 to 50	3.10	0.90		
	>50	3.05	0.73		
Research and Development	20 to 35	2.77	0.82	0.18	0.829^{NS}
	36 to 50	2.81	0.99		
	>50	2.75	0.57		
Entrepreneurial Culture	20 to 35	2.78	0.93	3.63	0.027*
	36 to 50	3.04	0.92		
	>50	3.04	0.87		

***denotes significant at 1% level;*denotes significant at 5% level; ^{NS} denotes Not Significant*

The analysis of variance (ANOVA) test results suggests that among the nine factors of the entrepreneurial ecosystem, only three show statistically significant differences based on the age groups of entrepreneurs. These are finance ($p = 0.002$), business support system ($p = 0.006$), and entrepreneurial culture ($p = 0.027$). These p-values are below the standard significance levels of 0.01 and 0.05, indicating meaningful differences in how these factors are perceived across age groups. On the other hand, the remaining six factors policy environment ($p = 0.454$), markets ($p = 0.054$), human capital ($p = 0.305$), infrastructure ($p = 0.628$), business environment ($p = 0.147$), and research and development ($p = 0.829$) do not show statistically significant variation, as their p-values exceed the 0.05 level.

The findings specify that certain factors of the entrepreneurial ecosystem are perceived differently by entrepreneurs of different age groups, particularly in terms of access to finance, the support they receive from business systems, and the cultural environment for entrepreneurship. This indicates that age may influence interaction of entrepreneurs with and expectations from the ecosystem in these specific domains. However, for the majority of the ecosystem components, including policy environment, human capital, infrastructure, market access, business environment and research and development perceptions appear to be consistent across all age groups. This could imply that these factors are more uniformly available and experienced regardless of age, pointing to a relatively standardized ecosystem in those areas.

The null hypothesis, which posits that there is no significant difference among age groups of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala, is partially rejected. It is rejected for the factors finance, business support system, and entrepreneurial culture due to statistically significant differences. However, it is accepted for the remaining six factors that is policy environment, human capital, infrastructure, market access, business environment and research and development where no significant variation was found. Hence, age

appears to be a differentiating factor for certain ecosystem experiences, but not across the board.

Table 4.30

Post Hoc Test for measuring the exact significant difference among ages of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Age (I)	Age (J)	Mean difference (I-J)	Std. error	p value
Finance	20 to 35 (Mean = 2.33)	36 to 50 (Mean = 2.70)	-0.372	0.113	0.003**
		>50 (Mean = 2.35)	-0.023	0.161	0.988^{NS}
	36 to 50 (Mean = 2.70)	>50 (Mean = 2.35)	0.348	0.155	0.065^{NS}
Business Support System	20 to 35 (Mean = 2.95)	36 to 50 (Mean = 3.30)	-0.351	0.109	0.004**
		>50 (Mean = 3.13)	-0.173	0.154	0.500^{NS}
	36 to 50 (Mean = 3.30)	>50 (Mean = 3.13)	0.177	0.148	0.459^{NS}
Entrepreneurial Culture	20 to 35 (Mean = 2.78)	36 to 50 (Mean = 3.04)	-0.261	0.102	0.030*
		>50 (Mean = 3.04)	-0.266	0.145	0.160^{NS}
	36 to 50 (Mean = 3.04)	>50 (Mean = 3.04)	-0.005	0.139	0.999^{NS}

***denotes significant at 1% level;*denotes significant at 5% level; ^{NS} denotes Not Significant*

The post hoc test (Tukey HSD) results show significant differences among certain age groups of entrepreneurs concerning three factors of the entrepreneurial ecosystem: finance, business support system, and entrepreneurial culture. Among these, significant differences were identified between the age group 20 to 35 and 36

to 50 for all three factors finance (p = 0.003), business support system (p = 0.004), and entrepreneurial culture (p = 0.030). Yet, the comparisons between other age groups (20 to 35 vs. >50 and 36 to 50 vs. >50) are not statistically significant, with p-values well above 0.05.

In the case of finance, the mean score for the age group 36 to 50 is 2.70, which is significantly greater than that of the 20 to 35 group (2.33), showing a mean difference of -0.372. For business support system, entrepreneurs in the ages of 36 to 50 again score higher (3.30) compared to those aged 20 to 35 (2.95) with a mean difference of -0.351. Finally, for entrepreneurial culture, the age group 36 to 50 records a higher mean (3.04) than the 20 to 35 group (2.78), with a mean difference of -0.261. These findings suggest that entrepreneurs aged 36 to 50 have a more favorable perception or experience regarding finance access, business support, and entrepreneurial culture compared to younger entrepreneurs.

The results indicate that entrepreneurs in the mid-age group (36 to 50) perceive stronger support from the ecosystem, especially in key areas like finance, institutional backing, and cultural encouragement for entrepreneurship. This may be due to their more extensive experience, established networks, and credibility with financial and support institutions compared to younger entrepreneurs. Younger entrepreneurs (20 to 35) may experience challenges in accessing financial resources or tapping into formal business support systems, possibly due to limited track records or business maturity. These insights highlight the need for targeted interventions to empower younger entrepreneurs with better ecosystem integration, particularly in the early stages of their entrepreneurial journey.

4.II.D.3 Variations in Perception of the Entrepreneurial Ecosystem based on Education of the Entrepreneurs

Ho: There is no significant difference among education of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala

Table 4.31

ANOVA for significant difference among education of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Educational Qualification	Mean	SD	F value	p value
Finance	Degree	2.66	1.10	2.44	0.088^{NS}
	PG	2.41	0.98		
	Professional	2.47	0.94		
Business Support System	Degree	3.25	0.99	1.23	0.291^{NS}
	PG	3.09	1.00		
	Professional	3.07	0.92		
Policy Environment	Degree	3.12	0.87	2.10	0.124^{NS}
	PG	2.95	0.98		
	Professional	2.87	0.90		
Markets	Degree	3.08	0.97	4.00	0.019*
	PG	2.85	0.92		
	Professional	3.17	0.51		
Human Capital	Degree	2.95	1.00	0.50	0.603^{NS}
	PG	2.84	1.00		
	Professional	2.91	0.83		
Infrastructure	Degree	3.43	0.83	2.21	0.110^{NS}
	PG	3.35	0.92		
	Professional	3.13	0.92		
Business Environment	Degree	3.09	0.89	0.72	0.485^{NS}
	PG	2.97	0.88		
	Professional	3.01	0.95		
Research and Development	Degree	2.85	0.83	0.69	0.498^{NS}
	PG	2.75	0.93		
	Professional	2.73	0.84		
Entrepreneurial Culture	Degree	3.04	0.87	1.25	0.287^{NS}
	PG	2.89	0.98		
	Professional	2.85	0.84		

**denotes significant at 5% level; ^{NS} denotes Not Significant*

The table represents the Analysis of Variance (ANOVA) results examining whether there are significant differences in perceptions of the entrepreneurial ecosystem factors based on the educational qualifications of entrepreneurs. Among the nine ecosystem factors, only the factor "markets" displays a statistically significant difference across education levels, with an F-value of 4.00 and a p-value of 0.019, which is below the 0.05 threshold for significance. All other factors, including finance ($p = 0.088$), business support system ($p = 0.291$), policy environment ($p = 0.124$), human capital ($p = 0.603$), infrastructure ($p = 0.110$), business environment ($p = 0.485$), research and development ($p = 0.498$), and entrepreneurial culture ($p = 0.287$), demonstrate non-significant results, indicating that educational qualification does not create a statistically significant difference in these areas.

The results suggest that entrepreneurs across different educational backgrounds whether holding a degree, postgraduate qualification, and professional qualification generally perceive the majority of entrepreneurial ecosystem factors similarly. Yet, the perception about the market factor differs significantly among them, implying that educational background might influence how entrepreneurs' access, analyse, and respond to market dynamics. This is a practically important insight for policymakers and startup support agencies, as it indicates the need to tailor market-related training and support based on educational levels, possibly due to varying competencies in market analysis and strategic marketing exposure. For the other ecosystem components, similar perceptions across educational groups may indicate that these services or challenges are experienced uniformly, regardless of educational background.

The hypothesis asserting that there is no substantial difference in the education of entrepreneurs concerning the characteristics partially disproven. It is rejected only in the case of the markets factor where a significant difference ($p = 0.019$) is observed. For all other factors, the p-values are greater than 0.05, stating non-significant differences; hence, the hypothesis is accepted for those factors. So, the null hypothesis does not hold for the markets domain but remains valid across the other components of the ecosystem.

Table 4.32

Post hoc for significant difference among education of entrepreneurs with respect to the factors of the entrepreneurial ecosystem in Kerala

Factors of Entrepreneurial Ecosystem	Educational Qualification(I)	Educational Qualification (J)	Mean difference (I-J)	Std. error	P value
Markets	Degree (Mean = 3.08)	PG (Mean = 2.85)	0.231	0.099	0.001**
		Professional (Mean = 3.17)	-0.090	0.145	0.808^{NS}
	PG (Mean = 2.85)	Professional (Mean = 3.17)	-0.322	0.142	0.001**

*^{NS} denotes Not Significant; ** 1% significant*

The post hoc analysis evaluates whether educational qualification leads to significant differences in perceptions of the markets factor in the entrepreneurial ecosystem. The results exhibit two statistically significant differences: between degree and postgraduate (PG) holders (p= 0.001) and between PG and professional degree holders (p = 0.001), both at the 1% significance level. However, the comparison between degree and professional degree holders exhibits no significant difference (p = 0.808), indicating similar perceptions between these two groups regarding market-related factors.

The mean score for the markets factor is 3.08 for degree holders, 2.85 for PG holders, and 3.17 for professionals. The significant difference between degree and PG holders indicates that degree holders perceive market opportunities or access more positively than PG holders. In the same manner, the significant difference between PG and professional degree holders shows that professionals have a much more favourable view of market-related aspects compared to PG holders. These observations highlight that PG entrepreneurs tend to have a lower perception of market support or accessibility than the other two educational groups.

The practical view from this result is that entrepreneurs with postgraduate qualifications may feel less supported and less confident in navigating market dynamics compared to those with general and professional degrees. This could be

due to less practical exposure, limited field experience, or greater expectations not being met by the existing ecosystem. This insight calls for targeted interventions like market awareness programs, mentoring, or networking opportunities specifically designed for PG entrepreneurs to improve their market engagement and success within the entrepreneurial ecosystem.

4.II.5 Concluding Remarks

This Part has extensively examined the entrepreneurial ecosystem in Kerala, focusing on the role and influence of core support services provided by the Kerala Start-up Mission and the perceptional variations among entrepreneurs across multiple socio-demographic and organizational parameters. The analysis reveals that while some dimensions such as infrastructure and business support systems are positively perceived, there remain significant gaps in critical areas like finance, human capital, and research and development. The one-sample t-test highlighted these uneven developments, indicating that although the ecosystem has matured in certain aspects, it still demands targeted improvements to ensure holistic support for entrepreneurship. Furthermore, the results from independent t-tests and ANOVA demonstrated that the quality and intensity of engagement in schemes, programs, events, and support services significantly influence of the ecosystem.

In addition to institutional influence, the chapter also explored perceptual variations based on organizational properties (such as firm type, capital investment, and industry size) and socio-demographic attributes (like age, gender, and education). It was found that certain ecosystem components especially finance, infrastructure, and business support systems are experienced differently based on these factors. For example, younger entrepreneurs and those operating in regional or low-capital settings often perceived greater challenges, while those with broader market exposure or from older ventures reported more favourable experiences. These insights underscore the need for more inclusive, customized, and tier-sensitive policy frameworks to bridge perceptual and service gaps within the ecosystem. The findings collectively suggest that while entrepreneurial ecosystem in Kerala has a strong foundation, it must adopt a more

equitable and context-sensitive approach to strengthen the reach and efficacy of its support systems across all entrepreneurial segments.

Part **III**

PROFILING ENTREPRENEURIAL TRAITS IN KERALA: EXPLORING THE INFLUENCE OF SOCIO-DEMOGRAPHIC AND ORGANIZATIONAL CHARACTERISTICS

4.III.1 Introduction

Entrepreneurial success is not merely determined by access to financial capital or external support systems; it is deeply rooted in the psychological and behavioural traits of the entrepreneur. Factors such as attitude, motivation, self-efficacy, risk tolerance, and innovativeness are widely recognized as critical drivers of entrepreneurial behaviour and performance. These internal dispositions affect how entrepreneurs identify opportunities, manage uncertainty, overcome challenges, and introduce novel ideas. Understanding the levels of these traits among entrepreneurs is inherent for both academic inquiry and policy formulation, particularly in a diverse and evolving entrepreneurial landscape like Kerala. This section aims to systematically examine the distribution of these five key traits across the entrepreneurial population in the state.

Moreover, entrepreneurial characteristics do not operate in isolation, they often vary based on the personal and contextual background of the entrepreneur. Socio-demographic factors such as age, gender, education, and experience, along with organizational characteristics like type of firm, location, and years of establishment, can significantly impact the expression and development of entrepreneurial traits. By analyzing the associations between these traits and the socio-demographic and organizational profiles of entrepreneurs, this section gives valuable insights into the behavioural patterns shaping entrepreneurship in Kerala. The findings of this analysis are expected to support more tailored training, mentoring, and policy interventions aimed at promoting a resilient and innovative entrepreneurial ecosystem.

4.III.2 Objective Covered in Part III

Objective 3: To examine the levels of attitude, motivation, self-efficacy, risk tolerance and innovativeness among entrepreneurs in Kerala, and to analyse the association of these traits with their socio-demographic and organizational characteristics

4.III.3 Statistical Tools and Software Used

4.III.3.1 Descriptive Statistics

Descriptive analysis was conducted using both *frequency and percentage distributions* to illustrate the overall response patterns across key socio-demographic and organizational variables.

4.III.3.2 Inferential Statistics

To examine the presence of statistically significant relationships between entrepreneurial traits and the socio-demographic (such as age, gender, educational qualification, years of experience) and organizational characteristics (such as firm type, location, and year of establishment), inferential statistical methods were applied.

- The **Chi-square test for goodness of fit** was used to assess whether the observed distribution of levels of entrepreneurial traits significantly differed from expected distributions.
- The **Chi-square test for association** was employed to determine the presence of relationships between categorical variables, such as between levels of entrepreneurial traits and background variables.

To further refine the analysis, a *quartile-based classification* approach was adopted to categorize the level of entrepreneurial traits into three levels:

- **Low Level (Q1)**: Scores falling below the first quartile.
- **Moderate Level (Q2)**: Scores between the first and third quartiles.
- **High Level (Q3)**: Scores above the third quartile.

This method facilitated a meaningful grouping of entrepreneurs for comparative and association analysis.

4.III.3.3 Software Package Used

All data were systematically coded and analysed using IBM SPSS (Statistical Package for the Social Sciences), Version 27.0. This software enabled the efficient execution of both descriptive and inferential analyses, including crosstabulations, chi-square tests, and quartile classification.

4.III.4 Constructs Studied

4.III.4.1 Attitude

Attitude refers to overall mental and emotional orientation of entrepreneur toward entrepreneurship, including their beliefs, values, and readiness to engage in business activities. Theoretically, it shapes how individuals perceive and respond to entrepreneurial opportunities and challenges. In this study, attitude is measured by assessing the expressed willingness, positivity, and mindset of entrepreneur toward starting and managing a business, using a structured Likert-scale questionnaire.

4.III.4.2 Motivation

Motivation means the internal drive or desire that pushes entrepreneurs to initiate, sustain, and grow their ventures. It consists of personal ambition, achievement needs, and external rewards. Theoretically, it is central to entrepreneurial behaviour as it fuels goal-directed actions. Operationally, motivation in this study is analysed based on the self-reported reasons, enthusiasm, and persistence of entrepreneurs in business activities, as captured through standardized scale items.

4.III.4.3 Self-Efficacy

Self-efficacy is the belief in capability of a person to successfully perform tasks and achieve goals in the entrepreneurial context. In this research, self-efficacy is measured by asking entrepreneurs to rate their confidence in handling various aspects of business management and decision-making using a Likert scale.

4.III.4.4 Risk Tolerance

Risk tolerance refers to the degree to which an entrepreneur is willing to engage in decisions including uncertainty or potential loss. Theoretically, it is a core

trait that distinguishes entrepreneurial behaviour, especially under dynamic market conditions. Operationally, this study assesses risk tolerance by capturing the comfort of entrepreneur with taking financial, strategic, and market-related risks, using structured survey items.

4.III.4.5 Innovativeness

Innovativeness is the inclination of entrepreneurs to seek, develop, and apply new ideas, products, or processes in their business. It reflects a forward-thinking and change-oriented mindset, which is necessary in competitive and evolving markets. In this study, innovativeness is examined through reported frequency of adopting novel solutions, experimenting with new approaches, and introducing changes in their business operations.

Section A

Levels of Attitude, Motivation, Self-Efficacy, Risk Tolerance and Innovativeness among Entrepreneurs in Kerala

The various levels of Entrepreneurial Traits are presented below:

4.III.A.1 Levels of Entrepreneurial Attitude of Entrepreneurs In Kerala

Ho: There is no significant difference among the levels of attitude of entrepreneurs in Kerala

Table 4.33

Levels of attitude of entrepreneurs in Kerala

Attribute	Low Level	Moderate Level	High Level	Total	Chi-Square value	p value
Level of Attitude	136 (35.4%)	138 (35.9%)	110 (28.7%)	384 (100%)	2.09	0.149^{NS}

^{NS} *denotes Not Significant*

The data presented in underscores the distribution of attitude levels among entrepreneurs in Kerala. It presents that 35.4% of the entrepreneurs possess a low level of entrepreneurial attitude, 35.9% fall under the moderate level, and 28.7%

exhibit a high level of attitude. The proportions across the three levels appear relatively balanced, implying no dominant trend in the attitude levels of the entrepreneurial population.

The Chi-square value of 2.09 with a p-value of 0.149 specify that the observed differences in attitude levels are not statistically significant. Since the p-value is higher than the accepted threshold of 0.05, the null hypothesis, which states that there is no significant difference among the levels of attitude of entrepreneurs in Kerala, is accepted. This suggests that the variation in attitude levels among entrepreneurs is likely due to chance and does not reflect a meaningful pattern. The absence of significant differences in attitude levels among entrepreneurs in Kerala indicates a uniformly distributed mindset, recommending that entrepreneurial development initiatives should focus broadly on enhancing attitude rather than targeting specific subgroups.

4.III.A.2 Levels of Entrepreneurial Motivation of Entrepreneurs in Kerala

Ho: There is no significant difference among the levels of motivation of entrepreneurs in Kerala

Table 4.34

Levels of motivation of entrepreneurs in Kerala

Attribute	Low Level	Moderate Level	High Level	Total	Chi-Square value	p value
Level of Motivation	166 (43.2%)	150 (39.1%)	68 (17.7%)	384 (100%)	3.81	<0.001**

***denotes significant at 1% level*

The analysis of table represents the distribution of motivation levels among entrepreneurs in Kerala. Based on the data, 43.2% of the entrepreneurs fall under the low motivation category, 39.1% exhibit a moderate level of motivation, while only 17.7% are found to have a high level of motivation. These figures imply that a significant portion of the entrepreneurial population operates with moderate motivational drive, with a relatively smaller segment showing greater entrepreneurial enthusiasm.

From a broader perspective, the results indicate a concern regarding the motivational readiness of entrepreneurs in the region. The lower representation in the high motivation category may reveal potential challenges in sustaining entrepreneurial energy and long-term commitment. In spite of this concern, the Chi-square value of 3.81 with a p-value less than 0.001 indicates that the differences across motivation levels are statistically significant. Accordingly, the null hypothesis, which assumes no significant difference among motivation levels, is rejected. This verifies that motivation levels vary meaningfully among entrepreneurs. The implication is that tailored programs and motivational support initiatives may be necessary to uplift and inspire a broader section of entrepreneurs, as a result strengthening the overall entrepreneurial environment in the state.

The statistically significant variation across motivation levels underscores the need for interventions aimed at boosting entrepreneurial motivation. Practically, this calls for structured motivational programs, mentorship, and exposure to success models to ignite and sustain entrepreneurial enthusiasm. Enhancing motivational readiness is essential for fostering resilience, proactiveness, and long-term engagement in entrepreneurial ventures across the state.

4.III.A.3 Levels of Entrepreneurial Self-Efficacy of Entrepreneurs in Kerala

Ho: There is no significant difference among the levels of self-efficacy of entrepreneurs in Kerala

Table 4.35

Levels of self-efficacy of entrepreneurs in Kerala

Attribute	Low Level	Moderate Level	High Level	Total	Chi-Square value	p value
Level of self-efficacy	66 (17.2%)	192 (50.0%)	126 (32.8%)	384 (100%)	3.99	<0.001**

***denotes significant at 1% level*

The data in the above table presents the distribution of self-efficacy levels among entrepreneurs in Kerala. It reveals that 17.2% of the respondents have a low level of self-efficacy, 50.0% fall under the moderate level, and 32.8% exhibit a high

level of self-efficacy. This distribution highlights that the majority of entrepreneurs perceive themselves to have a moderate level of confidence in their ability to perform entrepreneurial tasks, while a significant portion also reflects high self-assurance, and a smaller group lacks such confidence.

From a general perspective, this pattern states that most entrepreneurs possess at least a fair degree of belief in their own capabilities, which is a positive sign for entrepreneurial engagement and decision-making. The Chi-square test result, with a value of 3.99 and a p-value less than 0.001, establish that the differences across these self-efficacy levels are statistically significant. As a result, the null hypothesis, which posited no significant difference among the levels of self-efficacy, is rejected. These findings show that variations in self-efficacy do exist meaningfully within the entrepreneurial community.

The statistically significant differences across these levels imply meaningful variability in entrepreneurial confidence. Practically, this highlights the need for differentiated support strategies such as confidence-building workshops, peer mentoring, and entrepreneurial skill enhancement programs especially for those with lower self-efficacy. Strengthening self-belief among entrepreneurs can enhance decision-making, persistence, and overall entrepreneurial performance across the state.

4.III.A.4 Levels of Entrepreneurial Risk Tolerance of Entrepreneurs in Kerala

Ho: There is no significant difference among the levels of risk tolerance of entrepreneurs in Kerala

Table 4.36

Levels of risk tolerance of entrepreneurs in Kerala

Attribute	Low Level	Moderate Level	High Level	Total	Chi-Square value	p value
Level of Risk Tolerance	52 (13.5%)	152 (39.6%)	180 (46.9%)	384 (100%)	70.75	<0.001**

***denotes significant at 1% level*

The analysis shows that among the entrepreneurs in Kerala, 13.5% show a low level of risk tolerance, 39.6% have a moderate level, and 46.9% demonstrate a high level of risk tolerance. The data displays that a majority of entrepreneurs fall within the moderate to high-risk tolerance categories, exhibit that most are relatively open to taking calculated risks in their business ventures.

The Chi-square value of 70.75 with a p-value less than 0.001 suggests a statistically significant difference in the distribution of risk tolerance levels among the respondents. Since the p-value is less than the 1% level of significance, the null hypothesis, which posits that there is no significant difference among the levels of risk tolerance of entrepreneurs in Kerala, is rejected. The data distribution reveals that a significant proportion of entrepreneurs in Kerala (46.9%) possess a high level of risk tolerance, while 39.6% show moderate risk tolerance, and only a small fraction (13.5%) falls into the low-risk category. This indicates that the majority of entrepreneurs are confident in taking calculated risks an essential trait for innovation, opportunity exploitation, and business scalability. The dominance of high-risk tolerance suggests that the entrepreneurial ecosystem in Kerala is characterized by individuals with strong decision-making confidence and growth-oriented mindsets.

4.III.A.5 Levels of Entrepreneurial Innovativeness of Entrepreneurs in Kerala

Ho: There is no significant difference among the levels of innovativeness of entrepreneurs in Kerala

Table 4.37

Levels of innovativeness of entrepreneurs in Kerala

Attribute	Low Level	Moderate Level	High Level	Total	Chi-Square value	p value
Level of Innovativeness	204 (53.1%)	96 (25.0%)	84 (21.9%)	384 (100%)	68.25	<0.001**

***denotes significant at 1% level*

The analysis of table demonstrates the distribution of innovativeness levels among entrepreneurs in Kerala. It unveils that 53.1% of the entrepreneurs fall under

the low level of innovativeness, 25.0% are at a moderate level, and only 21.9% show a high level of innovativeness. This indicates that more than half of the entrepreneurial population present limited innovative practices, while only a small proportion shows a strong inclination toward innovation in their ventures.

The Chi-square value of 68.25 with a p-value less than 0.001 determines a statistically significant difference among the three levels of innovativeness. Since the p-value is below the 1% level of significance, the null hypothesis, which states that there is no significant difference among the levels of innovativeness of entrepreneurs in Kerala, is refused.

The findings highlight that a majority of entrepreneurs in Kerala fall under the low level of innovativeness, indicating a limited inclination towards adopting new ideas, technologies, or creative business approaches. This pattern suggests a potential constraint on business growth, competitiveness, and adaptability in a dynamic market environment. From a practical perspective, this underscores the urgent need for capacity-building initiatives, innovation-centric training programs, and policy interventions aimed at nurturing a culture of innovation among entrepreneurs, especially in emerging and traditional sectors. Strengthening innovativeness can significantly enhance the sustainability and scalability of entrepreneurial ventures in the region.

Section B

Level of Entrepreneurial Traits across Socio-Demographic and Organisational Factors

The following are the socio-demographic and organizational factors used for comparison with Levels of Entrepreneurial Traits:

1) Gender
2) Age
3) Educational qualification
4) Type of firm
5) Location of firm

4.III.B.1 Level of Entrepreneurial Attitude across Gender

Ho: There is no significant association between gender and level of attitude among entrepreneurs in Kerala

Table 4.38

Chi-square for association between gender and level of attitude among entrepreneurs in Kerala

Gender	Level of Attitude			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Male	120 (35.3%)	126 (37.1%)	94 (27.6%)	**340 (100%)**	2.08	0.353^{NS}
Female	16 (36.4%)	12 (27.2%)	16 (36.4%)	**44 (100%)**		
Total	**136 (35.4%)**	**138 (35.9%)**	**110 (28.7%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table shows the association between gender and the level of entrepreneurial attitude among entrepreneurs in Kerala. In case of male entrepreneurs, 35.3% exhibit low attitude, 37.1% moderate attitude, and 27.6% high attitude. Female entrepreneurs demonstrate 36.4% at both low and high levels and 27.2% at a moderate level. The distribution appears to be relatively same across genders. The calculated Chi-square value is 2.08 with a p value of 0.353, which is higher than the significance level of 0.05. This indicates that the observed differences are not statistically significant. Thus, the null hypothesis, which states that there is no significant association between gender and the level of entrepreneurial attitude, is accepted.

In other words, the attitude levels of entrepreneurs in Kerala do not appear to be shaped by gender identity. Both men and women show approximate distributions across low, moderate, and high attitude levels, indicating that the mindset or approach towards entrepreneurship is not determined by whether the entrepreneur is male or female. This result discloses a balanced and inclusive entrepreneurial culture where gender does not create a divide in how positively entrepreneurs perceive their

ventures. Since the association between gender and attitude is not statistically significant, policymakers and ecosystem facilitators should concentrate on universal attitude enhancement programs rather than targeting specific genders. It emphasizes the importance of treating entrepreneurial mindset development as a gender-neutral domain, promoting equal opportunity training and support systems.

4.III.B.2 Level of Entrepreneurial Attitude across Age

Ho: There is no significant association between age and level of attitude among entrepreneurs in Kerala

Table 4.39

Chi-square for association between age and level of attitude among entrepreneurs in Kerala

Age	Level of Attitude			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
20 to 35	56 (40.0%)	46 (32.9%)	38 (27.1%)	**140 (100%)**	5.26	0.261^{NS}
36 to 50	62 (33.0%)	66 (35.1%)	60 (31.9%)	**188 (100%)**		
>50	18 (32.1%)	26 (46.5%)	12 (21.4%)	**56 (100%)**		
Total	**136 (35.4%)**	**138 (35.9%)**	**110 (28.7%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The chi-square test was conducted to assess the association between age and level of attitude among entrepreneurs in Kerala. The data demonstrate that within the age group 20 to 35, 40 % of respondents reported low attitude, 32.9 % moderate, and 27.1 % high. In the 36 to 50 group, the distribution was more balanced with 33 % low, 35.1 % moderate, and 31.9 % high attitude levels. Among entrepreneurs aged above 50, 32.1 % stated low attitude, 46.5 % moderate, and 21.4 % high. The chi-square value is 5.26, and the corresponding p-value is 0.261, which is above the conventional significance level of 0.05. Hence, the result is not statistically significant.

In essence, research indicates that age does not significantly affect the attitude levels of entrepreneurs in Kerala. While there are observable differences in how

attitude is distributed across age groups, these variations are not statistically meaningful enough to suggest a consistent pattern. Therefore, the null hypothesis expressing that there is no significant association between age and attitude level is accepted. The implication is that entrepreneurial attitude seems to be shaped by other factors beyond age, suggesting that support programs aiming to enhance positive entrepreneurial attitude can be uniformly designed without age-specific segmentation.

4.III.B.3 Level of Entrepreneurial Attitude across Educational Qualification

Ho: There is no significant association between educational qualification and level of attitude among entrepreneurs in Kerala

Table 4.40

Chi-square for association between educational qualification and level of attitude among entrepreneurs in Kerala

Educational Qualification	Level of Attitude			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Degree	50 (33.3%)	60 (40.0%)	40 (26.7%)	**150 (100%)**	2.49	0.646^{NS}
PG	68 (37.4%)	62 (34.1%)	52 (28.5%)	**182 (100%)**		
Professional	18 (34.6%)	16 (30.8%)	18 (34.6%)	**52 (100%)**		
Total	**136 (35.5%)**	**138 (35.9%)**	**110 (28.6%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table analyse the association between educational qualification and the level of attitude among entrepreneurs in Kerala. Among degree holders, 33.3% have low attitude levels, 40.0% moderate, and 26.7% high. Postgraduates exhibit a slightly different pattern with 37.4% at low, 34.1% at moderate, and 28.5% at high attitude levels. Professionals report 34.6% each at low and high levels, and 30.8% at moderate. The chi-square value is 2.49 with a p-value of 0.646, which is well above the 0.05 threshold. This implies that the differences in attitude levels across educational qualification is not statistically significant.

In brief, educational background does not seem to play a decisive role in shaping the attitude levels of entrepreneurs. The percentages show only minor variations across degree holders, postgraduates, and professionals, indicating that attitude is not strongly tied to one's academic credentials. Since the p-value is not significant, the null hypothesis is accepted. This implies that regardless of formal education level, entrepreneurs generally display similar outlooks and mindset, and thus, attitude-building interventions can be designed without tailoring specifically to educational qualifications**.**

4.III.B.4 Level of Entrepreneurial Attitude across Type of Firm

Ho: There is no significant association between type of firm and level of attitude among entrepreneurs in Kerala

Table 4.41

Chi-square for association between type of firm and level of attitude among entrepreneurs in Kerala

Type of Firm	Level of Attitude			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Manufacturing	56 (38.4%)	42 (28.8%)	48 (32.8%)	**146 (100%)**	5.41	0.067^{NS}
Service	80 (33.6%)	96 (40.3%)	62 (26.1%)	**238 (100%)**		
Total	**136 (35.4%)**	**138 (35.9%)**	**110 (28.7%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table observes the association between the type of firm (manufacturing and service) and the level of attitude among entrepreneurs in Kerala. In manufacturing firms, 38.4% of entrepreneurs disclose low attitude levels, 28.8% moderate, and 32.8% high. Conversely, in service-based firms, 33.6% are in the low attitude group, 40.3% moderate, and 26.1% high. While the distributions express some variation, the chi-square value is 5.41 with a p-value of 0.067, which is higher than the 0.05 significance level. Thus, there is no statistically significant association between firm type and attitude level.

From a practical perspective, the nature of the business, whether it is manufacturing or service, does not significantly impact the attitude levels of entrepreneurs. Although entrepreneurs in manufacturing firms exhibit slightly higher levels of high attitude, and service-sector entrepreneurs lean more towards moderate attitude, these differences are not strong enough to confirm a meaningful pattern. As the p-value is greater than the threshold, the null hypothesis is accepted. This propose that attitude formation among entrepreneurs is likely shaped by personal traits or external influences rather than the sector in which they operate, and attitude development programs can be designed without firm-type-specific differentiation.

4.III.B.5 Level of Entrepreneurial Attitude across Location of Firm

Ho: There is no significant association between location of firm and level of attitude among entrepreneurs in Kerala

Table 4.42

Chi-square for association between location of firm and level of attitude

Location of the Firm	Level of Attitude			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Corporation	40 (25.3%)	66 (41.8%)	52 (32.9%)	**158 (100%)**	16.54	0.002**
Municipality	52 (45.6%)	40 (35.1%)	22 (19.3%)	**114 (100%)**		
Panchayath	44 (39.3%)	32 (28.6%)	36 (32.1%)	**112 (100%)**		
Total	**136 (35.4%)**	**138 (35.9%)**	**110 (28.7%)**	**384 (100%)**		

***denotes significant at 1% level*

The Chi-square test result in above table indicates a significant association between the location of the firm and the level of entrepreneurial attitude among entrepreneurs in Kerala, with a Chi-square value of 16.54 and a p-value of 0.002, which is significant at the 1% level. Entrepreneurs located in corporation areas show a relatively higher proportion of high-level attitude (32.9%) compared to those in municipality areas (19.3%). In contrast, low-level attitudes are more common among

entrepreneurs from municipalities (45.6%) and panchayats (39.3%), indicating a regional variation in attitude levels. This pattern proposes that firm location may influence the outlook and mindset of entrepreneurs, potentially due to differences in exposure, resource access, and competitive climate.

From a practical standpoint, the data proposes that entrepreneurs from municipality areas are most prominent at the low level of attitude, whereas entrepreneurs from corporation areas are most prominent at the high level of attitude. This difference might be due to greater access to markets, infrastructure, networks, and exposure in urban corporation regions that naturally nurture a more confident and progressive entrepreneurial mindset. Conversely, those in municipalities may face resource limitations and fewer developmental stimuli, influencing their attitude levels. Since the p-value is less than 0.01, the null hypothesis is rejected, confirming a significant association. This indicates a policy need to uplift the entrepreneurial spirit in less urbanized areas through training, awareness programs, and support schemes tailored to their unique challenges.

4.III.B.6 Level of Entrepreneurial Motivation across Gender

Ho: There is no significant association between gender and level of motivation among entrepreneurs in Kerala

Table 4.43

Chi-square for association between gender and level of motivation among entrepreneurs in Kerala

Gender	Level of Motivation			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Male	146 (42.9%)	138 (40.6%)	56 (16.5%)	**340 (100%)**	4.39	0.111^{NS}
Female	20 (45.4%)	12 (27.3%)	12 (27.3%)	**44 (100%)**		
Total	**166 (43.2%)**	**150 (39.1%)**	**68 (17.7%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table figure out the distribution of motivation levels among male and female entrepreneurs in Kerala. In the case of male entrepreneurs, 42.9% report low motivation, 40.6% moderate, and 16.5% high motivation levels. Among female entrepreneurs, 45.4% fall under low motivation, 27.3% under moderate, and a relatively higher 27.3% report high motivation. However, there are slight differences in percentages between males and females, the Chi-square value of 4.39 and a p-value of 0.111 indicate that these differences are not statistically significant at the conventional 5% level. As the p-value exceeds 0.05, the null hypothesis, which posits that there is no significant association between gender and level of motivation is accepted.

In simple terms, the study states that both male and female entrepreneurs in Kerala show varied levels of motivation, but this variation is not strong enough to suggest a clear gender-based pattern. The statistical analysis verifies that gender does not play a decisive role in shaping motivational levels among entrepreneurs. So, policies or programs aimed at enhancing entrepreneurial motivation may not need to be gender-specific rather, a common approach could be equally effective across male and female participants.

4.III.B.7 Level of Entrepreneurial Motivation across Age

Ho: There is no significant association between age and level of motivation among entrepreneurs in Kerala

Table 4.44

Chi-square for association between age and level of motivation among entrepreneurs in Kerala

Age	Level of Motivation			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
20 to 35	60 (42.9%)	58 (41.4%)	22 (15.7%)	**140 (100%)**	3.97	0.410^{NS}
36 to 50	76 (40.4%)	74 (39.4%)	38 (20.2%)	**188 (100%)**		
>50	30 (53.6%)	18 (32.1%)	8 (14.3%)	**56 (100%)**		
Total	**166 (43.2%)**	**150 (39.1%)**	**68 (17.7%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table underscore the percentage distribution of motivation levels among entrepreneurs across different age groups in Kerala. In the 20 to 35 age group, 42.9% reported low motivation, 41.4% moderate motivation, and 15.7% high motivation. Among those aged 36 to 50, 40.4% had low motivation, 39.4% moderate, and 20.2% high motivation. For entrepreneurs above 50 years, 53.6% were in the low motivation category, 32.1% in the moderate, and 14.3% in the high motivation level. The chi-square test yielded a value of 3.97 with a p-value of 0.410, which is above the 0.05 threshold, indicating no statistically significant association between age and motivation level.

To conclude, motivation levels among entrepreneurs in Kerala do not show meaningful differences based on age. Although the older age group disclose a higher share of low motivation, these variations are not consistent or strong enough to confirm a pattern. Therefore, the null hypothesis is accepted, confirming that age and motivation are not significantly associated. This implies that motivation-developing interventions or entrepreneurial support programs can be designed uniformly, without needing to tailor them specifically to different age segments.

4.III.B.8 Level of Entrepreneurial Motivation across Qualification

Ho: There is no significant association between educational qualification and level of motivation among entrepreneurs in Kerala

Table 4.45

Chi-square for association between educational qualification and level of motivation among entrepreneurs in Kerala

Educational Qualification	Level of Motivation			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Degree	70 (46.7%)	60 (40.0%)	20 (13.3%)	**150 (100%)**	13.97	0.007**
PG	82 (45.1%)	70 (38.5%)	30 (16.4%)	**182 (100%)**		
Professional	14 (26.9%)	20 (38.5%)	18 (34.6%)	**52 (100%)**		
Total	**166 (43.2%)**	**150 (39.1%)**	**68 (17.7%)**	**384 (100%)**		

***denotes significant at 1% level*

The Chi-square analysis yields a value of 13.97 with a p-value of 0.007, specifying a statistically significant association between educational qualification and level of motivation among entrepreneurs in Kerala at the 1% significance level. Among degree holders, 46.7% reported low motivation, 40.0% reported moderate motivation, and only 13.3% demonstrated high motivation. Likewise, among postgraduates, 45.1% exhibited low motivation, 38.5% moderate, and 16.4% high motivation. Although, a contrasting trend is seen in those with professional qualifications only 26.9% reported low motivation, 38.5% moderate, and a significant 34.6% reported high motivation. This variation in motivational levels across different educational groups is statistically significant, pointing to an uneven distribution that supports rejection of the null hypothesis.

In brief, the data indicates that low motivation is most dominant among degree holders (46.7%) and postgraduates (45.1%), while high motivation is most dominant among professionally qualified entrepreneurs (34.6%). This suggests that general and postgraduate education alone may not effectively boost entrepreneurial drive, while professional qualifications, likely due to their specialized and application-oriented nature, appear to foster higher levels of entrepreneurial motivation. Since the null hypothesis is rejected, we conclude that the type of education significantly impacts motivational levels. Thus, to build a more motivated entrepreneurial base in Kerala, stakeholders like educational institutions, start-up missions, and policymakers should focus on improving practical exposure and entrepreneurial training especially for degree and postgraduate holders to help close this motivation gap.

4.III.B.9 Level of Entrepreneurial Motivation across Type of Firm

Ho: There is no significant association between type of firm and level of motivation among entrepreneurs in Kerala

Table 4.46

Chi-square for association between type of firm and level of motivation among entrepreneurs in Kerala

Type of Firm	Level of Motivation			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Manufacturing	56 (38.3%)	62 (42.5%)	28 (19.2%)	**146 (100%)**		
Service	110 (46.2%)	88 (37.0%)	40 (16.8%)	**238 (100%)**	2.28	0.320^{NS}
Total	**166 (43.2%)**	**150 (39.1%)**	**68 (17.7%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table presents the distribution of motivation levels among entrepreneurs in Kerala based on the type of firm, manufacturing and service. Among entrepreneurs in manufacturing firms, 38.3% report low motivation, 42.5% moderate, and 19.2% high. Similarly, for those in service firms, 46.2% fall into the low motivation category, 37.0% in moderate, and 16.8% in high motivation. The chi-square value is 2.28 with a p-value of 0.320, which is higher than the 0.05 significance threshold. This stipulate that there is no statistically significant association between the type of firm and the level of motivation among entrepreneurs.

In simple terms, the type of business, whether it is manufacturing and service, does not meaningfully influence how motivated entrepreneurs feel. While there are slight variations, such as a higher percentage of moderate motivation in manufacturing firms and more low motivation in service firms, these differences are not statistically strong enough to suggest a real pattern. Since the p-value is not significant, the null hypothesis is accepted. This means that entrepreneurial motivation likely stems from factors other than the business sector, such as personal

drive, leadership style, or external opportunities. Hence, motivation-improving strategies can be applied broadly without needing to customize them based on firm type.

4.III.B.10 Level of Entrepreneurial Motivation across Location of Firm

Ho: There is no significant association between location of firm and level of motivation among entrepreneurs in Kerala

Table 4.47

Chi-square for association between location of firm and level of motivation among entrepreneurs in Kerala

Location of the Firm	Level of Motivation			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Corporation	66 (41.8%)	66 (41.8%)	26 (16.4%)	**158 (100%)**	11.17	0.025*
Municipality	56 (49.1%)	46 (40.4%)	12 (10.5%)	**114 (100%)**		
Panchayath	44 (39.3%)	38 (33.9%)	30 (26.8%)	**112 (100%)**		
Total	**166 (43.2%)**	**150 (39.1%)**	**68 (17.7%)**	**384 (100%)**		

**Denotes significant at 5% level*

The Chi-square test results in above table indicate a statistically significant association between the location of the firm and the level of motivation among entrepreneurs in Kerala, with a Chi-square value of 11.17 and a p-value of 0.025, which is significant at the 5% level. Among entrepreneurs in corporation areas, 41.8% exhibit low motivation, 41.8% disclose moderate motivation, and only 16.4% show high motivation. Among municipality areas, the highest proportion of entrepreneurs (49.1%) fall under the low motivation category, followed by 40.4% with moderate motivation, and only 10.5% with high motivation. In contrast, panchayath-based entrepreneurs demonstrate 39.3% with low motivation, 33.9% with moderate motivation, and a relatively higher 26.8% with high motivation. These figures reveal distinct motivational patterns based on firm location, with high motivation more dominant in panchayath regions and low motivation most prevalent in municipalities.

In everyday terms, this data specifies that low motivation is most common among entrepreneurs in municipality areas, while high motivation is most visible among entrepreneurs in panchayath regions. Entrepreneurs in corporation areas are largely split between low and moderate levels of motivation, possibly indicating average access to motivational stimuli like support systems, market prospects, or competition. The presence of high motivation among panchayath entrepreneurs may reflect an increasing entrepreneurial drive in rural areas, perhaps due to emerging opportunities or necessity-driven efforts. As the p-value is below 0.05, the null hypothesis is rejected, affirming a significant association. This finding underlines the need for location-sensitive entrepreneurial support programs, particularly in municipalities, to boost intrinsic drive and enhance the entrepreneurial ecosystem more uniformly across regions.

4.III.B.11 Level of Entrepreneurial Self-Efficacy across Gender

Ho: There is no significant association between gender and level of self-efficacy among entrepreneurs in Kerala

Table 4.48

Chi-square for association between gender and level of self-efficacy among entrepreneurs in Kerala

Gender	Level of Self efficacy			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Male	60 (17.6%)	170 (50.0%)	110 (32.4%)	**340 (100%)**	0.55	0.757^{NS}
Female	6 (13.6%)	22 (50.0%)	16 (36.4%)	**44 (100%)**		
Total	**66 (17.2%)**	**192 (50.0%)**	**126 (32.8%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table exhibits the distribution of self-efficacy levels among male and female entrepreneurs in Kerala. Among males, 17.6% show low self-efficacy, 50% fall under the moderate category, and 32.4% report high self-efficacy. For female entrepreneurs, 13.6% show low self-efficacy, 50% fall into the moderate level, and 36.4% show high self-efficacy. Even though minor differences exist in percentage

distribution across gender groups, the Chi-square value is 0.55 with a p-value of 0.757, which is well above the 0.05 threshold. This specifies that the differences are not statistically significant. So, the null hypothesis, which states that there is no significant association between gender and level of self-efficacy, is accepted.

In simpler terms, the motivation levels that entrepreneurs have in their own abilities referred to as self-efficacy appear quite similar whether the entrepreneur is male or female. Since no meaningful association is identified between gender and self-efficacy, it suggests that both men and women entrepreneurs in Kerala share comparable levels of belief in their capacity to succeed. This finding stipulates that efforts to boost entrepreneurial self-efficacy need not be gender-specific, as both groups demonstrate equal footing in this regard.

4.III.B.12 Level of Entrepreneurial Self-Efficacy across Age

Ho: There is no significant association between age and level of self-efficacy among entrepreneurs in Kerala

Table 4.49

Chi-square for association between age and level of self-efficacy among entrepreneurs in Kerala

Age	Level of Self Efficacy			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
20 to 35	34 (24.3%)	62 (44.3%)	44 (31.4%)	**140 (100%)**	20.45	<0.001**
36 to 50	16 (8.5%)	104 (55.3%)	68 (36.2%)	**188 (100%)**		
>50	16 (28.6%)	26 (46.4%)	14 (25.0%)	**56 (100%)**		
Total	**66 (17.2%)**	**192 (50.0%)**	**126 (32.8%)**	**384 (100%)**		

***denotes significant at 1% level*

The table shows the association between age and the level of self-efficacy among entrepreneurs in Kerala. In the 20 to 35 age group, 24.3% presented low self-efficacy, 44.3% moderate, and 31.4% high. Among those aged 36 to 50, only 8.5% exhibited low self-efficacy, while 55.3% were moderate and 36.2% high. Conversely,

for those above 50, the proportion of low self-efficacy rises again to 28.6%, with 46.4% at moderate and 25.0% at high. The chi-square value is 20.45 with a p-value less than 0.001, suggesting a statistically significant association between age and self-efficacy levels at the 1% significance level.

From a practical point of view, the data suggest that age plays a meaningful role in shaping entrepreneurial self-efficacy. Middle-aged entrepreneurs (36 to 50) tend to report stronger self-belief in their capabilities, whereas both younger and older age groups show relatively lower levels of self-efficacy. As the chi-square test result is statistically significant, the null hypothesis is rejected. This finding stipulates that support initiatives aiming to boost entrepreneurial confidence might be especially beneficial for early-stage and senior entrepreneurs, while the middle-aged group appears to possess comparatively higher self-assurance in managing business challenges.

4.III.B.13 Level of Entrepreneurial Self-Efficacy across Qualification

Ho: There is no significant association between educational qualification and level of self-efficacy among entrepreneurs in Kerala

Table 4.50

Chi-square for association between educational qualification and level of self-efficacy among entrepreneurs in Kerala

Educational Qualification	Level of Self Efficacy			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Degree	34 (22.7%)	68 (45.3%)	48 (32.0%)	**150 (100%)**	10.47	0.033*
PG	26 (14.3%)	102 (56.0%)	54 (29.7%)	**182 (100%)**		
Professional	6 (11.5%)	22 (42.3%)	24 (46.2%)	**52 (100%)**		
Total	**66 (17.2%)**	**192 (50.0%)**	**126 (32.8%)**	**384 (100%)**		

**denotes significant at 5% level*

The table exhibits the relationship between educational qualification and level of self-efficacy among entrepreneurs in Kerala. Regarding the degree holders, 22.7%

have low self-efficacy, 45.3% moderate, and 32.0% high. For postgraduates, 14.3% are at low level, 56.0% at moderate, and 29.7% at high. In contrast, professionals show only 11.5% at low level, 42.3% at moderate, and a notably high 46.2% at the high self-efficacy level. The chi-square value is 10.47 with a p-value of 0.033, which is significant at the 5% level. This suggest that there is a statistically significant association between educational qualification and level of self-efficacy.

In other terms, the level of self-confidence entrepreneurs feels in handling challenges and making decisions appears to differ based on their educational background. Specially, those with professional qualifications display stronger self-efficacy than those with general degrees or postgraduate education. As the p-value is below 0.05, the null hypothesis is rejected, confirming that educational qualification is significantly associated with self-efficacy. This recommends that exposure to professional or applied learning environments may better equip entrepreneurs with confidence and readiness for business tasks, highlighting the importance of integrating skill-based components into academic curricula.

4.III.B.14 Level of Entrepreneurial Self-Efficacy across Type of Firm

Ho: There is no significant association between type of firm and level of self - efficacy among entrepreneurs in Kerala

Table 4.51

Chi-square for association between type of firm and level of self - efficacy among entrepreneurs in Kerala

Type of Firm	Level of Self Efficacy			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Manufacturing	26 (17.8%)	76 (52.1%)	44 (30.1%)	**146 (100%)**	0.76	0.682^{NS}
Service	40 (16.8%)	116 (48.7%)	82 (34.5%)	**238 (100%)**		
Total	**66 (17.2%)**	**192 (50.0%)**	**126 (32.8%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table demonstrate the association between the type of firm (manufacturing and service) and the level of self-efficacy among entrepreneurs in Kerala. Among

manufacturing firms, 17.8% of entrepreneurs report low self-efficacy, 52.1% moderate, and 30.1% high. In service-based firms, 16.8% have low self-efficacy, 48.7% moderate, and 34.5% high. The distribution across categories is relatively same for both groups. The chi-square value is 0.76 with a p-value of 0.682, which is above the 0.05 significance threshold, suggesting no statistically significant association between firm type and level of self-efficacy.

In simple terms, the kind of business, whether it's a manufacturing unit and a service-based enterprise does not appear to affect how confident entrepreneurs feel in their abilities. The levels of self-efficacy are nearly similar across both types of firms. As the p-value is not statistically significant, the null hypothesis is accepted. This means that self-belief and confidence among entrepreneurs are likely driven by personal traits, past experience, or external support systems rather than the nature of the business. Hence, training programs or support mechanisms aimed at enhancing self-efficacy can be implemented broadly without needing to differentiate based on firm type.

4.III.B.15 Level of Entrepreneurial Self-Efficacy across Location of the Firm

Ho: There is no significant association between location of firm and level of self-efficacy among entrepreneurs in Kerala

Table 4.52

Chi-square for association between location of firm and level of self-efficacy among entrepreneurs in Kerala

Location of the Firm	Level of Self Efficacy			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Corporation	24 (15.2%)	82 (51.9%)	52 (32.9%)	**158 (100%)**	6.32	0.176^{NS}
Municipality	26 (22.8%)	58 (50.9%)	30 (26.3%)	**114 (100%)**		
Panchayath	16 (14.3%)	52 (46.4%)	44 (39.3%)	**112 (100%)**		
Total	**66 (17.2%)**	**192 (50.0%)**	**126 (32.8%)**	**384 (100%)**		

^{NS} denotes Not Significant

The above table presents the Chi-square test results examining the relationship between location of the firm and the level of entrepreneurial self-efficacy among entrepreneurs in Kerala. The Chi-square value is 6.32 with a p-value of 0.176, which is not significant, indicating no statistically significant association between the two variables. In terms of self-efficacy distribution, in corporation areas, 15.2% of entrepreneurs report low self-efficacy, 51.9% moderate, and 32.9% high, in municipalities, 22.8% report low, 50.9% moderate, and 26.3% high; and among panchayaths, 14.3% report low, 46.4% moderate, and 39.3% high. While panchayath entrepreneurs exhibit a relatively higher proportion of high self-efficacy, and municipal entrepreneurs a higher proportion of low self-efficacy, these variations are not statistically meaningful in this test.

When viewed practically, even though panchayath-based entrepreneurs show the highest proportion of high self-efficacy (39.3%), and municipality-based entrepreneurs show the highest proportion at the low end (22.8%), the differences across regions are not strong enough to be considered significant. This point to that the confidence of entrepreneur in their own abilities does not systematically vary based on whether their business is located in a corporation, municipality, or panchayath area. Since the p-value is greater than 0.05, the null hypothesis is accepted, determining that there is no significant association between firm location and level of self-efficacy. Thus, interventions aimed at improving self-efficacy among entrepreneurs may need to be more individualized rather than location-based, as location alone does not appear to shape this trait substantially.

4.III.B.16 Level of Entrepreneurial Risk Tolerance across Gender

Ho: There is no significant association between gender and level of risk tolerance among entrepreneurs in Kerala

Table 4.53

Chi-square for association between gender and level of risk tolerance among entrepreneurs in Kerala

Gender	Level of Risk Tolerance			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Male	44 (12.9%)	136 (40.0%)	160 (47.1%)	**340 (100%)**	0.94	0.624^{NS}
Female	8 (18.2%)	16 (36.3%)	20 (45.5%)	**44 (100%)**		
Total	**52 (13.5%)**	**152 (39.6%)**	**180 (46.9%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table gives a breakdown of risk tolerance levels among male and female entrepreneurs in Kerala. Among males, 12.9% fall under the low-risk tolerance category, 40% show moderate risk tolerance, and 47.1% exhibit a high level of risk tolerance. For female entrepreneurs, 18.2% have low risk tolerance, 36.3% fall under moderate, and 45.5% show high risk tolerance. Despite slight variations in the percentage distribution, the Chi-square value of 0.94 and a p-value of 0.624 suggest that these differences are not statistically significant. Since the p-value is greater than the 0.05 threshold, the null hypothesis, that there is no significant association between gender and level of risk tolerance is accepted.

In summary, both male and female entrepreneurs in Kerala show a fairly similar pattern in their willingness to take business risks. The statistics indicate that gender does not meaningfully influence how much risk an entrepreneur is comfortable taking. As a result, risk-handling behaviour appears to be evenly distributed across genders. This means that any interventions, training, or policy programs aimed at enhancing risk-taking ability can be designed inclusively, without the need to differentiate between male and female participants. The finding also

reinforces the view that entrepreneurial risk-taking is shaped more by individual mindset or external conditions than by gender.

4.III.B.17 Level of Entrepreneurial Risk Tolerance across Age

Ho: There is no significant association between age and level of risk tolerance among entrepreneurs in Kerala

Table 4.54

Chi-square for association between age and level of risk tolerance among entrepreneurs in Kerala

Age	Level of Risk Tolerance			Total	Chi-Square value	P value
	Low Level	Moderate Level	High Level			
20 to 35	20 (14.3%)	52 (37.1%)	68 (48.6%)	**140 (100%)**	4.99	0.287^{NS}
36 to 50	20 (10.6%)	78 (41.5%)	90 (47.9%)	**188 (100%)**		
>50	12 (21.4%)	22 (39.3%)	22 (39.3%)	**56 (100%)**		
Total	**52 (13.5%)**	**152 (39.6%)**	**180 (46.9%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table examines the relationship between age and risk tolerance levels among entrepreneurs in Kerala. In the 20 to 35 age group, 14.3% expressed low risk tolerance, 37.1% moderate, and 48.6% high. Among those aged 36 to 50, 10.6% fell into the low category, 41.5% moderate, and 47.9% high. For entrepreneurs above 50 years, 21.4% reported low risk tolerance, 39.3% moderate, and 39.3% high. The chi-square value is 4.99, and the corresponding p-value is 0.287, which exceeds the 0.05 significance level. This indicates that there is no statistically significant association between age and risk tolerance levels.

Generally, risk-taking ability appears to be fairly consistent across different age groups among entrepreneurs. While older entrepreneurs (above 50) have a slightly higher proportion of low risk tolerance, and the younger and middle-aged groups report relatively higher tolerance, these variations are not statistically meaningful.

Hence, the null hypothesis is accepted, confirming no significant association between age and level of risk tolerance. This means that risk-handling behaviour in entrepreneurial decisions is not necessarily age-dependent, suggesting that training or mentoring programs focusing on risk management can be developed and delivered uniformly across age categories without requiring age-specific tailoring.

4.III.B.18 Level of Entrepreneurial Risk Tolerance across Qualification

Ho: There is no significant association between educational qualification and level of risk tolerance among entrepreneurs in Kerala

Table 4.55

Chi-square for association between educational qualification and level of risk tolerance among entrepreneurs in Kerala

Educational Qualification	Level of Risk Tolerance			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Degree	20 (13.3%)	54 (36.0%)	76 (50.7%)	**150 (100%)**	7.59	0.108^{NS}
PG	30 (16.4%)	76 (41.8%)	76 (41.8%)	**182 (100%)**		
Professional	2 (3.9%)	22 (42.3%)	28 (53.8%)	**52 (100%)**		
Total	**52 (13.5%)**	**152 (39.6%)**	**180 (46.9%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table assesses the relationship between educational qualification and level of risk tolerance among entrepreneurs in Kerala. In case of degree holders, 13.3% reported low risk tolerance, 36.0% moderate, and 50.7% high. Postgraduates exhibit 16.4% low, 41.8% moderate, and 41.8% high risk tolerance. Entrepreneurs with professional qualifications disclose only 3.9% at low risk tolerance, 42.3% moderate, and the highest proportion 53.8% at high risk tolerance. The chi-square value is 7.59, and the p-value is 0.108, which exceeds the 0.05 significance level. Therefore, the association between educational qualification and risk tolerance is not statistically significant.

Put it simply, the level of risk-taking ability among entrepreneurs does not differ significantly based on their educational background. While assess

professionals appear to have slightly higher levels of high risk-tolerance, the variations among degree holders, postgraduates, and professionals are not large enough to confirm a definite trend. Since the p-value is not significant, the null hypothesis is accepted. This means that risk-handling behaviour among entrepreneurs is likely shaped by other factors such as personality traits, experience, or external environment rather than their formal educational qualifications. However, risk management training or support need not be customized based on educational level.

4.III.B.19 Level of Entrepreneurial Risk Tolerance across Type of Firm

Ho: There is no significant association between type of firm and level of risk tolerance among entrepreneurs in Kerala

Table 4.56

Chi-square for association between type of firm and level of risk tolerance among entrepreneurs in Kerala

Type of Firm	Level of Risk Tolerance			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Manufacturing	12 (8.2%)	52 (35.6%)	82 (56.2%)	**146 (100%)**	9.65	0.008**
Service	40 (16.8%)	100 (42.0%)	98 (41.2%)	**238 (100%)**		
Total	**52 (13.5%)**	**152 (39.6%)**	**180 (46.9%)**	**384 (100%)**		

***denotes significant at 1% level*

The table shows the association between the type of firm and the level of risk tolerance among entrepreneurs in Kerala. In case of manufacturing firms, 8.2% of entrepreneurs fall under low risk tolerance, 35.6% under moderate, and a dominant 56.2% under high risk tolerance. In contrast, among service firms, 16.8% report low risk tolerance, 42.0% moderate, and 41.2% high. The chi-square value is 9.65 with a p-value of 0.008, which is below the 0.01 significance level. This examines a statistically significant association between the type of firm and the level of risk tolerance.

In real-world terms, risk tolerance appears to vary meaningfully with the type of firm. Entrepreneurs in manufacturing firms are more dominant in the high-risk

tolerance category (56.2%), whereas those in service firms are more represented in the low-risk category (16.8%). This indicate that manufacturing entrepreneurs are generally more prepared or willing to take business risks, likely due to the investment-heavy and innovation-driven nature of their operations. In contrast, service entrepreneurs may adopt a more cautious approach. As the p-value is statistically significant, the null hypothesis is rejected. This means the type of firm is associated with variations in risk tolerance, and sector-specific strategies may be essential, especially to encourage and strengthen risk-taking ability among service sector entrepreneurs.

4.III.B.20 Level of Entrepreneurial Risk Tolerance across Location of Firm

Ho: There is no significant association between location of firm and level of risk tolerance among entrepreneurs in Kerala

Table 4.57

Chi-square for association between location of firm and level of risk tolerance among entrepreneurs in Kerala

Location of the Firm	Level of Risk Tolerance			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Corporation	20 (12.7%)	66 (41.8%)	72 (45.5%)	**158 (100%)**	8.62	0.071^{NS}
Municipality	20 (17.5%)	50 (43.9%)	44 (38.6%)	**114 (100%)**		
Panchayath	12 (10.7%)	36 (32.1%)	64 (57.2%)	**112 (100%)**		
Total	**52 (13.5%)**	**152 (39.6%)**	**180 (46.9%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The Chi-square test in table above evaluates the association between location of the firm and level of risk tolerance among entrepreneurs in Kerala. The calculated Chi-square value is 8.62 with a p-value of 0.071, which is not statistically significant at the 5% level. Among entrepreneurs in corporation areas, 12.7% show low risk tolerance, 41.8% moderate, and 45.5% high. Those in municipality areas, 17.5% report low, 43.9% moderate, and 38.6% high risk tolerance. At the same time, panchayath-based entrepreneurs report the lowest percentage at the low level (10.7%) and the highest at the high level (57.2%).

Despite these variations, the difference across locations is not large enough to confirm a statistically significant association between location and risk tolerance.

Though panchayath entrepreneurs exhibit the highest proportion of high-risk tolerance (57.2%), and municipality entrepreneurs are more represented at the low risk tolerance level (17.5%), these differences do not indicate a strong or consistent pattern when tested statistically. This means that the location of the business does not have a proven link with how much risk an entrepreneur is willing to take. Since the p-value is higher than 0.05, we accept the null hypothesis, concluding that there is no significant association between firm location and risk tolerance. This proposes that risk-taking tendencies may be more influenced by personal traits or external market pressures than by the geographical placement of the business, and thus, location-specific risk interventions may not be necessary.

4.III.B.21 Level of Entrepreneurial Innovativeness across Gender

Ho: There is no significant association between gender and level of innovativeness among entrepreneurs in Kerala

Table 4.58

Chi-square for association between gender and level of innovativeness among entrepreneurs in Kerala

Gender	Level of innovativeness			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Male	182 (53.5%)	88 (25.9%)	70 (20.6%)	**340 (100%)**	3.26	0.196^{NS}
Female	22 (50.0%)	8 (18.2%)	14 (31.8%)	**44 (100%)**		
Total	**204 (53.1%)**	**96 (25.0%)**	**84 (21.9%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table displays the distribution of innovativeness levels among male and female entrepreneurs in Kerala. Among male entrepreneurs, 53.5% fall under the low innovativeness category, 25.9% exhibit moderate levels, and 20.6% report high levels of innovativeness. In comparison, 50.0% of female entrepreneurs present low innovativeness, 18.2% moderate, and 31.8% high innovativeness. While females

appear to have a bit of higher proportion in the high innovativeness category, the Chi-square value of 3.26 and a p-value of 0.196 indicate that these differences are not statistically significant. Since the p-value is greater than 0.05, the null hypothesis, which states that there is no significant association between gender and level of innovativeness among entrepreneurs, is accepted.

In simple terms, the level of creativity, novelty in business ideas referred to as innovativeness does not seem to vary much between male and female entrepreneurs in Kerala. Though there are slight percentage differences, they are not strong enough to show any real gender-based influence on innovativeness. This specifies that both men and women are equally capable of introducing new ideas or methods in their ventures. Thus, initiatives to foster innovation in entrepreneurship need not differentiate between genders but can focus on strengthening overall innovation culture and support mechanisms that empower all entrepreneurs equally.

4.III.B.22 Level of Entrepreneurial Innovativeness across Age

Ho: There is no significant association between age and level of innovativeness among entrepreneurs in Kerala

Table 4.59

Chi-square for association between age and level of innovativeness among entrepreneurs in Kerala

Age	Level of Innovativeness			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
20 to 35	78 (55.7%)	32 (22.9%)	30 (21.4%)	**140 (100%)**	13.17	0.010**
36 to 50	96 (51.1%)	42 (22.3%)	50 (26.6%)	**188 (100%)**		
>50	30 (53.6%)	22 (39.3%)	4 (7.1%)	**56 (100%)**		
Total	**204 (53.1%)**	**96 (25.0%)**	**84 (21.9%)**	**384 (100%)**		

***denotes significant at 1% level*

The table demonstrates the association between age and level of innovativeness among entrepreneurs in Kerala. Among the 20 to 35 age group, 55.7% fall under low innovativeness, 22.9% under moderate, and 21.4% under high. In the 36 to 50 group,

51.1% are categorized as low, 22.3% as moderate, and 26.6% as high. For the age group above 50, 53.6% are in the low innovativeness category, 39.3% in moderate, and only 7.1% in high innovativeness. The chi-square test value is 13.17 with a p-value of 0.010, which is statistically significant at the 1% level. This indicates a significant association between age and innovativeness level.

In simple terms, this result suggests that the degree of innovativeness among entrepreneurs is influenced by their age. Middle-aged entrepreneurs (36 to 50) tend to expose slightly higher levels of high innovativeness, while younger entrepreneurs follow closely. However, entrepreneurs above 50 show a noticeably lower proportion of high innovativeness. As the p-value is less than 0.01, the null hypothesis is rejected. This finding implies that age is meaningfully associated with innovativeness, and entrepreneurship development programs could benefit from adopting age-specific strategies to nurture innovation, particularly focusing on enhancing innovative capacity in the older entrepreneurial group.

4.III.B.23 Level of Entrepreneurial Innovativeness across Qualification

Ho: There is no significant association between Educational Qualification and Level of Innovativeness among Entrepreneurs in Kerala

Table 4.60

Chi-square for association between educational qualification and level of innovativeness among entrepreneurs in Kerala

Educational Qualification	Level of Innovativeness			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Degree	76 (50.7%)	46 (30.7%)	28 (18.6%)	**150 (100%)**	5.00	0.287^{NS}
PG	100 (54.9%)	40 (22.0%)	42 (23.1%)	**182 (100%)**		
Professional	28 (53.9%)	10 (19.2%)	14 (26.9%)	**52 (100%)**		
Total	**204 (53.1%)**	**96 (25.0%)**	**84 (21.9%)**	**384 (100%)**		

^{NS} *denotes not significant*

The table assess the association between educational qualification and level of innovativeness among entrepreneurs in Kerala. Among those with a qualification of

degree, 50.7% fall into the low innovativeness category, 30.7% into moderate, and 18.6% into high. In case of postgraduates, 54.9% report low innovativeness, 22.0% moderate, and 23.1% high. Professionals express 53.9% low, 19.2% moderate, and a slightly higher 26.9% at high innovativeness. The chi-square value is 5.00 with a p-value of 0.287, which is higher than the 0.05 significance level. This means there is no statistically significant association between educational qualification and level of innovativeness.

In simple terms, the tendency to be innovative does not appear to be strongly linked to one's level of formal education. However, professionals slightly edge ahead in high innovativeness, the overall distribution of responses across educational categories is too similar to confirm a meaningful difference. Since the p-value is not statistically significant, the null hypothesis is accepted. This suggests that innovativeness among entrepreneurs may be more influenced by individual creativity, exposure to innovation practices, or business environment rather than their academic qualifications. As a result, innovation promotion efforts can be broadly executed without needing to distinguish between educational backgrounds.

4.III.B.24 Level of Entrepreneurial Innovativeness across Type of Firm

Ho: There is no significant association between type of firm and level of innovativeness among entrepreneurs in Kerala

Table 4.61

Chi-square for association between type of firm and level of innovativeness among entrepreneurs in Kerala

Type of Firm	Level of Innovativeness			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Manufacturing	78 (53.4%)	32 (21.9%)	36 (24.7%)	**146 (100%)**	1.73	0.420^{NS}
Service	126 (52.9%)	64 (26.9%)	48 (20.2%)	**238 (100%)**		
Total	**204 (53.1%)**	**96 (25.0%)**	**84 (21.9%)**	**384 (100%)**		

^{NS} *denotes Not Significant*

The table exhibits data on the association between the type of firm (manufacturing and service) and the level of innovativeness among entrepreneurs in Kerala. Among

manufacturing firms, 53.4% of entrepreneurs fall under low innovativeness, 21.9% under moderate, and 24.7% under high innovativeness. In the case of service firms, 52.9% are in the low category, 26.9% in moderate, and 20.2% in high innovativeness. The distribution patterns across both types of firms appear relatively same. The chi-square value is 1.73 with a p-value of 0.420, which is above the 0.05 threshold, denoting that the association is not statistically significant.

From a practical standpoint, the data denote that the level of innovativeness does not significantly differ between manufacturing and service entrepreneurs. While a slightly higher percentage of high-level innovativeness is seen among manufacturing entrepreneurs (24.7%), and moderate-level innovativeness is more evident in-service firms (26.9%), these variations are not meaningful enough to establish a consistent pattern. Since the p-value is not significant, the null hypothesis is accepted. This point out that the type of business, whether manufacturing or service does not have a strong influence on an entrepreneur's innovativeness, and hence, innovation promotion initiatives can be implemented across both sectors in a uniform manner.

4.III.B.25 Level of Entrepreneurial Innovativeness across Location of Firm

Ho: There is no significant association between location of firm and level of innovativeness among entrepreneurs in Kerala

Table 4.62

Chi-square for association between location of firm and level of innovativeness among entrepreneurs in Kerala

Location of the Firm	Level of Innovativeness			Total	Chi-Square value	p value
	Low Level	Moderate Level	High Level			
Corporation	72 (45.6%)	42 (26.6%)	44 (27.8%)	**158 (100%)**	11.63	0.020*
Municipality	72 (63.2%)	28 (24.6%)	14 (12.2%)	**114 (100%)**		
Panchayath	60 (53.6%)	26 (23.2%)	26 (23.2%)	**112 (100%)**		
Total	**204 (53.1%)**	**96 (25.0%)**	**84 (21.9%)**	**384 (100%)**		

**denotes significant at 5% level*

The Chi-square test exhibited in given table examines the association between the location of the firm and the level of innovativeness among entrepreneurs in Kerala. The Chi-square value is 11.63 with a p-value of 0.020, suggesting a statistically significant association at the 5% level. In terms of distribution, entrepreneurs in corporation areas reported 45.6% at the low level, 26.6% at the moderate level, and 27.8% at the high level of innovativeness. Municipality entrepreneurs have the highest percentage at the low level (63.2%), and the lowest at the high level (12.2%). In case of panchayath areas, 53.6% were in the low level, 23.2% in the moderate, and another 23.2% in the high level. The data shows notable regional variations in the level of innovativeness, with the highest proportion of low innovativeness in municipalities and relatively better distribution of high innovativeness in corporation areas.

In simple terms, entrepreneurs in municipality regions demonstrate the highest presence at low innovativeness levels (63.2%), while entrepreneurs in corporation areas stand out with the highest share at high innovativeness levels (27.8%). Panchayath regions also disclose a more balanced presence across the levels, with 23.2% of entrepreneurs falling into the high category. These variations suggest that firm location does affect how creative or innovative an entrepreneur tends to be. Since the p-value is below 0.05, the null hypothesis is rejected, confirming a significant association between firm location and level of innovativeness. This finding stipulates the need for location-targeted innovation support programs, especially in municipality areas, to foster a more dynamic and innovative entrepreneurial environment across all regions.

4.III.5 Conclusion

This Part investigated the psychological and behavioural foundations of entrepreneurship by analysing five critical traits- attitude, motivation, self-efficacy, risk tolerance, and innovativeness among entrepreneurs in Kerala. Using both descriptive and inferential statistical tools, the study provided a structured analysis of how these traits are distributed across the entrepreneurial population and how they

relate to socio-demographic and organizational characteristics. The theoretical and operational definitions of each construct were carefully framed to assure clarity and relevance to the entrepreneurial context. Through a data-driven approach, this part develops that internal dispositions play a vital role in shaping entrepreneurial behaviour, alongside external support systems.

The findings underscore that entrepreneurial traits do not function in a vacuum but are significantly influenced by background factors such as education, age, gender, firm type, and location. Understanding these associations is important for designing targeted interventions and support mechanisms that address the diverse needs of entrepreneurs. The insights arise from this Part lay a strong foundation for capacity-building initiatives, mentoring programs, and evidence-based policy making; all aimed at nurturing a more resilient, motivated, and innovative entrepreneurial ecosystem in Kerala.

Part **IV**

ENTREPRENEURIAL ECOSYSTEM ENHANCEMENT THROUGH START-UP SUPPORT: SERIAL MEDIATION BY ENTREPRENEURIAL TRAITS AND MODERATION BY RISK-TAKING BEHAVIOR

4.IV.1 Introduction

The development of a vibrant entrepreneurial ecosystem is often influenced by a range of support mechanisms, including institutional, infrastructural, and financial services provided to start-ups. However, the pathway through which these start-up support services translate into ecosystem outcomes is complex and multi-layered. This Part focuses on unraveling this complexity by examining the psychological mechanisms that mediate this relationship specifically, entrepreneurial attitude, motivation, and self-efficacy. Drawing upon cognitive-behavioral theories and ecosystem development frameworks, the study conceptualizes a serial mediation

model in which these three variables operate in sequence to transmit the effect of support services onto ecosystem-level outcomes.

Furthermore, entrepreneurial decision-making is not uniform and often varies based on individual characteristics such as risk-taking behaviour. This study introduces risk-taking as a moderator that potentially alters the strength or direction of the indirect effects within the mediation chain. By empirically testing this moderated serial mediation model, the section aims to provide a more nuanced understanding of how start-up support mechanisms interact with internal entrepreneurial dispositions to shape broader ecosystem performance. The findings are expected to offer both theoretical insights and practical implications for policymakers, incubators, and entrepreneurship support organizations.

4.IV.2 Research Objective

Objective 4: To empirically test a moderated serial mediation model in which the impact of start-up support services on the entrepreneurial ecosystem is mediated through the sequential influence of attitude, motivation, and self-efficacy, and moderated by entrepreneurs' risk-taking behaviour.

The moderated serial mediation analysis was conducted using IBM SPSS AMOS 21 and Microsoft Excel. At the model level, moderating effects were examined through the chi-square difference test, while the heterogeneity test was applied at the path level to determine the significance of the moderated serial mediation effect.

Section A

Confirmatory Factor Analysis for Validating Measurement Model and Reliability

In Covariance-Based Confirmatory Factor Analysis (CB-CFA), establishing the reliability and validity of constructs is a critical step in validating the measurement model. This process ensures that the observed variables accurately represent their underlying latent constructs. CFA follows a theory-driven framework, where the hypothesized relationships between indicators and their respective constructs are statistically tested. The evaluation focuses on four key aspects: composite reliability, convergent validity, discriminant validity, and internal consistency assessed through Cronbach's Alpha.

1) Composite Reliability (CR)

- CR evaluates the internal consistency of a latent construct using standardized factor loadings from CFA.
- It is considered a more accurate reliability measure than Cronbach's Alpha, particularly in confirmatory analysis.
- **Benchmark:** A CR value above 0.70 is considered acceptable, whereas values below 0.60 may indicate reliability concerns.

Source: *Hair et al. (2010)*

2) Convergent Validity

- Indicates the extent to which multiple indicators of the same construct are correlated.
- Key criteria include:
  - Standardized factor loadings greater than 0.50
  - Average Variance Extracted (AVE) exceeding 0.50
- AVE reflects the average proportion of variance captured by a construct from its indicators.

Sources: *Hair et al. (2010); Malhotra et al. (2001)*

3) Discriminant Validity

- Determines whether a construct is truly distinct from other constructs in the model.
- **Fornell and Larcker Criterion:** The square root of AVE for a given construct should be greater than its correlations with other constructs.
- If this condition is not met, it indicates poor construct distinctiveness.

Source: *Fornell and Larcker (1981)*

4) Cronbach's Alpha

- Measures the internal consistency of items within a construct.
- It reflects how well the items collectively represent a single underlying concept.

Acceptable thresholds:

- ≥ 0.70 for exploratory studies
- ≥ 0.80 for confirmatory or applied research

Source: *Nunnally (1978)*

5) Confirmatory Nature of CFA:

- Unlike Exploratory Factor Analysis (EFA), CFA tests a predefined measurement structure based on theoretical expectations.
- It is primarily used for theory validation and assessing model fit.

Source: *Suhr (2009)*

CFA I- Core Support System Factors

Figure 4.1

Core Support System factors

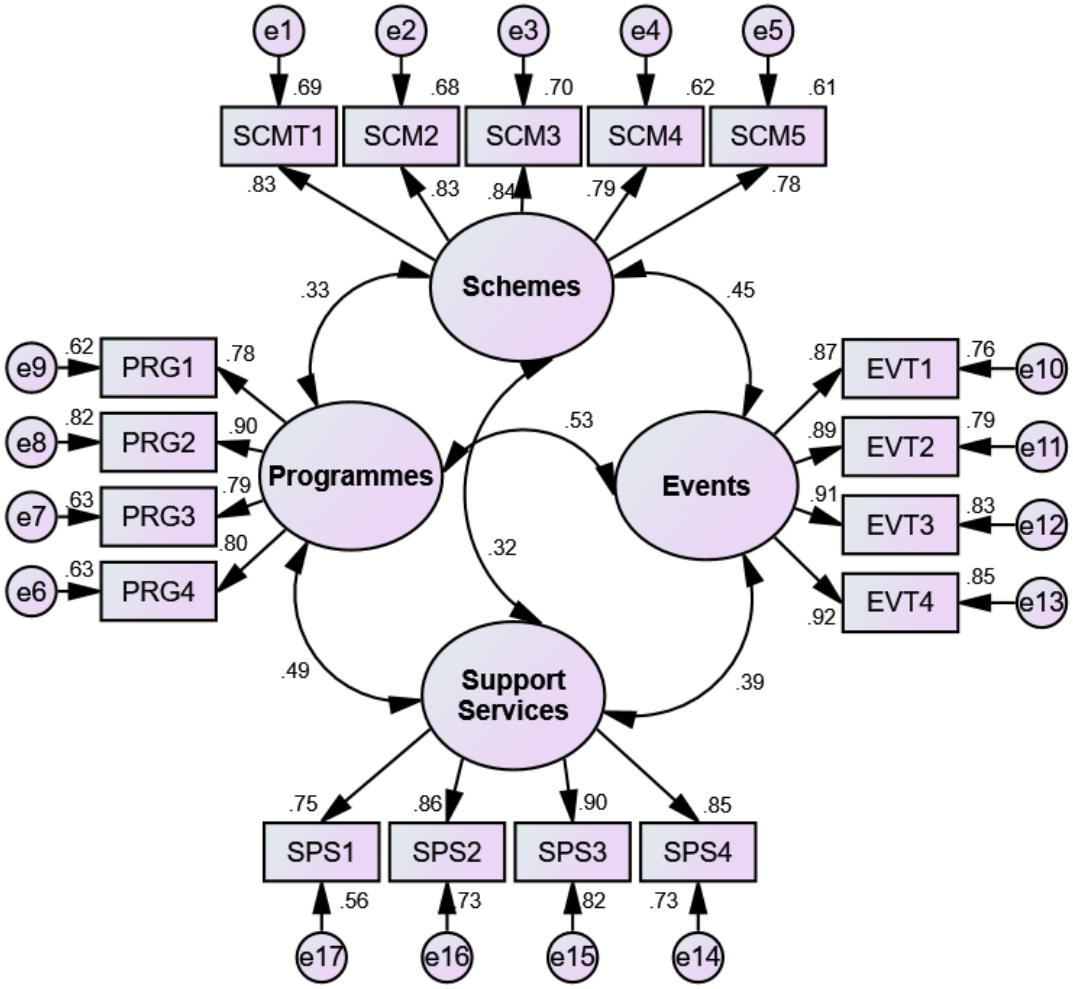


Table 4.63

Indexes of goodness of fit for use in evaluating the CFA model for core support system of Kerala Start Up Mission factors

Attributes	CMIN/DF	p-Value	GFI	AGFI	CFI	RMSEA
Study model	2.984	0.000	0.998	0.994	0.999	0.021
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08

The Confirmatory Factor Analysis (CFA) model for the Core Support System of the Kerala Start-up Mission exhibits an excellent overall fit, as demonstrated by multiple fit indices. The Chi-square to degrees of freedom ratio (CMIN/DF) is 2.984,

which falls well within the acceptable range of 1 to 5, indicating an appropriate model fit. Although the p-value is 0.000, which is below the recommended threshold of 0.05, this is commonly observed in large samples due to the sensitivity of the chi-square test and does not imply poor model fit. The model shows strong performance across other goodness-of-fit measures: the Goodness of Fit Index (GFI) is 0.998, the Adjusted Goodness of Fit Index (AGFI) is 0.994, and the Comparative Fit Index (CFI) is 0.999—each exceeding the recommended minimum value of 0.90, thus reflecting a very good model fit. Furthermore, the Root Mean Square Error of Approximation (RMSEA) is 0.021, which is well below the threshold of 0.08, indicating a close approximation between the model and the population covariance matrix. Collectively, these indices confirm the robustness and validity of the CFA model for measuring the dimensions of the core support system.

Table 4.64

Final Reliability and Validity of CFA Model for the factors of core support system of Kerala Start Up Mission

Constructs of core support system of Kerala Start Up Mission	Item Code	Factor Loading	Cronbach's Alpha Final	AVE	Composite Reliability
Schemes (SCM)	SCM1	0.83**	0.89	0.66	0.91
	SCM2	0.83**			
	SCM3	0.84**			
	SCM4	0.79**			
	SCM5	0.78**			
Programs (PRG)	PRG1	0.78**	0.87	0.67	0.89
	PRG2	0.90**			
	PRG3	0.79**			
	PRG4	0.80**			
Support Services (SPS)	SPS1	0.75**	0.88	0.71	0.91
	SPS2	0.86**			
	SPS3	0.90**			
	SPS4	0.85**			
Events (EVT)	EVT1	0.87**	0.91	0.81	0.94
	EVT2	0.89**			
	EVT3	0.91**			
	EVT4	0.92**			

***denotes significant at 1% level*

The final Confirmatory Factor Analysis (CFA) results for the Core Support System of the Kerala Start-up Mission demonstrate satisfactory levels of reliability and validity across all constructs. Each item showed strong and statistically significant factor loadings ($p < 0.01$), ranging from 0.75 to 0.92. The Schemes (SCM) construct reported a Cronbach's Alpha of 0.89, AVE of 0.66, and Composite Reliability (CR) of 0.91. Programs (PRG) achieved a Cronbach's Alpha of 0.87, AVE of 0.67, and CR of 0.89. The Support Services (SPS) construct showed a Cronbach's Alpha of 0.88, AVE of 0.71, and CR of 0.91. Lastly, Events (EVT) demonstrated the highest internal consistency, with a Cronbach's Alpha of 0.91, AVE of 0.81, and CR of 0.94. All AVE values exceeded the recommended threshold of 0.50, confirming convergent validity, and the CR values were well above 0.70, confirming construct reliability, thereby validating the measurement model for the core support system dimensions.

Table 4.65

Discriminant Validity among the factors of core support system

Constructs	SCM	PRG	SPS	EVT
SCM	**(0.81)**			
PRG	0.33	**(0.82)**		
SPS	0.32	0.49	**(0.84)**	
EVT	0.45	0.53	0.39	**(0.90)**

The discriminant validity among the factors of the core support system was assessed using the Fornell-Larcker criterion. The square roots of the Average Variance Extracted (AVEs), shown diagonally in parentheses, are greater than the corresponding inter-construct correlation coefficients, confirming adequate discriminant validity indicating that each factor captures a distinct dimension of the core support system.

CFA II- Entrepreneurial Traits, Risk Tolerance and Innovativeness Factors

Figure 4.2

Entrepreneurial Traits, Risk Tolerance and Innovativeness Factors

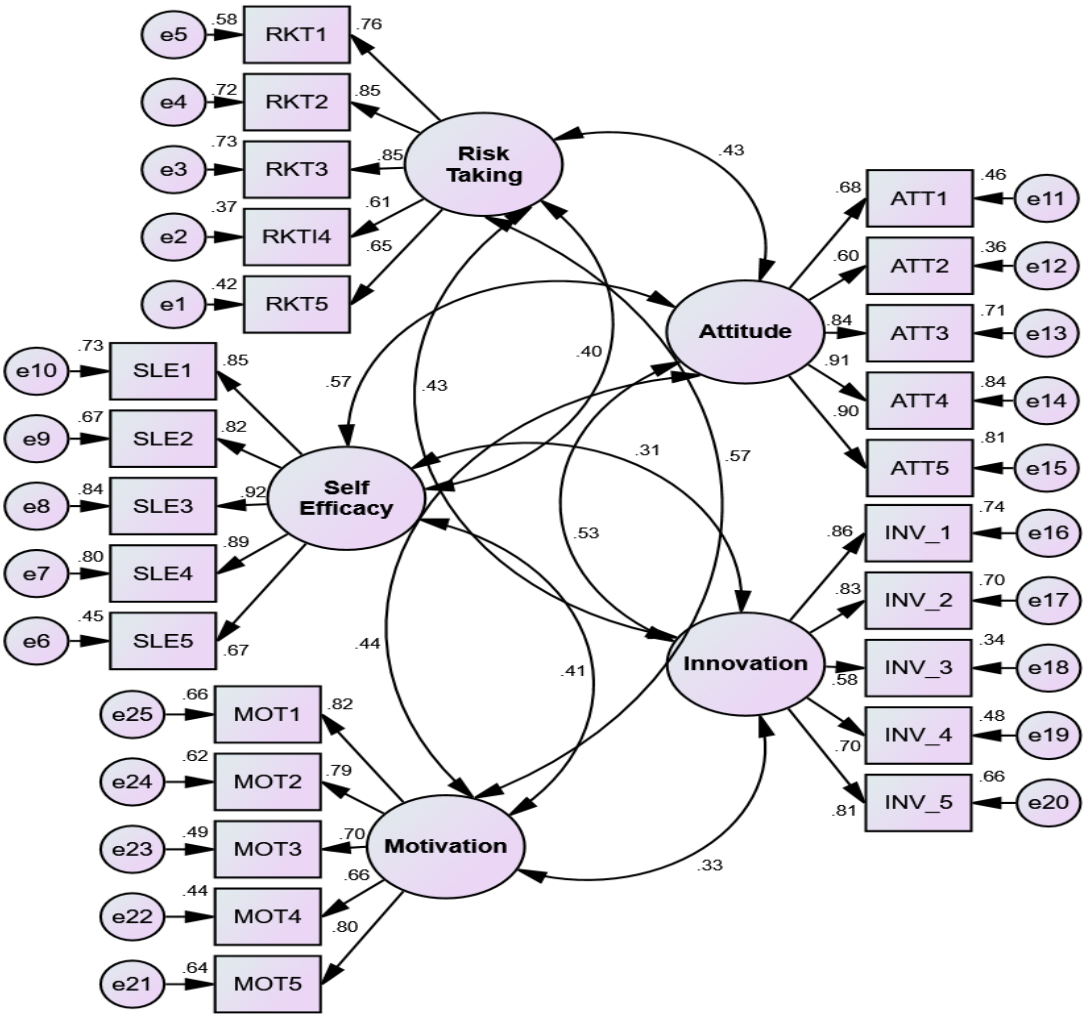


Table 4.66

Indexes of goodness of fit for use in evaluating the CFA model for entrepreneurial traits, risk tolerance and innovativeness factors

Attributes	CMIN/DF	p-value	GFI	AGFI	CFI	RMSEA
Study model	3.119	0.000	0.985	0.964	0.993	0.049
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08

The Confirmatory Factor Analysis (CFA) model for the constructs of entrepreneurial traits, risk tolerance, and innovativeness demonstrates an overall acceptable and robust model fit. The Chi-square to degrees of freedom ratio (CMIN/DF) is 3.119, which falls within the recommended range of 1 to 5, indicating an adequate level of fit. Although the p-value is 0.000—below the ideal threshold of 0.05—this is a common occurrence in CFA with large samples due to the chi-square test's sensitivity and does not necessarily indicate poor model fit. The remaining fit indices strongly support the model's adequacy: the Goodness of Fit Index (GFI) is 0.985, the Adjusted Goodness of Fit Index (AGFI) is 0.964, and the Comparative Fit Index (CFI) is 0.993—all exceeding the recommended threshold of 0.90, thus reflecting a strong fit to the data. Additionally, the Root Mean Square Error of Approximation (RMSEA) is 0.049, which is below the maximum acceptable value of 0.08, suggesting a close fit between the hypothesized model and the population covariance matrix. Together, these indicators confirm that the CFA model provides a statistically sound and valid representation of the underlying factors.

Table 4.67

Final Reliability and Validity of CFA Model for the factors of entrepreneurial traits, risk tolerance and innovativeness

Constructs of entrepreneurial traits, risk tolerance and innovativeness	Item Code	Factor Loading	Cronbach's Alpha Final	AVE	Composite Reliability
Risk Taking (RKT)	RKT1	0.76**	0.83	0.56	0.86
	RKT2	0.85**			
	RKT3	0.85**			
	RKT4	0.61**			
	RKT5	0.65**			
Self Efficacy (SLE)	SLE1	0.85**	0.89	0.70	0.92
	SLE2	0.82**			
	SLE3	0.92**			
	SLE4	0.89**			
	SLE5	0.67**			
Motivation (MOT)	MOT1	0.82**	0.85	0.57	0.87
	MOT2	0.79**			
	MOT3	0.70**			
	MOT4	0.66**			
	MOT5	0.80**			
Attitude (ATT)	ATT1	0.68**	0.87	0.63	0.89
	ATT2	0.60**			
	ATT3	0.84**			
	ATT4	0.91**			
	ATT5	0.90**			
Innovation (INV)	INV1	0.86**	0.85	0.58	0.87
	INV2	0.83**			
	INV3	0.58**			
	INV4	0.70**			
	INV5	0.81**			

***denotes significant at 1% level*

The Confirmatory Factor Analysis (CFA) model assessing the constructs of entrepreneurial traits, including risk-taking, self-efficacy, motivation, attitude, and innovation, demonstrated satisfactory reliability and validity. All constructs exhibited Cronbach's alpha values above the acceptable threshold of 0.70, indicating good internal consistency, with values ranging from 0.83 (risk-taking) to 0.89 (self-efficacy). The Average Variance Extracted (AVE) for each construct was above 0.50, confirming convergent validity, while composite reliability scores exceeded 0.86 for all constructs, further supporting the model's internal consistency and construct validity. All factor loadings were statistically significant at the 1% level, with most items loading above 0.50, ensuring the appropriateness of individual indicators in measuring their respective latent constructs. Hence, the CFA model affirms the robustness of the measurement model used to evaluate entrepreneurial characteristics in the study.

Table 4.68

Discriminant Validity among the factors of entrepreneurial traits, risk tolerance and innovativeness

Constructs	RKT	SLE	MOT	ATT	INV
RKT	**(0.75)**				
SLE	0.40	**(0.84)**			
MOT	0.57	0.41	**(0.75)**		
ATT	0.43	0.57	0.44	**(0.79)**	
INV	0.43	0.31	0.33	0.53	**(0.76)**

The discriminant validity among the constructs of entrepreneurial traits, including Risk Tolerance (RKT), Self-Efficacy (SLE), Motivation (MOT), Attitude (ATT), and Innovativeness (INV), was assessed using the Fornell and Larcker (1981) criterion. According to this approach, the square root of the Average Variance Extracted (AVE) for each construct shown in parentheses along the diagonal should be greater than its correlations with other constructs in the model. In this analysis, all constructs met the criterion: the square root of AVE for RKT (0.75), SLE (0.84), MOT (0.75), ATT (0.79), and INV (0.76) each exceeded their respective inter-construct correlations. This indicates that each construct shares more variance with its

own indicators than with other constructs, thereby confirming adequate discriminant validity among the factors used to represent entrepreneurial traits in the study.

CFA III- Entrepreneurial Ecosystem Factors

Figure 4.3

Entrepreneurial Ecosystem Factors

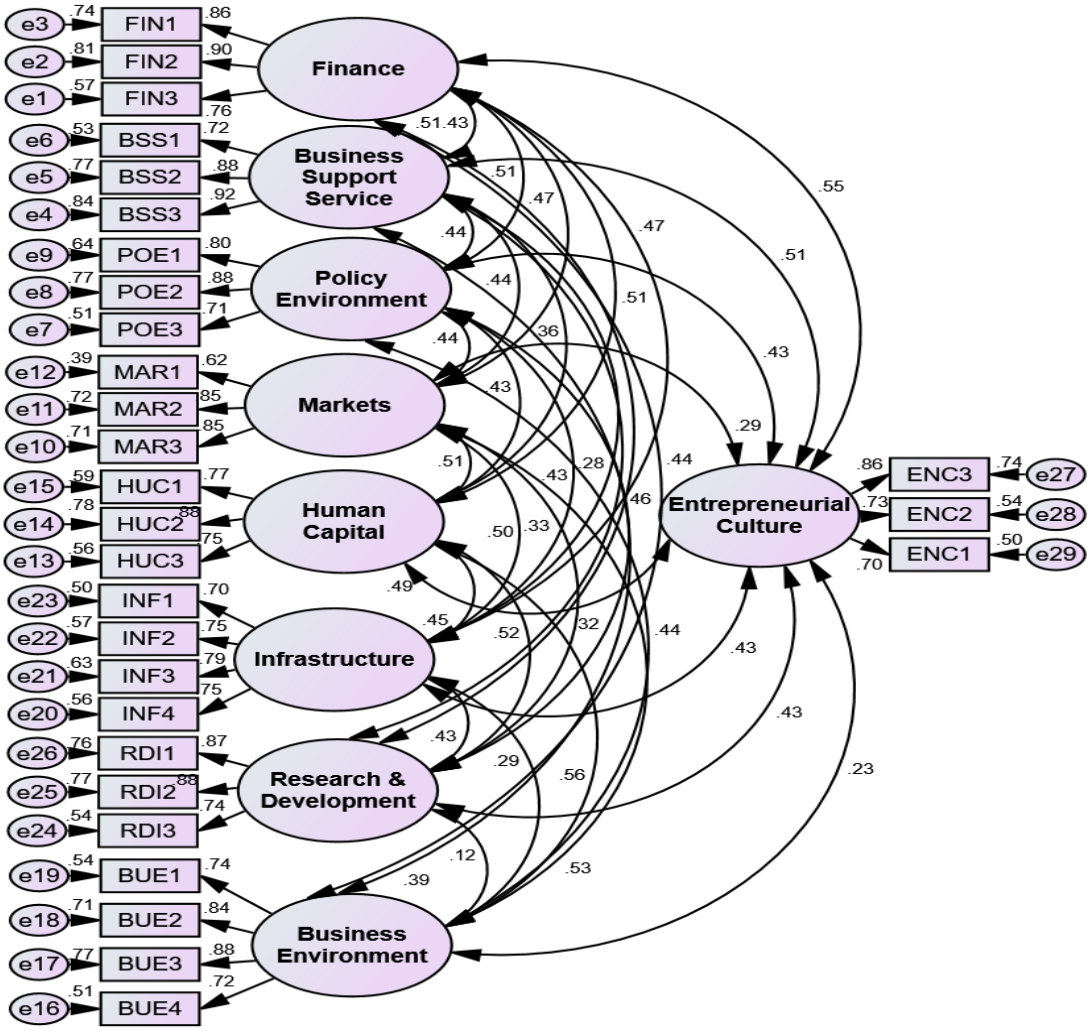


Table 4.69

Indexes of goodness of fit for use in evaluating the CFA model for entrepreneurial ecosystem factors

Attributes	CMIN/DF	P-Value	GFI	AGFI	CFI	RMSEA
Study model	4.256	0.000	0.964	0.942	0.983	0.067
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08

The Confirmatory Factor Analysis (CFA) model for the entrepreneurial ecosystem factors demonstrates a good overall model fit, based on widely accepted fit indices. The Chi-square to degrees of freedom ratio (CMIN/DF) is 4.256, which lies within the acceptable range of 1 to 5, indicating a reasonable model fit. Although the p-value is 0.000 below the preferred threshold of 0.05 this is typical in large sample sizes due to the chi-square test's sensitivity and is not necessarily indicative of poor fit. Other key fit indices strongly support model adequacy: the Goodness of Fit Index (GFI) is 0.964, the Adjusted Goodness of Fit Index (AGFI) is 0.942, and the Comparative Fit Index (CFI) is 0.983 all exceeding the recommended minimum of 0.90, suggesting that the hypothesized model fits the data well. Additionally, the Root Mean Square Error of Approximation (RMSEA) is 0.067, which is comfortably below the upper limit of 0.08, further indicating an acceptable level of approximation between the model and the observed data. Overall, the results confirm that the measurement model for the entrepreneurial ecosystem factors is statistically valid and reliable.

Table 4.70

Final Reliability and Validity of CFA Model for the factors of entrepreneurial ecosystem

Constructs of entrepreneurial ecosystem	Item Code	Factor Loading	Cronbach's Alpha Final	AVE	Composite Reliability
Finance (FIN)	FIN1	0.86**	0.85	0.71	0.88
	FIN2	0.90**			
	FIN3	0.76**			
Business Support Service (BSS)	BSS1	0.72**	0.87	0.71	0.88
	BSS2	0.88**			
	BSS3	0.92**			
Policy Environment (POE)	POE1	0.80**	0.81	0.64	0.84
	POE2	0.88**			
	POE3	0.71**			
Markets (MAR)	MAR1	0.62**	0.80	0.61	0.82
	MAR2	0.85**			
	MAR3	0.85**			
Human Capital (HUC)	HUC1	0.77**	0.81	0.64	0.84
	HUC2	0.88**			
	HUC3	0.75**			
Infrastructure (INF)	INF1	0.70**	0.83	0.56	0.84
	INF2	0.75**			
	INF3	0.79**			
	INF4	0.75**			
Research & Development (RDI)	RDI1	0.87**	0.85	0.69	0.87
	RDI2	0.88**			
	RDI3	0.74**			
Business Environment (BUE)	BUE1	0.74**	0.85	0.64	0.87
	BUE2	0.84**			
	BUE3	0.88**			
	BUE4	0.72**			
Entrepreneurial Culture (ENC)	ENC1	0.70**	0.80	0.59	0.81
	ENC2	0.73**			
	ENC3	0.86**			

**denotes significant at 1% level

The final Confirmatory Factor Analysis (CFA) results for the Entrepreneurial Ecosystem model confirm strong reliability and validity across all nine identified constructs. All item factor loadings were statistically significant at the 1% level ($p < 0.01$), ranging from 0.62 to 0.92, indicating robust indicator reliability. The constructs demonstrated acceptable internal consistency, with Cronbach's Alpha values ranging from 0.80 (Entrepreneurial Culture) to 0.87 (Business Support Service), all exceeding the recommended threshold of 0.70. The Average Variance Extracted (AVE) values for all constructs ranged from 0.56 to 0.71, surpassing the 0.50 benchmark, thereby confirming convergent validity. Similarly, Composite Reliability (CR) values ranged from 0.81 to 0.88, all above the minimum threshold of 0.70, establishing strong construct reliability. These findings validate that the latent variables—Finance, Business Support Services, Policy Environment, Markets, Human Capital, Infrastructure, Research & Development, Business Environment, and Entrepreneurial Culture—are measured consistently and accurately, confirming the robustness of the measurement model for evaluating the entrepreneurial ecosystem.

Table 4.71

Discriminant Validity among the factors of entrepreneurial ecosystem

Constructs	FIN	BSS	POE	MAR	HUC	INF	RDI	BUE	ENC
FIN	**(0.84)**								
BSS	0.43	**(0.84)**							
POE	0.51	0.44	**(0.80)**						
MAR	0.47	0.44	0.44	**(0.78)**					
HUC	0.51	0.36	0.43	0.51	**(0.80)**				
INF	0.47	0.28	0.43	0.50	0.45	**(0.75)**			
RDI	0.53	0.46	0.32	0.32	0.52	0.43	**(0.83)**		
BUE	0.44	0.39	0.44	0.53	0.56	0.29	0.12	**(0.80)**	
ENC	0.55	0.51	0.43	0.29	0.49	0.43	0.43	0.23	**(0.77)**

The discriminant validity of the entrepreneurial ecosystem constructs was assessed using the Fornell and Larcker (1981) criterion. According to this method, the square root of the Average Variance Extracted (AVE) for each construct (shown

in parentheses along the diagonal) should be greater than its correlations with other constructs. The results confirm that all constructs meet this requirement, indicating that each construct shares more variance with its own indicators than with any other construct. For instance, the square root of AVE for Finance (0.84) exceeds its correlations with BSS (0.43), POE (0.51), and other constructs. Similar patterns are observed for BSS (0.84), POE (0.80), MAR (0.78), HUC (0.80), INF (0.75), RDI (0.83), BUE (0.80), and ENC (0.77). These findings confirm that each dimension of the entrepreneurial ecosystem is empirically distinct, thereby establishing strong discriminant validity within the measurement model.

Section B

Hypotheses Formulation

SM.H1: Core services of the Kerala Start-up Mission positively influence the entrepreneurial ecosystem.

Entrepreneurial ecosystem theory emphasizes that institutional support such as access to funding, incubation, and mentorship enhances startup sustainability and contributes to ecosystem vibrancy (Spigel, 2017; Stam & Van de Ven, 2021). Empirical studies confirm that public and policy-driven support infrastructures are critical to improving entrepreneurial performance and ecosystem-level outcomes (Autio et al., 2014).

SM.H2: Core services of the Kerala Start-up Mission positively influence entrepreneurial attitude.

According to the Theory of Planned Behaviour (Ajzen, 1991), institutional support systems influence cognitive factors such as attitude. Programs that offer guidance, training, and exposure can help shape positive perceptions toward entrepreneurship (Fayolle & Gailly, 2015). Empirical evidence from entrepreneurship education studies indicates that access to structured startup services improves individual entrepreneurial attitudes (Martin, McNally, & Kay, 2013).

SM.H3: Entrepreneurial attitude positively influences entrepreneurial motivation.

A favourable attitude has been found to significantly impact motivational drive and persistence in pursuing entrepreneurial goals (Schlaegel & Koenig, 2014). This relationship is supported by TPB and further reinforced in empirical studies showing that positive attitudes toward entrepreneurship lead to increased motivational readiness (Zampetakis, 2008; Guerrero et al., 2008).

SM.H4: Entrepreneurial motivation positively influences entrepreneurial self-efficacy.

Social Cognitive Theory and Self-Determination Theory assert that motivation fuels an individual's belief in their capacity to achieve goals (Bandura, 1997; Deci & Ryan, 2000). Empirical studies support this view, showing that highly motivated individuals report higher levels of entrepreneurial self-efficacy (Newman et al., 2019; Tsai et al., 2016).

SM.H5: Entrepreneurial self-efficacy positively influences the entrepreneurial ecosystem.

Entrepreneurial self-efficacy (ESE) is a critical driver of venture behavior, networking, and resource mobilization core mechanisms of ecosystem participation (McGee et al., 2009; Miao, Qian, & Ma, 2017). High ESE leads entrepreneurs to actively engage with and utilize the ecosystem, thereby contributing to its growth and sustainability (Liñán et al., 2011).

SM.H6: Entrepreneurial traits specifically attitude, motivation, and self-efficacy serially mediate the relationship between the core support services of the Kerala Start-up Mission and the entrepreneurial ecosystem, and this indirect relationship is moderated by the entrepreneur's risk-taking behaviour

Based on the resource-based view (Barney, 1991) and social cognitive theory (Bandura, 1986), it is posited that entrepreneurial traits such as attitude, motivation, and self-efficacy function as critical psychological

mechanisms that sequentially mediate the relationship between institutional support specifically, the core services provided by the Kerala Start-up Mission—and the development of a robust entrepreneurial ecosystem. Prior studies affirm that structured support services can positively shape entrepreneurs' perceptions and behaviours (Isenberg, 2010; Stam & Spigel, 2016), while psychological traits like attitude and self-efficacy are shown to drive entrepreneurial engagement and ecosystem contributions (Krueger et al., 2000; Zhao et al., 2005). Moreover, the moderating role of risk-taking behaviour is grounded in trait theory and empirical findings that suggest individuals with higher risk tolerance are more likely to convert institutional support and psychological readiness into entrepreneurial action (Stewart & Roth, 2001; Caliendo et al., 2009).

Based on this theoretical and empirical foundation, the following hypotheses are formulated:

Table 4.72

Summary of formulated Hypothesis

SI. NO.	Hypotheses
SM.H1	Core services of Kerala Startup Mission has a positive effect on entrepreneurial ecosystem
SM.H2	Core services of Kerala Startup Mission has a positive effect on entrepreneurial attitude
SM.H3	Entrepreneurial attitude has a positive effect on entrepreneurial motivation
SM.H4	Entrepreneurial motivation has a positive effect on entrepreneurial self-efficacy
SM.H5	Entrepreneurial self-efficacy has a positive effect on entrepreneurial ecosystem
SM.H6	Entrepreneurial traits specifically attitude, motivation, and self-efficacy serially mediate the relationship between the core support services of the Kerala Start-up Mission and the entrepreneurial ecosystem, and this indirect relationship is moderated by the entrepreneur's risk-taking behaviour

SM.H1 to SM.H6 indicates serial mediation hypotheses

Section C

Model Development

A moderated serial mediation model for the study is developed on the following lines:

4.IV.C.1 Moderated mediation analysis; an overview

Moderated mediation is a conceptual framework that combines the principles of both mediation and moderation to explain how and under what conditions an independent variable influences a dependent variable through one or more mediators. In this framework, the mediation effect is not assumed to be uniform; rather, it is conditional upon the presence or level of a third variable known as the moderator. This approach is particularly relevant in behavioural and management research, where individual differences or contextual factors may alter the strength or direction of the indirect effect. By incorporating a moderator into the mediation model, researchers can identify for whom or under what circumstances the mediating process is more or less effective.

In the present study, the relationship between start-up support services and the entrepreneurial ecosystem is conceptualized as a moderated serial mediation model, wherein the effect of support services is transmitted through a sequential chain of psychological constructs namely, entrepreneurial attitude, motivation, and self-efficacy. This indirect pathway is hypothesized to be moderated by the level of risk-taking behaviour of entrepreneurs. In other words, the strength of the sequential mediation may vary depending on whether the entrepreneur demonstrates a high or low tendency to take risks. This model captures the conditional nature of the entrepreneurial response to institutional support and provides a nuanced understanding of how internal psychological mechanisms and individual differences jointly shape ecosystem-level outcomes.

Figure 4.4

A Moderated Serial Mediation Analysis of Entrepreneurial Ecosystem in Kerala: Investigating how the Core Services of the Kerala Start-up Mission influence Ecosystem Outcomes through Entrepreneurial Traits at LOW LEVEL of Risk-Taking Behaviour

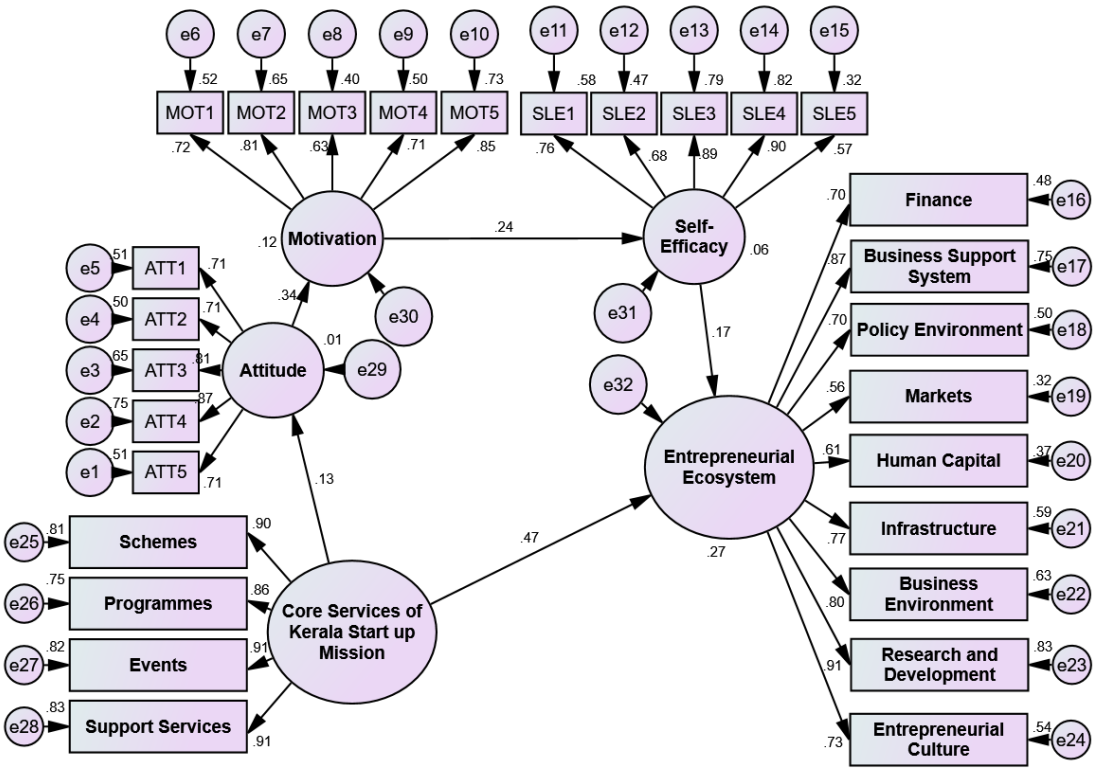


Table 4.73

Path analysis for the Moderated Serial Mediation Analysis of Entrepreneurial Ecosystem in Kerala: Investigating How the Core Services of the Kerala Start-up Mission Influence Ecosystem Outcomes Through Entrepreneurial Traits at Low Levels of Risk-Taking Behaviour

Constructs	Path	Constructs	Beta Estimate	R Square value	P value	Result
Core Services of the Kerala Start-up Mission	→	**Entrepreneurial Ecosystem**	0.47	0.27	<0.001**	***Supported***
Self-Efficacy	→	**Entrepreneurial Ecosystem**	0.17		<0.001**	***Supported***
Core Services of the Kerala Start-up Mission	→	**Attitude**	0.13	0.01	0.042*	***Supported***
Attitude	→	**Motivation**	0.34	0.12	<0.001**	***Supported***
Motivation	→	**Self-Efficacy**	0.24	0.06	<0.001**	***Supported***

** *indicates significant at 1% level*

4.IV.C.2 Path Analysis Under Entrepreneurs With Low Risk Taking Propensity

SM.H1: Core services of Kerala Startup Mission have a positive effect on the entrepreneurial ecosystem.

The path analysis reveals a statistically significant positive effect of the core services of the Kerala Start-up Mission on the entrepreneurial ecosystem ($\beta = 0.47$, $p < 0.001$). This indicates that when entrepreneurs, even those with low risk-taking tendencies, are provided with structured support they are more likely to engage meaningfully in the entrepreneurial ecosystem. These services help reduce perceived uncertainty and provide a conducive environment for cautious entrepreneurs to explore and participate in economic activities.

SM.H2: Core services of Kerala Startup Mission have a positive effect on entrepreneurial attitude.

A positive and statistically significant relationship exists between the core services and entrepreneurial attitude ($\beta = 0.13$, $p = 0.042$). This suggests that exposure to institutional support helps entrepreneurs, particularly those less inclined to take risks, to develop a more favorable view of entrepreneurship. The presence of government-backed programs increases confidence in the entrepreneurial journey, gradually shaping a mindset that sees entrepreneurship as less risky and more rewarding.

SM.H3: Entrepreneurial attitude has a positive effect on entrepreneurial motivation.

The findings show a strong, significant positive effect of entrepreneurial attitude on motivation ($\beta = 0.34$, $p < 0.001$). This implies that when individuals perceive entrepreneurship positively, they become more personally driven to act on their ideas. For low risk-taking entrepreneurs, a constructive attitude serves as the foundation for inner motivation, encouraging them to pursue opportunities despite their cautious disposition.

SM.H4: Entrepreneurial motivation has a positive effect on entrepreneurial self-efficacy.

Entrepreneurial motivation is found to significantly enhance self-efficacy ($\beta = 0.24$, $p < 0.001$). This means that once entrepreneurs feel personally motivated and goal-oriented, they are more likely to believe in their own ability to execute entrepreneurial tasks. For individuals with low tolerance for risk, this internal motivation plays a crucial role in building the confidence needed to take calculated entrepreneurial actions.

SM.H5: Entrepreneurial self-efficacy has a positive effect on the entrepreneurial ecosystem.

A statistically significant positive path exists between entrepreneurial self-efficacy and the entrepreneurial ecosystem ($\beta = 0.17$, $p < 0.001$). This indicates that confident entrepreneurs are more likely to engage with and contribute to their surrounding entrepreneurial environment. Among risk-averse individuals, increased self-efficacy encourages proactive behaviour such as networking, innovation, and seeking support, which collectively enrich the ecosystem.

4.IV.C.3 Explanation of R Square Values (low level risk taking case)

The R^2 values derived from the path analysis represent the proportion of variance in each dependent construct that is explained by its respective predictor variables within the model. In this study, the entrepreneurial ecosystem shows an R^2 value of 0.27, indicating that 27% of the variation in ecosystem development is explained by the core services of the Kerala Start-up Mission and entrepreneurial self-efficacy. This reflects a moderately strong influence, suggesting that institutional support and individual psychological readiness together play a crucial role in shaping ecosystem outcomes, even among entrepreneurs with lower risk-taking behavior.

Similarly, entrepreneurial motivation shows an R^2 of 0.12, implying that attitude explains 12% of the variance in motivation. This highlights the significance of fostering a positive perception of entrepreneurship in driving personal motivation. Entrepreneurial self-efficacy has an R^2 of 0.06, showing that motivation accounts for 6% of the variation, which is meaningful in psychological models where many internal and external factors interact. Lastly, entrepreneurial attitude shows an R^2 of 0.01, indicating that while core services contribute to shaping attitude, other external influences such as personal background, social norms, and cultural factors may also be influential.

The R^2 value for entrepreneurial attitude is only 0.01, indicating that the core services of the Kerala Start-up Mission explain just 1% of the variation in entrepreneurial attitude under conditions of low risk-taking behaviour. This suggests that while support services have some influence, they are not sufficient to bring about a strong positive shift in mindset among risk-averse entrepreneurs. The minimal impact implies that these individuals may require more than structural or programmatic support such as personalized mentoring, motivational interventions, or exposure-based learning to meaningfully improve their attitude toward entrepreneurship. It highlights a key area where existing policy interventions may fall short in addressing the psychological readiness of cautious or hesitant individuals to pursue entrepreneurial activity.

Overall, these R^2 values collectively demonstrate that the model has meaningful explanatory power and confirm that a combination of institutional and psychological mechanisms is vital for strengthening entrepreneurship in Kerala, particularly for cautious or risk-averse individuals. These findings carry practical relevance for policy-makers seeking to enhance ecosystem outcomes by integrating both support infrastructure and behavioural development in entrepreneurial programs.

Figure 4.5

A Moderated Serial Mediation Analysis of Entrepreneurial Ecosystem in Kerala: Investigating How the Core Services of the Kerala Start-up Mission Influence Ecosystem Outcomes Through Entrepreneurial Traits at HIGH LEVEL of Risk-Taking Behaviour

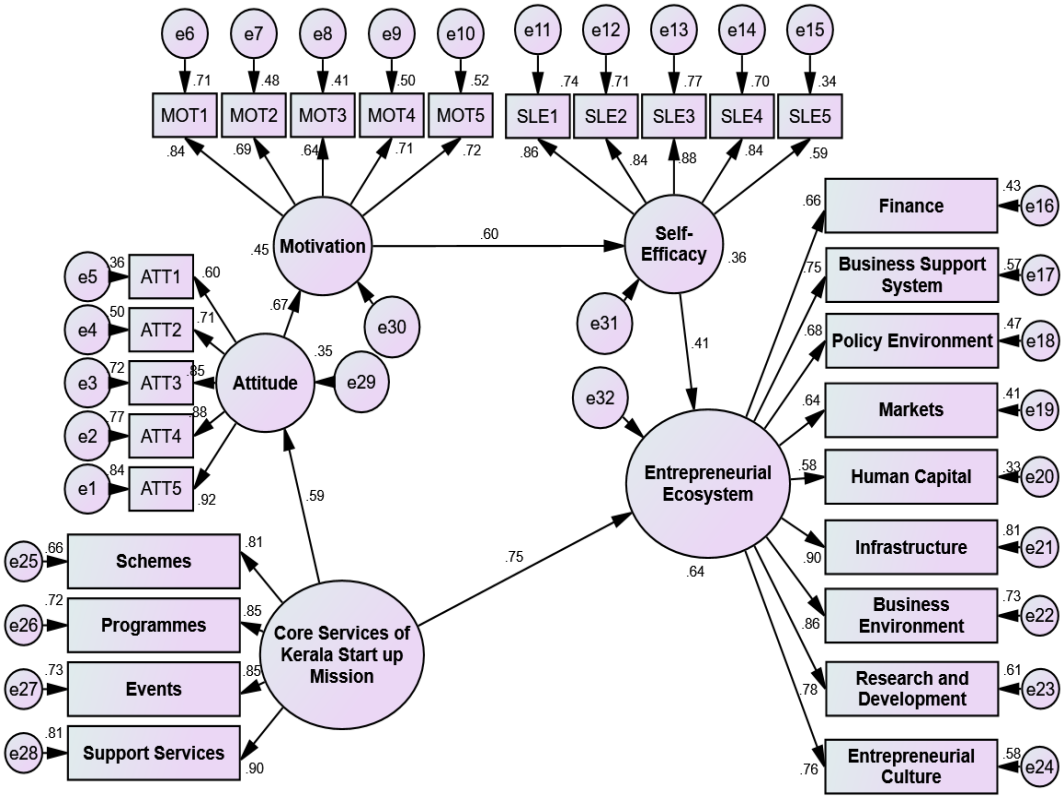


Table 4.74

Path analysis for the Moderated Serial Mediation Analysis of Entrepreneurial Ecosystem in Kerala: Investigating How the Core Services of the Kerala Start-up Mission Influence Ecosystem Outcomes Through Entrepreneurial Traits at High Levels of Risk-Taking Behaviour

Constructs	Path	Constructs	Beta Estimate	R Square value	P value	Result
Core Services of the Kerala Start-up Mission	→	**Entrepreneurial Ecosystem**	0.75	0.64	<0.001**	***Supported***
Self-Efficacy	→	**Entrepreneurial Ecosystem**	0.41		<0.001**	***Supported***
Core Services of the Kerala Start-up Mission	→	**Attitude**	0.59	0.35	0.042*	***Supported***
Attitude	→	**Motivation**	0.67	0.45	<0.001**	***Supported***
Motivation	→	**Self-Efficacy**	0.60	0.36	<0.001**	***Supported***

*** indicates significant at 1% level*

4.IV.C.4 Path Analysis Under Entrepreneurs With High Risk-Taking Propensity

SM.H1: Core services of Kerala Startup Mission have a positive effect on the entrepreneurial ecosystem

Among entrepreneurs with high risk-taking propensity, the **strong and significant effect ($\beta = 0.75$, $p < 0.001$)** of core services on the entrepreneurial ecosystem suggests that these individuals are more likely to actively utilize and benefit from government-provided support structures. High-risk-takers typically show a greater readiness to explore opportunities, and hence, they are more responsive to institutional inputs like schemes, programmes, and mentorship. This enhances the ecosystem's vibrancy, with risk-taking entrepreneurs translating support into real market participation and innovation, thereby magnifying ecosystem-level impact.

SM.H2: Core services of Kerala Startup Mission have a positive effect on entrepreneurial attitude

The significant path (**$\beta = 0.59$, $p = 0.042$**) indicates that for entrepreneurs with high risk appetite, structured institutional support leads to more favourable attitudes toward entrepreneurship. Risk-takers tend to interpret support as an opportunity to experiment and push boundaries. The availability of funding, infrastructure, and event-based exposure offered by the Startup Mission likely reinforces their optimism, making them perceive entrepreneurship as both achievable and desirable. In this context, risk-taking acts as an enhancer, strengthening the attitudinal response to external support.

SM.H3: Entrepreneurial attitude has a positive effect on entrepreneurial motivation

The result (**$\beta = 0.67$, $p < 0.001$**) shows that high risk-takers who hold a positive entrepreneurial attitude are more deeply motivated to pursue their ventures. Their inherent comfort with uncertainty allows them to convert favourable attitudes into goal-driven action more confidently than risk-averse individuals. Positive attitudes—such as believing that entrepreneurship is a

viable and rewarding path—combined with risk-taking nature, strongly stimulate internal drive, ambition, and action readiness in these individuals.

SM.H4: Entrepreneurial motivation has a positive effect on entrepreneurial self-efficacy

The path (**$\beta = 0.60$, $p < 0.001$**) confirms that motivation significantly contributes to self-efficacy, especially among high risk-taking entrepreneurs. These individuals tend to thrive on challenge and are internally driven, which means their motivation is not easily undermined by fear of failure. As a result, their motivation more effectively translates into the belief that they can initiate, manage, and scale ventures. Risk-takers see difficulties as growth opportunities, thus allowing motivation to elevate their confidence and capability perceptions.

SM.H5: Entrepreneurial self-efficacy has a positive effect on the entrepreneurial ecosystem

The path (**$\beta = 0.41$, $p < 0.001$**) demonstrates that among high risk-takers, those with high self-efficacy contribute more actively to the entrepreneurial ecosystem. Confident risk-takers are more likely to participate in policy feedback, mentor networks, startup forums, and innovation hubs—thereby engaging with and enriching the ecosystem. Their confidence in handling ambiguity and resource constraints enables them to capitalize on available ecosystem elements, making them not just beneficiaries but also contributors to entrepreneurial development.

4.IV.C.5 Explanation of R Square Values (high level risk taking case)

R Square values in the case of high level risk taking case are explained in detail as follows:

a) Entrepreneurial Ecosystem ($R^2 = 0.64$)

The entrepreneurial ecosystem construct has an R^2 value of 0.64, meaning that 64% of the variance in ecosystem development is explained by the core services of

Kerala Startup Mission and entrepreneurial self-efficacy. This is a high explanatory power, which indicates that institutional support combined with psychological traits plays a significant role in strengthening the ecosystem. For high risk-taking entrepreneurs, this is particularly impactful, as they are more likely to utilize policy incentives, venture capital support, and infrastructure offerings aggressively. The implication is clear: if the state and stakeholders continue to enhance the quality and accessibility of startup services while nurturing self-belief among entrepreneurs, it will produce a compounding effect that elevates the entire ecosystem's performance and responsiveness.

b) Entrepreneurial Attitude ($R^2 = 0.35$)

An R^2 value of 0.35 for entrepreneurial attitude implies that 35% of its variation is explained by the core services of the startup mission. This reflects a moderate level of influence, suggesting that while structured interventions like schemes, workshops, and mentoring do positively affect attitudes, other psychological, social, or cultural influences are also at play. For high risk-taking entrepreneurs, their predisposition to face uncertainty may amplify their responsiveness to these services. However, to strengthen entrepreneurial attitudes more comprehensively, the Kerala Startup Mission should invest in entrepreneurial mindset development programs, role model campaigns, and peer mentoring initiatives to reach deeper layers of perception and belief systems, especially for aspiring or early-stage entrepreneurs.

c) Entrepreneurial Motivation ($R^2 = 0.45$)

The R^2 value for entrepreneurial motivation is 0.45, showing that entrepreneurial attitude explains 45% of the variance in motivation. This is a meaningful level of predictability, indicating that the more favourable the entrepreneur's attitude toward entrepreneurship, the stronger their internal drive to pursue it. For high risk-takers, who are naturally driven to pursue challenges and uncertain ventures, a positive attitude further fuels their ambition, initiative, and goal orientation. In practice, this suggests that enhancing attitudes through structured exposure and psychological readiness programs can yield strong motivational outcomes. Policymakers and ecosystem developers should design programs that link attitude transformation

directly to motivational engagement, such as personal growth labs, startup boot camps, and goal-setting workshops.

d) Entrepreneurial Self-Efficacy ($R^2 = 0.36$)

With an R^2 of 0.36, entrepreneurial self-efficacy is moderately explained by motivation, indicating that 36% of the belief in one's entrepreneurial capabilities stems from motivational drivers. For entrepreneurs with high risk-taking propensity, this relationship is especially critical, as these individuals are more likely to act on their motivation if they feel confident about their skills and resources. This highlights the need for targeted interventions that not only inspire but also equip entrepreneurs with the tools and confidence to perform. Practical implications include offering hands-on training, simulation labs, real-time startup pitching platforms, and business validation support, which together can convert motivation into a stronger sense of entrepreneurial control and efficacy.

Table 4.75

Fit indices used to assess the adequacy of the moderated mediation model

Attributes	CMIN/DF	P-Value	GFI	AGFI	CFI	RMSEA
Study model	4.085	0.000	0.978	0.954	0.990	0.068
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08

The moderated mediation model demonstrates an acceptable overall model fit, as indicated by various standard fit indices. The CMIN/DF (Chi-square/degrees of freedom) value is 4.085, which falls within the acceptable range of 1 to 5, suggesting a reasonable level of model parsimony. Although the p-value is 0.000, indicating a statistically significant Chi-square, this is common in large sample sizes and does not necessarily invalidate model fit. The Goodness-of-Fit Index (GFI = 0.978) and Adjusted Goodness-of-Fit Index (AGFI = 0.954) are both above the recommended threshold of 0.90, suggesting that the model fits the observed data well. Additionally, the Comparative Fit Index (CFI = 0.990) far exceeds the 0.90 benchmark, indicating an excellent fit compared to an independent baseline model. Lastly, the Root Mean

Square Error of Approximation (RMSEA = 0.068) is within the acceptable limit of less than 0.08, reflecting a good approximation of model fit in the population. Collectively, these indices confirm that the model is statistically sound and structurally adequate for examining the hypothesized moderated mediation relationships.

Table 4.76

Mediation effects in the model using the bootstrapping technique, with a summary of the resulting values

Moderator	Independent construct	Mediation construct	Dependent construct	Direct effect	Serial mediation effect	Mediation Result
Low level risk taking behaviour	Core Services of the Kerala Start-up Mission	Attitude, Motivation & Self-efficacy	Entrepreneurial Ecosystem	0.47	0.00^{NS}	**No Serial mediation**
High level risk taking behaviour	Core Services of the Kerala Start-up Mission	Attitude, Motivation & Self-efficacy	Entrepreneurial Ecosystem	0.75	0.10*	**Partial Serial mediation**

** stands for a significance level of 5%. Values for indirect effects are estimated using the bootstrapping method with 5,000 replicates of the sample.*

4.IV.C.6 Interpretation of serial mediation analysis using bootstrapping

The mediation analysis was conducted using the bootstrapping method with 5,000 samples to examine the influence of the core services of the Kerala Start-up Mission on the entrepreneurial ecosystem, mediated through the psychological chain of entrepreneurial traits namely attitude, motivation, and self-efficacy. The model also considered the moderating role of entrepreneurs' risk-taking behaviour by comparing two distinct groups: low and high risk-takers. Among the low risk-taking group, the direct effect of core services on the entrepreneurial ecosystem was 0.47, indicating a significant effect. However, the serial mediation effect was found to be 0.00 and statistically non-significant, suggesting the absence of any mediation path through entrepreneurial traits in this group.

In contrast, for entrepreneurs with high risk-taking behaviour, both the direct and indirect effects were significant. The direct effect stood at 0.75, reflecting a strong influence of support services on ecosystem development. Importantly, the serial mediation path passing through the entrepreneurial traits was statistically significant with an indirect effect value of 0.10 ($p < 0.05$). This signifies a partial mediation effect, where both direct and indirect pathways contribute to the overall impact. The presence of a significant indirect effect only among high risk-takers indicates that the psychological mechanisms of entrepreneurial growth are activated more meaningfully in this group.

These results highlight the **moderating role of risk-taking behaviour** in determining how support services translate into ecosystem outcomes. For low risk-takers, support services operate largely through direct channels, such as access to finance, infrastructure, or mentoring. On the other hand, high risk-takers are more likely to internalize these services, triggering changes in their entrepreneurial traits. This internal transformation captured by the serial mediation chain enhances the effectiveness of external support, ultimately fostering a more vibrant and self-sustaining entrepreneurial ecosystem.

From a practical standpoint, these findings carry significant implications for the design of start-up development programs. Policymakers and incubation agencies like the Kerala Start-up Mission should recognize that entrepreneurs are not a homogenous group. Training programs focused on the development of entrepreneurial traits (e.g., confidence building, motivational sessions, and attitude shaping) may benefit high risk-takers more. In contrast, low risk-takers may respond better to tangible support mechanisms like technical assistance, funding, and business model development. Hence, personalized and behaviourally informed interventions should be integrated into start-up support systems to maximize impact.

In conclusion, the study provides clear empirical evidence that the success of entrepreneurial support services depends not only on what is offered but also on **who receives it** and **how they process it**. The moderated serial mediation model affirms

that internal changes in entrepreneurial traits significantly contribute to ecosystem development only among those with high risk-taking tendencies. Therefore, to build a resilient and dynamic entrepreneurial ecosystem, support systems must evolve from generic models to tailored strategies that account for entrepreneurial personality traits. This insight is vital for ensuring long-term sustainability and effectiveness of entrepreneurial development initiatives in Kerala and beyond.

The hypothesis proposing a moderated mediation effect was supported, indicating that the indirect influence of start-up support services on the entrepreneurial ecosystem transmitted through entrepreneurial traits such as attitude, motivation, and self-efficacy varied significantly based on the level of entrepreneurs' risk-taking behaviour. This finding confirms that risk-taking behaviour plays a crucial role in shaping how psychological traits mediate the relationship between support systems and ecosystem outcomes.

4.IV.C.7 Chi-square Difference Test for Assessing Moderation Effects at the Model Level

To evaluate the significance of the moderating effect at the model level, the chi-square difference test was applied as the statistical method. The results presented in the table below provide evidence regarding the presence of differences between the groups in the overall model.

Table 4.77

Chi-square difference test results indicating group differences at the model level

Models	Chi-square	df	P-value	Invariant?
Unconstrained model	496	115	0.014	No
Fully constrained model	512	121		
Number of groups		2		
Difference	16	6		

The chi-square difference test was conducted to assess whether significant differences exist between groups at the model level. The test compared the unconstrained model ($\chi^2 = 496$, df = 115, p = 0.014) with the fully constrained model

(χ^2 = 512, df = 121), resulting in a chi-square difference of 16 with 6 degrees of freedom. Since the p-value for the unconstrained model is less than 0.05, the difference is statistically significant, indicating that the model is not invariant across the two groups. This suggests the presence of a moderating effect, meaning that the structural relationships differ significantly between the groups under study.

4.IV.C.8 Heterogeneity Tests for Determining the Significance of Moderated Mediation Effects in Path Estimates

Alongside the chi-square difference test, the study employed heterogeneity testing within the model to assess the statistical significance of moderated mediation effects. This analysis aims to identify whether there are notable differences in the indirect path estimates between two distinct groups. Specifically, it examines how the mediating relationship is affected by varying levels of the risk-taking behaviour of entrepreneurs, categorised as high and low.

The outcomes of this analysis, which highlights the variation in indirect effects across groups, are summarised in the Table given below, presenting the heterogeneity test results for the moderated mediation model

Table 4.78

The heterogeneity test results for the moderated mediation model.

Mediation constructs	Effects on Path	Group I: High level risk taking behaviour	Group II: Low level risk taking behaviour	Z value	2-tailed p	1-tailed p	Decision
Attitude, Motivation & Self-efficacy	Indirect effect (Unstandardized)	0.10	0.00	153.55	<0.001**	<0.001**	**Moderated mediation effect**
	Standard Error	0.044	0.048				

** *denotes significant at 1% level*

4.IV.C.8 Interpretation of Heterogeneity Test Results for Moderated Mediation Effects

The above table presents the results of the heterogeneity test used to examine whether the indirect effects of the serial mediation pathway comprising attitude, motivation, and self-efficacy differ significantly between groups with high and low levels of risk-taking behaviour. The analysis reveals a substantial difference: the beta value of indirect effect for the high risk-taking group is 0.10, while it is 0.00 for the low risk-taking group. The Z-value of 153.55, along with both one-tailed and two-tailed p-values being less than 0.001, confirms a statistically significant moderated serial mediation effect at the 1% level. The standard errors for the two groups are 0.044 and 0.048, respectively, further supporting the robustness of the observed difference.

These findings confirm that the indirect influence of the mediation constructs varies significantly depending on the level of risk-taking behaviour, thereby establishing the presence of a moderated mediation effect.

4.IV.C.9 Highlights of the Findings

1) Start-up support services have a significant direct effect on the entrepreneurial ecosystem across both high and low risk-taking entrepreneurs.
2) Serial mediation via entrepreneurial traits (attitude → motivation → self-efficacy) is statistically significant only for high risk-taking entrepreneurs.
3) No mediation effect is observed in the low risk-taking group indicating the absence of internal psychological transformation.
4) The strength of path coefficients (e.g., $\beta = 0.75$ for ecosystem development among high risk-takers) indicates that high-risk entrepreneurs actively convert support services into ecosystem-level outcomes.
5) Chi-square difference test confirms model-level moderation, indicating significant structural differences between risk groups.
6) Heterogeneity test reveals a statistically significant difference ($Z = 153.55$, $p < 0.001$) in the indirect paths between high and low risk-taking groups, confirming a moderated mediation effect.

7) R^2 values for key constructs (e.g., 0.64 for entrepreneurial ecosystem among high risk-takers) show stronger explanatory power when internal traits are activated by external support.

Table 4.79

An overview of the findings from the moderated mediation hypotheses testing conducted as part of the moderated mediation model.

SI. NO.	Hypotheses	Results of hypotheses testing		
		Low level support model	High level support model	Moderation/ mediation/ moderated mediation effect
SM.H1	Core services of Kerala Startup Mission has a positive effect on entrepreneurial ecosystem	***Supported***	***Supported***	***Moderation effect***
SM.H2	Core services of Kerala Startup Mission has a positive effect on entrepreneurial attitude	***Supported***	***Supported***	***Moderation effect***
SM.H3	Entrepreneurial attitude has a positive effect on entrepreneurial motivation	***Supported***	***Supported***	***Moderation effect***
SM.H4	Entrepreneurial motivation has a positive effect on entrepreneurial self-efficacy	***Supported***	***Supported***	***Moderation effect***
SM.H5	Entrepreneurial self-efficacy has a positive effect on entrepreneurial ecosystem	***Supported***	***Supported***	***Moderation effect***
SM.H6	Entrepreneurial traits specifically attitude, motivation, and self-efficacy serially mediate the relationship between the core support services of the Kerala Start-up Mission and the entrepreneurial ecosystem, and this indirect relationship is moderated by the entrepreneur's risk-taking behaviour	***Not Supported***	***Supported***	***Moderated mediation effect***

4.III.3 Conclusion

The study successfully achieved its core objective of empirically testing a moderated serial mediation model, where the effect of core start-up support services on the entrepreneurial ecosystem is mediated through a psychological chain 'attitude, motivation, and self-efficacy' and moderated by the entrepreneur's risk-taking behaviour. The confirmatory factor analysis confirmed the reliability and validity of all measurement models, and the structural equation model demonstrated an excellent fit. The key finding is that serial mediation was significant only among high risk-taking entrepreneurs, whereas low risk-takers benefitted mainly through direct support mechanisms. This outcome affirms that psychological traits act as crucial enablers of ecosystem outcomes, but only when the individual possesses a high tolerance for uncertainty.

The path analysis further emphasized the differential impact of entrepreneurial traits across risk profiles. Among high risk-takers, all mediation paths from attitude to motivation to self-efficacy were significant, resulting in both direct and indirect influences on the ecosystem. In contrast, the low risk-taking group showed no significant mediation, despite benefiting from the direct effects of support services. The heterogeneity test and chi-square difference analysis confirmed that these group-based differences were statistically significant, underscoring the moderating role of risk propensity. R-square values indicated that ecosystem development was much better explained in the high-risk group, suggesting that their mindset allows them to fully internalize and leverage institutional offerings.

From a practical perspective, the study offers clear implications for policymakers, incubation centers, and entrepreneurship development agencies. Start-up support services must go beyond generic program delivery and adopt behaviourally segmented strategies. High risk-takers benefit more from attitude-building, motivational, and self-efficacy enhancing interventions, while low risk-takers may require more structured, low-risk incentives like grants, mentoring, and handholding. This insight calls for a dual-track support approach one that cultivates internal psychological readiness in confident entrepreneurs, and another that reduces external

barriers for risk-averse individuals. Ultimately, building a robust and inclusive entrepreneurial ecosystem in Kerala will require tailoring support mechanisms to match the psychological and behavioural diversity of its entrepreneurs.

Part V

ENTREPRENEURIAL ECOSYSTEM PERFORMANCE: THE ROLE OF INSTITUTIONAL SUPPORT, RISK TOLERANCE AND INNOVATION INTERVENTIONS

4.V.1 Introduction

The development of a vibrant entrepreneurial ecosystem depends not only on the availability of institutional support but also on how such support influences entrepreneurs' mindset and behaviour. In the context of Kerala, the Kerala Start-up Mission plays a pivotal role in providing core support services such as schemes, programmes, events etc. While these services are designed to strengthen the ecosystem, their true impact is often realized through intermediate factors that translate support into entrepreneurial action. One such factor is risk tolerance and entrepreneur’s willingness to engage with uncertainty, take calculated risks, and pursue innovation. Understanding how risk tolerance mediates the relationship between core services and ecosystem development is critical for identifying the psychological and behavioural pathways through which institutional support drives broader outcomes.

Moreover, the effect of core support services on risk tolerance may not be uniform across all entrepreneurs. It is likely to vary based on individual traits especially entrepreneurial innovativeness, which reflects an entrepreneur’s tendency to introduce new ideas, approaches, or products. This section investigates how innovativeness moderates the influence of core support services on risk tolerance, potentially strengthening or weakening this link. By analysing both mediation and moderation effects, this study aims to offer a deeper understanding of how institutional support, individual traits, and behavioural responses interact to shape the entrepreneurial

landscape in Kerala. The insights derived can guide policymakers and ecosystem enablers in tailoring interventions that not only provide external support but also nurture internal entrepreneurial capacities.

4.V.2 Research Objective

Objective 5: To extract the mediating role of risk tolerance in the relationship between the core support services of the Kerala Start-up Mission and the development of the entrepreneurial ecosystem, and to analyse the moderating effect of entrepreneurial innovativeness on the relationship between core support services and risk tolerance

4.V.3 Moderation analysis: an overview

Mediation and moderation analyses are widely used in behavioural and social science research to uncover the underlying mechanisms and conditional effects between variables. Mediation analysis investigates how or why an independent variable (IV) affects a dependent variable (DV) through an intermediary variable, called the mediator. It explains the process through which an effect occurs. On the other hand, moderation analysis explores when or under what conditions the relationship between an IV and DV changes, based on the level or presence of a third variable called the moderator.

Moderation analysis in this objective examines whether the impact of core support services provided by the Kerala Start-up Mission on entrepreneurs' risk tolerance varies based on their level of innovativeness. It tests whether entrepreneurial innovativeness strengthens or weakens the relationship between institutional support and risk-taking behaviour. This is done by including an interaction term (Core Services × Innovativeness) in the regression model. A significant interaction effect would indicate that the effectiveness of support services in enhancing risk tolerance is not uniform but depends on how innovative the entrepreneur is. In essence, the analysis helps identify for whom the support is most effective, thereby guiding policymakers to tailor interventions more strategically by considering individual traits like innovativeness.

Section A

Hypotheses Formulation

H1: Core support services of the Kerala Start-up Mission have a positive effect on risk tolerance of the entrepreneurs.

Core support services provided by start-up missions, such as funding, mentorship, and networking opportunities, play a crucial role in reducing the perceived risks faced by entrepreneurs. According to Harris and Gibson (2008) and Zahra (2005), such support helps entrepreneurs mitigate uncertainties and increase their confidence in taking on new ventures. By offering necessary resources and reducing the financial and operational risks, these services enhance entrepreneurs' risk tolerance, encouraging them to pursue more ambitious and innovative ventures. Therefore, core support services are expected to increase the willingness of entrepreneurs to engage in risk-taking behaviours.

H2: Innovativeness has a positive effect on risk tolerance of the entrepreneurs.

Innovativeness is a core trait that influences entrepreneurial decision-making, particularly in relation to risk tolerance. Entrepreneurs who are innovative are more likely to perceive risk as an opportunity rather than a threat, making them more inclined to engage in riskier ventures. Miller (1983) and Lumpkin and Dess (1996) have shown that innovative entrepreneurs are more open to uncertainty and seek out new opportunities, often involving higher risks. This is further supported by research that links higher levels of innovation with a greater willingness to take calculated risks, as innovation is inherently associated with experimentation and the exploration of new, uncertain paths.

H3: Core support services of the Kerala Start-up Mission have a positive effect on the entrepreneurial ecosystem.

Institutional support services such as those offered by the Kerala Start-up Mission play a vital role in developing and strengthening the entrepreneurial

ecosystem. Isenberg (2010) and Audretsch and Keilbach (2004) argue that a strong institutional support system provides the necessary infrastructure, resources, and policy framework that entrepreneurs need to thrive. Empirical studies have demonstrated that such services promote innovation, entrepreneurship, and job creation, contributing significantly to the overall growth of the entrepreneurial ecosystem. Therefore, the core support services from the Kerala Start-up Mission are expected to have a positive impact on the broader ecosystem by facilitating a conducive environment for entrepreneurial ventures.

H4: Risk tolerance of the entrepreneurs has a positive effect on the entrepreneurial ecosystem.

Entrepreneurs who exhibit higher levels of risk tolerance often drive the development of a vibrant entrepreneurial ecosystem by engaging in innovative activities and creating new ventures. Studies by Shane (2003) and Kreiser et al. (2013) suggest that risk tolerance is a key determinant of entrepreneurial behaviour, which, in turn, influences the broader ecosystem by promoting new business creation and market competition. Risk-tolerant entrepreneurs are more likely to take on ventures that drive innovation and market disruptions, contributing to economic growth and the dynamism of the ecosystem. Therefore, risk tolerance directly impacts the overall health and development of the entrepreneurial ecosystem.

H5: Risk tolerance mediates the relationship between core support services of the Kerala Start-up Mission and the entrepreneurial ecosystem.

Risk tolerance mediates the relationship between institutional support and the entrepreneurial ecosystem because institutional services help reduce perceived risks, which in turn enhances entrepreneurs' willingness to engage in risk-taking activities. The resource-based view (Barney, 1991) suggests that institutional support enhances access to critical resources, which boosts entrepreneurs' risk tolerance and encourages them to start new ventures. As

entrepreneurs take more risks, they contribute to the entrepreneurial ecosystem through innovation and new business ventures. Therefore, risk tolerance serves as a crucial mediator, transforming the effects of institutional support into ecosystem growth.

H6: Innovativeness moderates the effect of core support services of the Kerala Start-up Mission on risk tolerance of the entrepreneurs.

Innovativeness moderates the relationship between institutional support and risk tolerance by influencing how entrepreneurs perceive and manage risk. Innovators tend to view uncertainty as an opportunity for growth and experimentation rather than a threat, making them more willing to engage in risk-taking behaviours. Knight (1997) and Barney (1991) suggest that innovative entrepreneurs are more adept at utilizing the resources provided by institutional support to reduce perceived risks and increase their risk tolerance. Therefore, innovativeness enhances the effect of core support services on entrepreneurs' willingness to take risks, enabling them to pursue more ambitious ventures with the confidence provided by the support services.

Table 4.80

Summary of formulated Hypotheses

Hypotheses No.	Hypotheses statements for direct path, mediation and moderation analyses
H1	Core support services of the Kerala Start-up mission has a positive effect on risk tolerance of the entrepreneurs
H2	Innovativeness has a positive effect on risk tolerance of the entrepreneurs
H3	Core support services of the Kerala Start-up mission has a positive effect on entrepreneurial ecosystem
H4	Risk tolerance of the entrepreneurs has a positive effect on entrepreneurial ecosystem
H5	Risk tolerance mediates in the relationship between core support services of the Kerala Start-up mission and entrepreneurial ecosystem
H6	Innovativeness moderates the effect of core support services of the Kerala Start-up mission on risk tolerance of the entrepreneurs

Section B

Model Testing and Path Analysis for Direct Effects in the Model

Figure 4.6

Model for Linking Institutional Support to Ecosystem Growth: The Mediating Role of Risk Tolerance and the Moderating Effect of Entrepreneurial Innovation

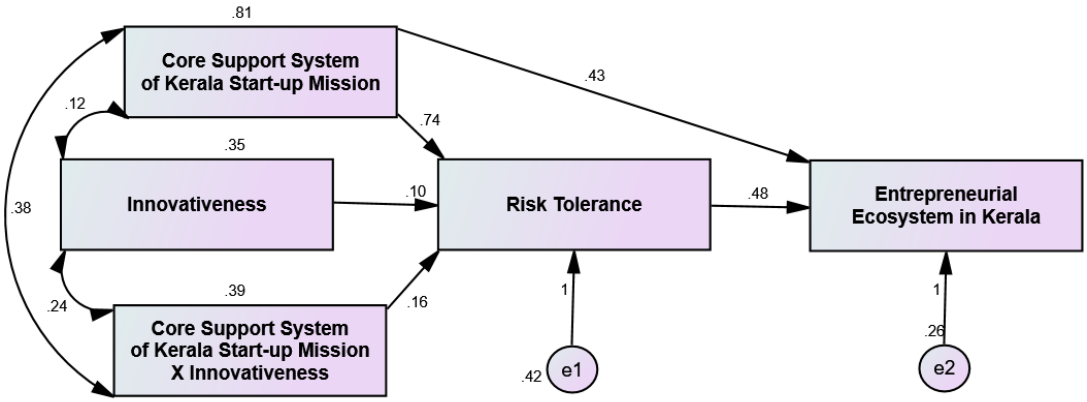


Table 4.81

Model fit indices for the model which Links Institutional Support to Ecosystem Growth: The Mediating Role of Risk Tolerance and the Moderating Effect of Entrepreneurial Innovation

Attributes	CMIN/DF	P-Value	GFI	AGFI	CFI	RMSEA
Study model	3.084	0.005	0.989	0.920	0.993	0.049
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08

The structural model linking Institutional Support to Ecosystem Growth, mediated by Risk Tolerance and moderated by Entrepreneurial Innovation, demonstrates an overall acceptable fit based on standard model fit indices. The CMIN/DF value of 3.084 falls within the recommended range of 1 to 5, indicating reasonable model parsimony. Although the p-value (0.005) is less than the ideal threshold of 0.05 suggesting some statistical misfit this can often be attributed to sensitivity to sample size. However, the other indices support good model adequacy: GFI (0.989), AGFI (0.920), and CFI (0.993) all exceed the recommended threshold

of 0.90, indicating excellent comparative and absolute fit. Additionally, the RMSEA value of 0.049 is well below the cutoff of 0.08, confirming a low level of error approximation. Collectively, these indices confirm that the model is a strong and acceptable representation of the theoretical framework proposed.

Table 4.82

Summary of estimates of the direct effects in the mediation and moderation model

Construct	Path	Construct	Estimate	S.E	C. R	P-value
Core support services of the Kerala Start-up mission	→	Risk tolerance of the entrepreneurs	0.74	0.029	12.95	<0.001**
Innovativeness	→	Risk tolerance of the entrepreneurs	0.10	0.034	2.94	<0.001**
Core support services of the Kerala Start-up mission	→	Entrepreneurial ecosystem	0.43	0.041	7.95	<0.001**
Risk tolerance of the entrepreneurs	→	Entrepreneurial ecosystem	0.48	0.039	8.64	<0.001**
Core support services of the Kerala Start-up mission X Innovativeness	→	Risk tolerance of the entrepreneurs	0.16	0.029	3.08	<0.001**

** *denotes 1% significance level*

H1: Core support services of the Kerala Start-up Mission have a positive effect on risk tolerance of the entrepreneurs.

The path coefficient between "Core support services of the Kerala Start-up Mission" and "Risk tolerance of the entrepreneurs" is 0.74, with a critical ratio (C.R.) of 12.95, which is highly significant (p-value < 0.001). This indicates a strong positive relationship between core support services and the risk tolerance of entrepreneurs. The estimate of 0.74 shows that for every one-unit increase in the core support services provided by the Kerala Start-up Mission, risk tolerance of entrepreneurs increases by 0.74 units.

The significant and strong relationship between core support services and risk tolerance suggests that entrepreneurs who benefit from institutional support are more likely to take risks. This finding has practical relevance for policymakers and start-up mission. By enhancing core support services, such as financial

assistance, mentorship, and networking opportunities, start-up mission can effectively encourage risk-taking among entrepreneurs. This is crucial for fostering innovation and growth within the entrepreneurial ecosystem, as risk-tolerant entrepreneurs are more likely to explore new opportunities and contribute to economic development.

H2: Innovativeness has a positive effect on risk tolerance of the entrepreneurs.

The path coefficient between "Innovativeness" and "Risk tolerance of the entrepreneurs" is 0.10, with a C.R. of 2.94, and a p-value of <0.001, indicating a significant but relatively moderate positive effect. This suggests that while innovativeness does positively influence risk tolerance, the magnitude of the effect is smaller compared to core support services.

Although the effect of innovativeness on risk tolerance is smaller, it remains highly significant. This implies that entrepreneurs who are more innovative are likely to have a higher tolerance for risk, albeit to a lesser extent than those receiving institutional support. From a practical perspective, start-up programs and organizations may consider fostering innovative thinking and creative problem-solving skills among entrepreneurs, as it can enhance their ability to manage risks. This finding is particularly useful for entrepreneurship development programs focused on building resilience and adaptability in new ventures.

H3: Core support services of the Kerala Start-up Mission have a positive effect on the entrepreneurial ecosystem.

The path coefficient between "Core support services of the Kerala Start-up Mission" and the "Entrepreneurial ecosystem" is 0.43, with a C.R. of 7.95, and a p-value of <0.001, indicating a significant positive effect. This suggests that the core services offered by the Kerala Start-up Mission contribute meaningfully to the development of the entrepreneurial ecosystem, albeit to a moderate degree.

This result implies that the Kerala Start-up Mission's support services are effectively contributing to the overall growth of the entrepreneurial ecosystem. By providing financial and non-financial resources, the mission helps create an environment that supports entrepreneurship, leading to innovation, job creation, and the development of new markets. For policymakers and start-up support organizations, this emphasizes the importance of continuing to invest in and expand these services, as they are crucial for cultivating a vibrant and sustainable entrepreneurial ecosystem.

H4: Risk tolerance of the entrepreneurs has a positive effect on the entrepreneurial ecosystem.

The path coefficient between "Risk tolerance of the entrepreneurs" and the "Entrepreneurial ecosystem" is 0.48, with a C.R. of 8.64, and a p-value of <0.001, indicating a significant positive effect. This shows that risk tolerance among entrepreneurs plays an important role in the development of the entrepreneurial ecosystem.

This finding suggests that entrepreneurs' willingness to take risks significantly influences the entrepreneurial ecosystem. Entrepreneurs who are more risk-tolerant are likely to start new ventures, innovate, and disrupt existing industries, all of which contribute to ecosystem growth. This is crucial for understanding the role of individual behaviours in shaping the broader economic environment. For policy and program design, fostering a culture of risk-taking can lead to higher rates of entrepreneurship, which in turn benefits the ecosystem by creating new business opportunities and stimulating economic activity.

H5: Risk tolerance mediates the relationship between core support services of the Kerala Start-up Mission and the entrepreneurial ecosystem.

Given that the relationship between "Core support services of the Kerala Start-up Mission" and "Risk tolerance of the entrepreneurs" is strong (0.74), and risk tolerance itself has a significant effect on the entrepreneurial ecosystem (0.48),

it can be inferred that risk tolerance plays a key mediating role. The combination of these effects indicates that core support services influence the entrepreneurial ecosystem indirectly by enhancing risk tolerance.

The mediation effect of risk tolerance underscores the importance of providing institutional support not only directly but also by encouraging a mindset that is more open to risk-taking. This suggests that to cultivate a thriving entrepreneurial ecosystem, it is essential to provide support services that boost entrepreneurs' confidence and their willingness to take risks. By enhancing risk tolerance, these services contribute to the long-term growth of the ecosystem. From a practical perspective, initiatives that reduce perceived risks and foster an entrepreneurial culture will be critical in shaping a sustainable entrepreneurial environment.

H6: Innovativeness moderates the effect of core support services of the Kerala Start-up Mission on risk tolerance of the entrepreneurs.

The path coefficient for the interaction between "Core support services of the Kerala Start-up Mission" and "Innovativeness" on "Risk tolerance of the entrepreneurs" is 0.16, with a C.R. of 3.08, and a p-value of <0.001, indicating that innovativeness moderates the effect of institutional support on risk tolerance. This means that the positive effect of support services on risk tolerance is stronger for more innovative entrepreneurs.

This finding emphasizes that institutional support has a more pronounced effect on risk tolerance for entrepreneurs who are innovative. Innovators are better able to leverage support services to reduce perceived risks and increase their willingness to take on new ventures. This suggests that programs aimed at fostering innovation can amplify the positive effects of institutional support. For practical purposes, supporting innovative entrepreneurs through targeted initiatives such as R&D funding and innovation hubs can further enhance their risk tolerance, leading to higher levels of entrepreneurship.

Section C
Mediation Testing in the Model

The mediation effects in the model were assessed using the bootstrapping method, and a summary of the resulting values is provided.

Table 4.83

The mediation effects in the model

Constructs and its paths		Types of effect	Path value	Significance status	Remarks
Core Services of the Kerala Start-up Mission Entrepreneurial Ecosystem	→	Direct	0.43	<0.001**	Significant direct effect
Core Services of the Kerala Start-up Mission Entrepreneurial Ecosystem via risk tolerance	→	Indirect	0.36	<0.001^^	Significant mediation effect and Partial mediation

*** denotes significant at 1%; ^^ denotes significant testing for indirect effect using bootstrapping techniques using 5000 bootstrap samples*

The analysis reveals that the direct effect of the Core Services of the Kerala Start-up Mission on the Entrepreneurial Ecosystem is significant, with a path value of 0.43 and a p-value of <0.001. This indicates that the support services offered by the Kerala Start-up Mission such as schemes, programmes etc directly contribute to the growth and development of the entrepreneurial ecosystem. The positive and significant direct effect emphasizes the critical role of institutional support in facilitating entrepreneurship, suggesting that expanding and improving these services can lead to more vibrant and dynamic entrepreneurial environments.

Additionally, the indirect effect through risk tolerance is also significant, with a path value of 0.36 and a p-value of <0.001, based on bootstrapping with 5000 samples. This mediation effect shows that risk tolerance plays an essential role in how core support services influence the entrepreneurial ecosystem. Entrepreneurs who receive institutional support are more likely to develop a higher tolerance for risk, which, in turn, encourages them to engage in innovative and risky ventures.

This finding suggests partial mediation, indicating that both direct and mediated pathways contribute to the overall effect on the entrepreneurial ecosystem.

From a practical standpoint, the results highlight that providing core support services not only directly impacts the ecosystem but also enhances entrepreneurs' risk tolerance, thereby indirectly promoting further entrepreneurial activity. To optimize the growth of the entrepreneurial ecosystem, it is important for start-up missions and policymakers to focus on expanding resources and support services, while also creating programs that encourage risk-taking and resilience among entrepreneurs. By combining direct support with efforts to foster risk tolerance, the impact of institutional services on the entrepreneurial ecosystem can be significantly amplified.

Section D

Moderation Effects in the Model

The Moderation effects in the model is summarised below:

Table 4.84

Summary of moderation interaction effect

Effect Type	Path		Unstandardized Regression Coefficient	Significance
Direct Effect	Core Services of the Kerala Start-up Mission Risk tolerance	→	0.74	**1% significance**
Moderator Effect	Innovativeness Risk tolerance	→	0.10	**5% significance**
Moderating Effect	Core Services X Innovativeness Risk tolerance	→	0.16	**1% significance**

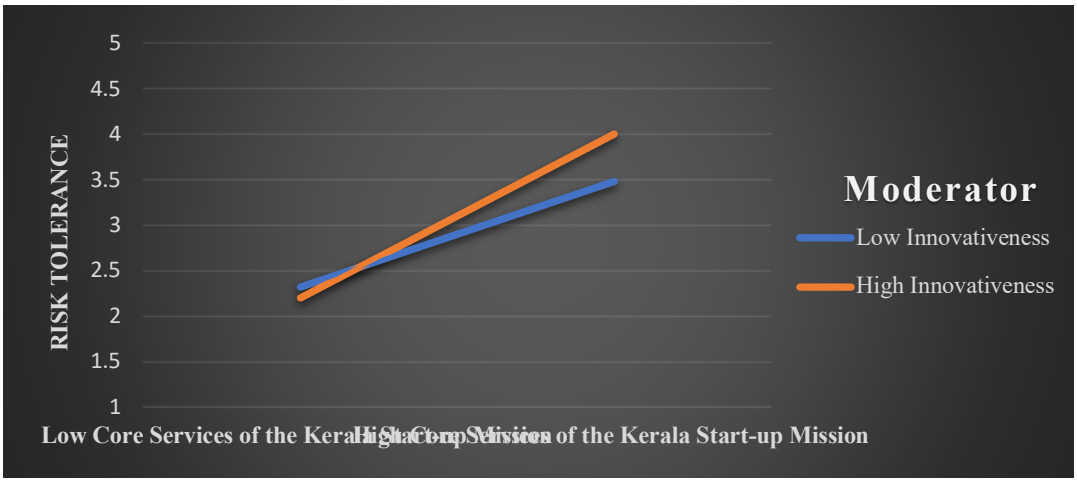
Core Services to Risk Tolerance shows a strong direct effect (β = 0.74, significant at 1%), suggesting that robust institutional support boosts entrepreneurs' willingness to take risks. The moderating variable, Innovativeness, also has a direct positive effect on Risk Tolerance (β = 0.10, significant at 5%), meaning that entrepreneurs with higher innovativeness are more likely to tolerate risks. The

interaction effect (Core Services × Innovativeness → Risk Tolerance) is significant (β = 0.16, 1%), which reveals that the positive impact of core services on risk tolerance becomes even stronger when the level of innovativeness is higher.

Graph: Testing of two-way interaction effect using simple slop curve analysis for moderation effect– I

Figure 5.6

Interaction of core services and innovativeness to predict risk tolerance of the entrepreneurs



The above figure illustrates the interaction between core support services and entrepreneurial innovativeness in predicting risk tolerance among entrepreneurs. The simple slope analysis shows that the level of risk tolerance is highest when both core support services are strong and entrepreneurs exhibit high innovativeness. The plotted lines clearly diverge, with the highest slope observed in the context where both variables are elevated, indicating a strong synergistic effect. In contrast, when either core services or innovativeness is low, the increase in risk tolerance is comparatively weaker, showing that the influence of support services alone is limited unless coupled with entrepreneurial innovativeness.

This pattern confirms a positive interaction moderation effect, meaning that the relationship between core support services and risk tolerance becomes stronger only when innovativeness is also high. In practical terms, this suggests that simply

offering institutional support (via schemes, programmes, events etc) may not be sufficient to build a risk-taking mindset among entrepreneurs unless they also possess or are encouraged to develop innovative capabilities. Therefore, policy measures should focus not only on delivering core services but also on nurturing innovativeness through creativity training, exposure to technology, and innovation ecosystems. By doing so, both support and innovativeness can work in tandem to significantly elevate entrepreneurs' risk tolerance and thereby strengthen the overall entrepreneurial ecosystem in Kerala.

4.V.D.1 Overall discussion note on Direct, Mediation, and Moderation Effects

Explanation is provided as to the Direct, Mediation and Moderation Effect in detail:

1) Direct Effects

The model provides strong empirical support for the direct relationships among the key constructs. The core support services of the Kerala Start-up Mission show a significant and direct effect on risk tolerance ($\beta = 0.74$) and a direct effect on the entrepreneurial ecosystem ($\beta = 0.43$). This clearly indicates that institutional initiatives like schemes, programmes, and events offered by KSUM not only influence entrepreneurs' behavioural readiness to take risks but also contribute to ecosystem-level development. Additionally, entrepreneurial innovativeness has a positive though moderate direct effect ($\beta = 0.10$) on risk tolerance, suggesting that individual traits such as creativity and openness to novelty enhance an entrepreneur's capacity to engage with uncertain ventures. Likewise, risk tolerance itself significantly predicts the entrepreneurial ecosystem ($\beta = 0.48$), reinforcing the role of psychological readiness in fostering ecosystem dynamism.

2) Mediation Effect

The mediation analysis confirms that risk tolerance partially mediates the relationship between core support services and the entrepreneurial ecosystem. While core services have a direct effect on the ecosystem, the indirect path through risk tolerance ($\beta = 0.36$) is also statistically significant, indicating that part of the impact

of institutional support is channelled through enhancing entrepreneurs' risk-taking behaviour. This suggests that the influence of institutional infrastructure is not purely structural but also behavioural when support services reduce perceived risks and build confidence, entrepreneurs are more likely to innovate and engage in new ventures, thus strengthening the ecosystem.

3) Moderation Effect

The moderation effect is clearly validated by the significant interaction term between core support services and innovativeness in predicting risk tolerance (β = 0.16). This confirms a positive interaction moderation, meaning that the effect of institutional support on risk tolerance is amplified when the entrepreneur is highly innovative. The simple slope graph illustrates that high innovativeness, combined with strong support, leads to the highest levels of risk tolerance. In contrast, when innovativeness is low, even robust institutional support has a limited effect on risk tolerance. This interaction effect highlights the need for an integrative approach that combines external resources with internal traits.

Table 4.85

Summary of hypotheses testing

Hypotheses No.	Hypotheses statements for moderation analysis	Result
H1	Core support services of the Kerala Start-up mission has a positive effect on risk tolerance of the entrepreneurs	**Supported**
H2	Innovativeness has a positive effect on risk tolerance of the entrepreneurs	**Supported**
H3	Core support services of the Kerala Start-up mission has a positive effect on entrepreneurial ecosystem	**Supported**
H4	Risk tolerance of the entrepreneurs has a positive effect on entrepreneurial ecosystem	**Supported**
H5	Risk tolerance mediates in the relationship between core support services of the Kerala Start-up mission and entrepreneurial ecosystem	**Supported (Partial mediation)**
H6	Innovativeness moderates the effect of core support services of the Kerala Start-up mission on risk tolerance of the entrepreneurs	**Supported**

4.V.4 Conclusion

In conclusion, the findings from this study underscore the vital role of institutional support in fostering entrepreneurial ecosystems, particularly through initiatives such as those provided by the Kerala Start-up Mission. The research illustrates that core support services not only directly enhance the risk tolerance of entrepreneurs but also indirectly contribute to ecosystem growth by increasing entrepreneurs' willingness to take risks. The significant mediation effect of risk tolerance highlights that entrepreneurs' psychological readiness to engage in risk-taking behaviour is a crucial intermediary mechanism, emphasizing the importance of providing support services that not only offer resources but also foster a risk-tolerant mindset. Furthermore, the moderating effect of innovativeness reveals that the impact of support services on risk tolerance is most pronounced when entrepreneurs are innovative. This suggests that programs targeting innovation can amplify the benefits of institutional support.

From a practical standpoint, these findings have important implications for policy and ecosystem development. To maximize the effectiveness of institutional support, it is essential to expand core services, particularly in underserved regions, and incorporate behavioural training that builds risk tolerance and resilience among entrepreneurs. Additionally, fostering innovation through targeted interventions such as design thinking workshops and R&D grants can enhance the ability of entrepreneurs to leverage institutional support effectively. The results also indicate the need for a segmented approach to support, considering the varying levels of innovativeness among entrepreneurs. By tailoring interventions to meet the specific needs of entrepreneurs, entrepreneurial ecosystem in Kerala can be further strengthened, fostering an environment conducive to sustained innovation and economic growth.

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Chapter 5

FINDINGS, RECOMMENDATIONS AND CONCLUSION

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5.1 Introduction

This chapter signifies the culmination of the Thesis. This is the final chapter, which is critically significant as it encompasses all the study's findings and the research's valid suggestions for proper action by the pertinent authorities and practical implications for the policy makers. Future researchers are aided by a list of possible fields of study they can pursue during their academic careers.

5.2 Findings of the Study

The findings of the study derived from the analysis of primary data are presented here on the basis of the objectives of the study.

Objective 1: To examine the schemes, programmes, events and support services of Kerala Start up Mission for promoting entrepreneurship in Kerala.

1. The majority of the participants in the study are male.
2. The respondents aged 36 to 50 years constitute the largest group at 49.0%
3. The respondents comprise of a higher proportion of postgraduate-educated individuals
4. A majority of respondents (55.7%) report an annual income above ₹5,00,000
5. Most respondents (71.4%) started their ventures within the past five years
6. There reflects a higher proportion of male ownership in the sample
7. There is a higher representation of service-oriented ventures.
8. Small-scale enterprises form the largest group at 77.6%,
9. Private companies account for 79.7% of the firms in the sample
10. 45.3% of firms located in Urban areas, 31.3% in semi-urban area, and 23.4% in rural area.

11. Half of the respondents (50.0%) operate at the national level, 37.5% at the international level, and 12.5% at the regional level.
12. Firms with capital investment up to ₹10 Lakhs make up 60.4% of the sample,
13. 41.1% are located in corporation areas, 29.7% in municipalities, and 29.2% in panchayats.
14. A total of 73.4% of respondents report generating income from their ventures,
15. Among the four Factors of entrepreneurial Services offered by Kerala Start up Mission, Events received the highest ranking based on mean score, followed by Programs, Support Services, and Schemes
16. Male and female entrepreneurs perceive the Kerala Start-up Mission's initiatives be it schemes, programs, events, or support services similarly
17. The entrepreneurs in different age groups do perceive the services of Kerala Start up Mission differently, statistically significant differences are observed for Schemes, Programs, and Support Services, particularly involving the 36 to 50 vs above 50 comparisons and the 20 to 35 vs 36 to 50 comparison for support services
18. For all the four factors of Schemes, Programs, Events and Support Services, there is no statistically significant difference among the groups of Degree, Postgraduate, and Professional respondents.
19. Manufacturing and service-based entrepreneurs perceive most of the Kerala Start-up Mission's services similarly, particularly in the areas of Programs, Events, and Support Services, where no meaningful difference in perception was found, with the exception of a notable variation regarding Schemes.
20. The perceptions of Private Company and Partnership forms of organizational differ meaningfully for all the aspects of the four services offered by the Kerala Start-up Mission.
21. None of the differences in mean perceptions between the two capital investment groups of Up to 10Lakhs and 11 to 99Lakhs are statistically significant across all the four service categories of Kerala Start up Mission.

22. There are no statistically significant differences in the perception of Kerala Start-up Mission's services across different sizes of industries such as Small, Medium and Large.

23. The Kerala Start-up Mission's services are perceived consistently by entrepreneurs irrespective of whether they operate on a regional, national, or international scale.

24. The entrepreneurs, regardless of whether they operate in urban corporation areas, semi-urban municipalities, or rural panchayath regions, share a broadly similar perception of the Kerala Start-up Mission's services.

25. The entrepreneurs, regardless of whether they are relatively new in the field or have more than five years of experience, perceive the Kerala Start-up Mission's services in a similar way

Objective 2: To investigate the entrepreneurial ecosystem in the State of Kerala, explore the role of core support services provided by the Kerala Start-up Mission in shaping the ecosystem, and analyse differences in perception among entrepreneurs based on socio-demographic and organisational characteristics

1. There exists mixed perception of the entrepreneurial ecosystem in Kerala. Whereas infrastructure and business support services are recognized as strong pillars fostering entrepreneurship, critical gaps exist in access to finance, the quality of human capital, and innovation through research and development.

2. The high-level schemes provide a much more supportive entrepreneurial environment across all critical ecosystem factors such as finance, business support system, policy environment, markets, human capital, infrastructure, business environment, research and development, and entrepreneurial culture. These consistent differences highlight that entrepreneur in high-level schemes perceive the ecosystem more positively across all dimensions. Entrepreneurs in low-level schemes appear to face significant gaps in these areas.

3. In all the cases of ecosystem factors, entrepreneurs involved in high-level programs perceive the ecosystem more positively. All nine factors show statistically significant differences at the 1% level ($p < 0.001$), stipulating meaningful variation

4. Across all factors, entrepreneurs involved in high-level events perceive the ecosystem more positively. All nine factors exhibit statistically significant differences at the 1% level

5. In all cases, entrepreneurs who attained high-level support services report significantly higher satisfaction and better perceptions across all ecosystem factors.

6. On comparison of private companies and partnership firms with various entrepreneurial ecosystem factors, the results demonstrated significant differences in several areas like business support system, policy environment, markets, infrastructure, business environment, entrepreneurial culture where significantly higher mean values exist for private companies compared to partnerships. For others, slightly higher mean scores were found.

7. There is no statistically significant difference between organizations with capital investment up to ₹10 lakhs and those between ₹11 to 99 lakhs in any of the nine measured factors of the entrepreneurial ecosystem in Kerala

8. The entrepreneurs perceive the finance and infrastructure components of the ecosystem differently depending on the size of their industry such as small, medium and large. The remaining factors suggest no substantial variation across industry sizes for these dimensions.

9. The perceptions of entrepreneurs' support systems, policy framework, infrastructure, business environment, and entrepreneurial culture are influenced by the extent of their business reach whether operating regionally, nationally, and internationally. But factors such as finance, market dynamics, human capital, and research and development are experienced similarly across different sales scopes,

10. The perception of entrepreneurs in financial support mechanisms significantly differs depending on whether their firms are located in corporation, municipality, and panchayath areas. However, for all other ecosystem dimensions such as infrastructure, markets, policy environment, human capital, business environment, research and development, entrepreneurial culture and business support systems, the location of the firm does not appear to influence how entrepreneurs experience or rate these factors

11. Among the nine factors of the entrepreneurial ecosystem, only one factor, business support system shows a statistically significant difference between ventures established below 5 years and those above 5 years. For other factors the perceptions are relatively consistent regardless of the age of business

12. The females perceive better access to or satisfaction with financial resources than their male counterparts. For all other factors, including business support system, policy environment, markets, human capital, infrastructure, business environment, research and development, and entrepreneurial culture no significant difference exists between the genders.

13. Certain factors of the entrepreneurial ecosystem are perceived differently by entrepreneurs of different age groups, particularly in terms of access to finance, the support they receive from business systems, and the cultural environment for entrepreneurship. For the majority of the ecosystem components, including policy environment, human capital, infrastructure, market access, business environment and research and development, perceptions appear to be consistent across all age groups.

14. Entrepreneurs across different educational backgrounds whether holding a degree, postgraduate qualification, and professional qualification generally perceive the majority of entrepreneurial ecosystem factors similarly. Yet, the perception about the market factor differs significantly among them.

Objective 3: To examine the levels of attitude, motivation, self-efficacy, risk tolerance and innovativeness among entrepreneurs in Kerala, and to analyse the association of these traits with their socio-demographic and organizational characteristics

1. The proportions across the three levels (Low Level, Moderate Level and High Level) appear relatively balanced, implying no dominant trend in the attitude levels of the entrepreneurial population.

2. The majority of entrepreneurs in Kerala fall under the low (43.2%) and moderate (39.1%) motivation levels, with only a small proportion (17.7%) demonstrating high entrepreneurial motivation.

3. The majority of entrepreneurs (50.0%) exhibit a moderate level of self-efficacy and a considerable proportion (32.8%) demonstrates high self-efficacy, while only a small group (17.2%) falls under the low self-efficacy category

4. A significant proportion of entrepreneurs in Kerala (46.9%) possesses a high level of risk tolerance, while 39.6% show moderate risk tolerance, and only a small fraction (13.5%) falls into the low-risk category

5. 53.1% of the entrepreneurs fall under the low level of innovativeness, 25.0% are at a moderate level, and only 21.9% show a high level of innovativeness.

6. In case of male entrepreneurs, 35.3% exhibit low attitude, 37.1% moderate attitude, and 27.6% high attitude. Female entrepreneurs demonstrate 36.4% at both low and high levels and 27.2% at a moderate level. The distribution appears to be relatively same across genders.

7. Age does not appear to play a major role in influencing the attitude levels of entrepreneurs in Kerala.

8. Educational background does not seem to play a decisive role in shaping the attitude levels of entrepreneurs.

9. The nature of the business, whether it is manufacturing or service, does not significantly impact the attitude levels of entrepreneurs.

10. The entrepreneurs from municipality areas are most prominent at the low level of attitude, whereas entrepreneurs from corporation areas are most prominent at the high level of attitude.

11. Both male and female entrepreneurs in Kerala show varied levels of motivation (Low Level, Moderate Level and High Level), but this variation is not strong enough to suggest a clear gender-based pattern.

12. Motivation levels among entrepreneurs in Kerala do not show meaningful differences based on age.

13. Low motivation is most dominant among degree holders (46.7%) and postgraduates (45.1%), while high motivation is most dominant among professionally qualified entrepreneurs (34.6%).

14. The type of business, whether it is manufacturing and service, does not meaningfully influence how motivated entrepreneurs feel.

15. Low motivation is most common among entrepreneurs in municipality areas, while high motivation is most visible among entrepreneurs in panchayath regions.

16. Among males, 17.6% show low self-efficacy, 50% fall under the moderate category, and 32.4% report high self-efficacy. For female entrepreneurs, 13.6% show low self-efficacy, 50% fall into the moderate level, and 36.4% show high self-efficacy

17. Age plays a meaningful role in shaping entrepreneurial self-efficacy. Middle-aged entrepreneurs (36 to 50) tend to report stronger self-belief in their capabilities, whereas both younger and older age groups show relatively lower levels of self-efficacy.

18. Those with professional qualifications display stronger self-efficacy than those with general degrees or postgraduate education.

19. The kind of business, whether it's a manufacturing unit and a service-based enterprise does not appear to affect how confident entrepreneurs feel in their abilities

20. The panchayath-based entrepreneurs show the highest proportion of high self-efficacy (39.3%), and municipality-based entrepreneurs show the highest proportion at the low end (22.8%),

21. Both male and female entrepreneurs in Kerala show a fairly similar pattern in their willingness to take business risks

22. Risk-taking ability appears to be fairly consistent across different age groups among entrepreneurs

23. The level of risk-taking ability among entrepreneurs does not differ significantly based on their educational background

24. Risk tolerance appears to vary meaningfully with the type of firm. Entrepreneurs in manufacturing firms are more dominant in the high-risk tolerance category (56.2%), whereas those in service firms are more represented in the low-risk category (16.8%).

25. Panchayath entrepreneurs exhibit the highest proportion of high-risk tolerance (57.2%), and municipality entrepreneurs are more represented at the low risk tolerance level (17.5%).

26. The level of creativity, novelty in business ideas referred to as innovativeness does not seem to vary much between male and female entrepreneurs in Kerala.

27. The degree of innovativeness among entrepreneurs is influenced by their age. Middle-aged entrepreneurs (36 to 50) tend to expose slightly higher levels of high innovativeness, while younger entrepreneurs follow closely and entrepreneurs above 50 show a noticeably lower proportion of high innovativeness.

28. The tendency to be innovative does not appear to be strongly linked to one's level of formal education but professionals slightly edge ahead in high innovativeness,

29. The level of innovativeness does not significantly differ between manufacturing and service entrepreneurs

30. The entrepreneurs in municipality regions demonstrate the highest presence at low innovativeness levels (63.2%), while entrepreneurs in corporation areas stand out with the highest share at high innovativeness levels (27.8%). Panchayath regions also disclose a more balanced presence across the levels, with 23.2% of entrepreneurs falling into the high category.

Objective 4: To empirically test a moderated serial mediation model in which the impact of start-up support services on the entrepreneurial ecosystem is mediated through the sequential influence of attitude, motivation, and self-efficacy, and moderated by entrepreneurs' risk-taking behaviour.

1. Start-up support services have a significant direct effect on the entrepreneurial ecosystem across both high and low risk-taking entrepreneurs.
2. Serial mediation via entrepreneurial traits (attitude → motivation → self-efficacy) is statistically significant only for high risk-taking entrepreneurs.
3. No mediation effect is observed in the low risk-taking group indicating the absence of internal psychological transformation.
4. The strength of path coefficients (e.g., $\beta = 0.75$ for ecosystem development among high risk-takers) indicates that high-risk entrepreneurs actively convert support services into ecosystem-level outcomes.
5. Chi-square difference test confirms model-level moderation, indicating significant structural differences between risk groups.
6. Heterogeneity test reveals a statistically significant difference ($Z = 153.55$, $p < 0.001$) in the indirect paths between high and low risk-taking groups, confirming a moderated mediation effect.
7. R^2 values for key constructs (e.g., 0.64 for entrepreneurial ecosystem among high risk-takers) show stronger explanatory power when internal traits are activated by external support.

Objective 5: To extract the mediating role of risk tolerance in the relationship between the core support services of the Kerala Start-up Mission and the development of the entrepreneurial ecosystem, and to analyse the moderating effect of entrepreneurial innovativeness on the relationship between core support services and risk tolerance

1. The model provides strong empirical support for the direct relationships among the key constructs.
2. The core support services of the Kerala Start-up Mission show a significant and direct effect on risk tolerance and a direct effect on the entrepreneurial ecosystem
3. Entrepreneurial innovativeness has a positive though moderate direct effect on risk tolerance
4. Risk tolerance itself significantly predicts the entrepreneurial ecosystem reinforcing the role of psychological readiness in fostering ecosystem dynamism.
5. Risk tolerance partially mediates the relationship between core support services and the entrepreneurial ecosystem
6. While core services have a direct effect on the ecosystem, the indirect path through risk tolerance is also statistically significant, indicating that part of the impact of institutional support is channelled through enhancing entrepreneurs' risk-taking behaviour.
7. There is significant interaction term between core support services and innovativeness in predicting risk tolerance
8. There exists a positive interaction moderation, meaning that the effect of institutional support on risk tolerance is amplified when the entrepreneur is highly innovative. The simple slope analysis also shows that the level of risk tolerance is highest when both core support services are strong and entrepreneurs exhibit high innovativeness.

5.3 Recommendations of the Study

The recommendations of the researcher are presented here under appropriate sections as given below:

5.3.1 Practical recommendations Based on Findings

1) **Expand Core Support Services:** The strong direct effect of institutional support on both risk tolerance and ecosystem growth implies that Kerala Start-up Mission should continue expanding its services, including schemes, Programs events etc, especially in underserved regions.

2) **Incorporate Behavioural Training:** As risk tolerance plays a mediating role, support programs should go beyond resources and include behavioral training such as resilience-building, strategic risk-taking workshops, and confidence enhancement to make entrepreneurs psychologically prepared for uncertainty.

3) **Promote Innovation-Centered Interventions:** Given the significant moderation effect, KSUM and other ecosystem enablers should promote innovativeness through targeted innovation programs such as design thinking bootcamps, R&D grants, hackathons, and partnerships with tech institutions to enhance the effectiveness of their core services.

4) **Segmented Support Approach:** Since innovativeness alters the impact of support, a one-size-fits-all approach may not be effective. Tailoring support strategies based on the innovativeness levels of entrepreneurs using diagnostic tools or innovation-readiness assessments can improve the efficacy of interventions.

5) **Foster Risk-Taking Culture:** Encouraging a cultural shift towards positive risk-taking through success stories, awards, media campaigns, and peer networks can elevate the overall risk tolerance in the ecosystem and promote sustained entrepreneurial activity.

6) **Policy Alignment:** Policymakers should consider aligning innovation policy, entrepreneurship promotion schemes, and education initiatives to create a seamless support structure that builds both external capacity and internal competencies of entrepreneurs.

5.3.2 Targeted recommendations are provided concerning diverse issues:

A. Government Policy

i) The regulatory and legal framework governing technology-based start-ups must be assessed and enhanced to foster their growth and competitiveness. The technique for establishing adequate awareness must be enhanced.

ii) The government must urgently implement necessary reforms in customs and port operations to minimize the number of participating agencies and enhance the efficiency of goods clearance, particularly for time-sensitive sectors. It is essential for customs agents and inspecting agencies to be cognizant of the critical requirements of technology-based firms.

B. Financial Support

i) There is a significant necessity to advance suitable assistance programs that provide training for financial institution staff to swiftly assess small borrowers and monitor them, as well as to educate entrepreneurs on maintaining accurate financial records.

ii) Long-term credit facilities should be extended to start-ups at reduced interest rates that facilitate loan repayment and enhance the overall growth and competitiveness of these enterprises.

iii) Start-ups face challenges in accessing financial support due to lack of awareness about bank operations. Financial institutions should convene forums, provide credit facilities, and facilitate loans, while maintaining accurate financial records. A robust communication network is essential for mutual benefit.

iv) The government should promote the Venture Capital Market for start-ups by offering tax benefits and employing specialized personnel. Government officials should serve as liaisons, facilitating communication and resource allocation. Enhancing coordination among financial entities providing grants or subsidies is also recommended.

C. Promotion

Start-ups require support programs for showcasing their products at fairs and exhibitions, as well as training in management, particularly concerning marketing aspects such as costing, pricing strategies, and promotional techniques.

Required marketing support encompasses, among other elements:

- market knowledge and research
- trade statistics
- product promotion
- Procedures and laws pertaining to exportation and
- Information regarding international exhibitions and trade fairs

D. Technology

The communication between start-ups and technology manufacturers needs to be improved to promote awareness of emerging technologies and facilitate technology transfer. The relationship between R&D institutions and start-ups needs to be strengthened through the formation of coordination units, collaboration frameworks, and technology acquisition and enhancement mechanisms. Private consultants and technical service providers can provide advice on technology selection and implementation at a subsidized cost. The development of interconnected networks of start-ups is also crucial, with policymakers aiming to create an enabling climate for collaboration and efficiency. Evaluation of S&T Parks and TBIs operations is also needed. Trust and willingness to take risks with entrepreneurs are also essential for promoting start-ups.

5.3.3 Subsequent recommendations are proposed to improve the performance quality of the startup environment.

1) State aid - Modify the Temporary Framework on State aid liquidity to guarantee that startup ecosystems obtain equivalent support as other economic entities.

2) Harmonize protective measures and financial requirements of the economy to facilitate private investors' contributions to recovery through Foreign Direct Investments (FDI).

3) Government funding programs should be structured to facilitate accessibility for businesses.

4) Multi-tiered strategy to activate private money - Mobilize private investment through venture capitalists, business angels, and several other investor categories.

5) Public funding - Enhance the roles of the Government and Commercial Banks as financial collaborators for startups and venture capitalists.

6) Public procurement - Establish procurement regulations that are more accessible to startups.

7) Startup Visas - Establish a startup visa and a global counterpart to streamline the recruitment process for entrepreneurs.

8) Stock option systems should be standardized and expanded at the state level. Comparable appealing initiatives should be devised internationally.

9) Open Innovation: Open innovation offers a framework for comprehending the role of start-ups within the innovation ecosystem and their utilization of external knowledge to establish themselves as integral participants in this ecosystem.

10) Every startup must register with the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India, to obtain benefits such as Intellectual Property Rights (IPR)

advantages, Amendment of public procurement regulations, Self-Certification in accordance with Labor and Environmental legislations, Fund of Funds for startups (FFS).

11) Develop a dynamic budget to ascertain your initial funding needs, revenues, expenses, profits and any additional funding requirements.

12) Understand the periodic patterns regarding orders, returns, discounts provided, and average order value.

13) Be cognizant of the organization's general health, including cash flow balances, repayment capabilities, identified fraud and its value, revenue leakages, and unsold inventory.

14) As an entrepreneur, it is essential to concentrate on value creation—not alone in financial terms, but also in what you provide to your target market.

15) Corporate governance involves proactive risk identification and mitigation, minimizing reputational and financial harm. It involves trust building, adherence to laws, prudent risk management, funding and investment facilitation, and a positive work environment. Companies with strong governance are more likely to attract and retain talent.

16) To mitigate risks and enhance efficiency, create an effective organizational structure, ensure role segregation, schedule staff training, establish financial transaction procedures, limit access to confidential information, and establish uniform criteria for maintaining financial records.

5.4 Relevance and Implications of the Study

A. Theoretical Implications

1) Advances Entrepreneurial Ecosystem Theory: The study deepens understanding by incorporating *individual psychological traits* (attitude, motivation, self-efficacy) as serial mediators, enriching existing ecosystem models.

2) Introduces Moderated Serial Mediation Framework: By integrating *risk-taking behaviour* as a moderator, the research offers a *nuanced, conditional pathway* not tested model in Indian entrepreneurial contexts.

B. Practical Policy Implications

1) *Behavioral segmentation is essential for policy design* high risk-takers need motivation-building programs, while low risk-takers need security-driven interventions.

2) Low Risk-Takers Need Protective Interventions: For risk-averse individuals, direct mechanisms like *grants, mentorship, tax exemptions,* and *step-by-step guidance* are more effective than psychological interventions alone.

3) High Risk-Takers Thrive on Trait Enhancement: For them, startup missions should emphasize confidence-building, mindset development, and innovation labs to activate serial mediation effects.

4) Behavioural Diagnostics Before Program Delivery: Entrepreneurship development programs should include a risk-profiling tool to assess whether an entrepreneur falls in the high or low risk group before offering support.

5) Revise Incubator Curricula: Incubation centers and training programs should incorporate soft-skill modules on motivation, resilience, and self-efficacy especially targeting high-risk potential founders.

6) Embed Psychological Training in Government Schemes: Programs like Startup India, Kerala Startup Mission, and MSME support schemes should allocate resources for psychological empowerment and not just capital access.

C. Strategic and Developmental Significance

1) Enhancing Ecosystem Vibrancy: Ecosystems can flourish not just with funding, but when entrepreneurs are psychologically equipped to absorb, adapt, and amplify support services.
2) Boosting Startup Sustainability: Entrepreneurs with higher self-efficacy and motivation, as activated through serial mediation, are more likely to persist and scale reducing early-stage failure rates.
3) Empowers Inclusive Ecosystem Building: Recognizing and responding to psychological diversity helps include a wider pool of entrepreneurs who might otherwise be excluded due to fear or risk aversion.
4) Informs Monitoring & Evaluation Frameworks: Future evaluation of entrepreneurial programs should assess *trait development outcomes*, not just venture creation or revenue metrics.

The results of the study have strong practical implications for entrepreneurial development strategies in Kerala. First, the significant direct impact of core services on both risk tolerance and the entrepreneurial ecosystem underscores the crucial role of structured institutional support including schemes, programmes, events etc in creating a thriving start-up environment. These services not only build the ecosystem structurally but also psychologically empower entrepreneurs to take calculated risks, which is vital for innovation-driven enterprise growth.

Moreover, the significant moderating role of innovativeness suggests that institutional support alone may not be enough. Entrepreneurs with high innovativeness derive greater benefit from the same level of support, as they are more likely to translate institutional inputs into actionable, risk-bearing ventures. Therefore, policy-makers and ecosystem builders like the Kerala Start-up Mission should integrate innovation capacity-building programs into their support schemes. This includes encouraging experimentation, facilitating exposure to cutting-edge technologies, and supporting design thinking workshops. Ultimately, tailoring

support services to match the innovativeness levels of entrepreneurs can lead to a more effective, inclusive, and dynamic entrepreneurial landscape in Kerala.

5.5 Scope for Future Research

1) Test the Model Across States and Sectors: The findings should be replicated in other Indian states or sector-specific ecosystems (e.g., agri-tech, ed-tech) to confirm generalizability through further research studied.

2) Incorporate Longitudinal Studies: Future research could track changes in traits over time to assess how sustained support alters psychological readiness and long-term ecosystem participation.

3) Study Gender and Social Category Effects: Investigating whether gender or caste-based social capital interacts with risk-taking and trait formation could inform intersectional policy design.

4) Use Experimental or Quasi-Experimental Designs: Further studies can be made on Interventions based on this model (e.g., workshops on motivation) can be tested for causal impact on entrepreneurial outcomes.

5.6 Conclusion

The research holds substantial ramifications for policy and environmental advancement.

To improve the effectiveness of institutional support, it is essential to expand fundamental services, particularly in disadvantaged regions, and incorporate behavioural training that cultivates risk tolerance and resilience among entrepreneurs. Furthermore, fostering innovation through targeted initiatives such as design thinking workshops and research and development financing may enhance entrepreneurs' ability to effectively leverage institutional support. The findings indicate the need for a tailored help plan, considering the varying levels of innovativeness across entrepreneurs. By tailoring interventions to meet the specific needs of entrepreneurs, the entrepreneurial ecosystem in Kerala can be further improved, fostering a climate conducive to sustained innovation and economic

growth, especially through the Kerala Startup Mission. Ultimately, creating a robust and inclusive entrepreneurial ecosystem in Kerala requires tailoring support mechanisms to correspond with the psychological and behavioural diversity of its entrepreneurs. It is hoped that the God's own country shall thrive and strive for a brighter future of advanced economy with the outcome of KSUM activities which augment the pace of entrepreneurial ecosystem through the entrepreneurial traits and vibrant initiatives.

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APPENDIX

APPENDIX

QUESTIONNAIRE

QUESTIONNAIRE FOR ENTREPRENEURS WHO REGISTERED UNDER KERALA START UP MISSION

SECTION – A

DECLARATION BY THE RESEARCHER

Dear sir/madam,

This questionnaire intends to assess the effect of the Kerala Start-Up Mission on the Entrepreneurial Ecosystem in Kerala. We really value your perspectives and opinions on this matter. All information provided will solely be utilized for academic purposes. You can trust that all of your feedback will be treated with utmost confidentiality. Kindly provide honest and genuine opinion.

If you require any clarification, feel free to contact the researcher by sending an email to praveenavijayan2021@gmail.com.

Thanking you,

Praveena Vijayan
PhD Research Scholar of Christ College, Irijalakkuda, Thrissur
and
HOD & Assistant Professor, Sree Narayana College, Nattika, Thrissur

SECTION - B

SOCIO-DEMOGRAPHIC AND ECONOMIC PROFILE OF THE RESPONDENT

1. Gender: Male ☐ Female ☐ Others ☐
2. Age: 20-35 years ☐ 36-50 years ☐ > 50 years ☐
3. Educational Qualification: Degree ☐ Post-Graduation ☐ Professional ☐
4. Annual Income: Up to Rs.1,20,000 ☐ Rs. 1,20,001 to 3,00,000 ☐
   Rs. 3,00,001 to 5,00,000 ☐ > 5,00,000 ☐

SECTION - C

ORGANISATIONAL PROPERTIES OF THE ENTREPRENEURIAL VENTURE

1. Year of started the venture Below 5 Years ☐ Above 5 years ☐
2. Owner of the organization: Male/ Female
3. Type of Firm: Manufacturing ☐ Services ☐
4. Size of industry: Small ☐ Medium ☐ Large ☐
5. Form of organization: Private company ☐ Partnership ☐
6. Area of unit situated: Urban ☐ Rural ☐ Semi-urban ☐
7. Scope of sales: Regional ☐ National ☐ International (Export) ☐
8. Capital investment: Upto 10 lakhs ☐ 11 to 99 lakhs ☐
9. Location of the company: Corporation ☐ Municipality ☐ Panchayath ☐
10. Is your Start-up generating Revenue: Yes ☐ No ☐

SECTION - D

FACTORS OF VARIOUS SUPPORT SYSTEMS OF KERALA START-UP MISSION

(Give tick mark, wherever it is applicable)

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
(1)	**Schemes (SCM)**					
SCM 1	The innovation grant provided by the Kerala Start-up Mission is highly helpful and sufficient for my business's innovative endeavours.					
SCM 2	Marketing support scheme of the mission facilitates extensive marketing capability					
SCM 3	Innovation and Entrepreneurship Development Centers helps to cultivate innovative entrepreneurs in the state of Kerala					
SCM 4	Patent reimbursement and rent subsidy schemes of the mission highly support the entrepreneurs to reduce their financial burden in the beginning stage of the start up					

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
SCM 5	Various types of funds such as seed funds, R & D grants etc. are helpful to make the firm become more effective in its operation					
(2)	**Programmes (PRG)**					
PRG 1	KSUM provides Physical Incubation facilities to scaleup space support at subsidised rate					
PRG 2	Accelerator program provides customised mentorship and ensures funding support to accelerate growth of business					
PRG 3	Corporate Social Responsibility program of KSUM enables Corporate to deploy their CSR funds towards supporting an innovative idea through Startups.					
PRG 4`	Students Program offer student entrepreneur with necessary knowledge required for building a world class enterprise.					
(3)	**Events (EVT)**					
EVT 1	The Event Huddle help startups to connect with the right investors and corporates and get funded.					
EVT 2	Seeding Kerala Event of KSUM provides funding opportunities and to have easy access to markets					
EVT 3	Investor Cafe helps to meet with Angel Investors, Venture Capitalist and other investors for securing investments					
EVT 4	Corporate Round Table Event of Startup Mission provides startup founders to get an opportunity to network with corporate leaders.					
(4)	**Support Services (SPS)**					
SPS 1	Government provides direct procurement options which helps startups to sell their products easier.					
SPS 2	Prototype development services and machining services of KSUM through Fab Labs helps to develop products.					
SPS 3	Future Lab of KSUM provides support for Research and Development of emerging technologies which helps startups to turn ideas into functioning prototypes					
SPS 4	Startup service partners extended help to get easy access to tools and services to kick to start business					

SECTION - E

FACTORS OF ENTREPRENEURIAL ECOSYSTEM (EPE)
(Give tick mark, wherever it is applicable)

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
(1)	**Finance (FIN)**					
FIN 1	Startups have easy access to Debt Finance in Kerala					
FIN 2	Startups can raise Equity finance for their functioning without much difficulty.					
FIN 3	Access to Grants and Subsidies is easier for startups in Kerala					
(2)	**Business Support System (BSS)**					
BSS 1	Startups have easy access to legal services and tax services in Kerala					
BSS 2	Access to Incubators/Accelerators is not an obstacle for startups in Kerala					
BSS 3	Access to Consultants and Advisors is not an obstacle to current operations of startups					
(3)	**Policy Environment (POE)**					
POE 1	Startups face no difficulties in getting business licensing and permits in Kerala					
POE 2	Customs and Trade regulations and Labour Regulations do not act as an obstacle to the operations of startups					
POE 3	Tax administration and Tax rates are supportive to growth and development of startups in Kerala.					
(4)	**Markets (MAR)**					
MAR 1	My startup business has easy access to domestic markets					
MAR 2	Access to International Markets is easier for startups in Kerala					
MAR 3	Market information is easily available for startups in Kerala					

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
(5)	**Human Capital (HUC)**					
HUC 1	Managers with necessary qualifications and expertise to run a startup business is easily available in Kerala.					
HUC 2	In Kerala, it is easy to obtain the knowledge, expertise, and abilities of scientists and engineers for developing a firm.					
HUC 3	Availability of educated and trained workforce are sufficiently available in Kerala					
(6)	**Infrastructure (INF)**					
INF 1	In Kerala, entrepreneurs have easy access to infrastructure services like gas, water, electricity, and internet.					
INF 2	Infrastructure facilities needed for the smooth functioning of business is available at affordable costs					
INF 3	Industrial Estates/ Incubation centres provide necessary Infrastructure facilities needed for startups in Kerala					
INF 4	Transportation and Telecom facilities promotes the growth and development of startups in Kerala					
(7)	**Business Environment (BUE)**					
BUE 1	Existing social system in Kerala promotes startups					
BUE 2	Environmental factors prevailing in the region facilitates growth and development of startups in Kerala					
BUE 3	Overall business environment in the region is helpful for the smooth functioning of startups					
BUE 4	Practices of Informal Sector Competitors is not an obstacle for startups					

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
(8)	**Research and development / Innovation (RDI)**					
RDI 1	Patents and research grants for research centers and laboratories are adequate in Kerala					
RDI 2	Spin outs and major technology licensing deals is not an obstacle to current operations					
RDI 3	R&D collaboration between business and University researchers helps startups in Kerala					
(9)	**Entrepreneurial Culture (ENC)**					
ENC 1	Entrepreneurial motivation in society helps startups to improve their performance					
ENC 2	There is lesser proclivity for risk among startups in Kerala					
ENC 3	Cultural and social norms are favourable for startups in Kerala					

SECTION - F

PSYCHOLOGICAL CONSTRUCTS OF ENTREPRENEURS (MEDIATING CONSTRUCTS)

(Give tick mark, wherever it is applicable)

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
(1)	**Attitude (ATT)**					
ATT 1	I feel an extensive sense of fulfilment being an entrepreneur.					
ATT 2	I believe that entrepreneurs typically exhibit professionalism and responsibility.					

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
ATT 3	I think the activity of entrepreneurs holds significant value for society at large.					
ATT 4	I am attracted to the idea of working as an entrepreneur.					
ATT 5	I get pleasure from establishing unique business enterprises.					
(2) Motivation (MOT)						
MOT 1	As an entrepreneur, I enjoy a deep sense of accomplishment in my work.					
MOT 2	I am deeply motivated by the level of autonomy I am gaining as an entrepreneur.					
MOT 3	This enterprise has enabled me to achieve a prominent position in society.					
MOT 4	My business empowered me to have complete control.					
MOT 5	As an entrepreneur, I get a sense of motivation due to the opportunity to apply my creativity in my commercial endeavours.					
(3) Self-Efficacy (SLE)						
SLE 1	I possess the capability to execute innovative and realistic ideas.					
SLE 2	I possess the competence to effectively lead a technical team in the development of an innovative product.					
SLE 3	I am competent in the use of my problem-solving abilities.					
SLE 4	I am confident in my ability to effectively manage unexpected situations.					
SLE 5	I possess knowledge regarding the appropriate financial appraisal of a startup					

SECTION -G

MODERATING CONSTRUCTS

(Give tick mark, wherever it is applicable)

Item code	Statements (Items)	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
(1)	**Risk Tolerance (RKT)**					
RKT 1	Regardless of the possibility of both gaining and losing money, I am willing to capitalize on the most favourable business opportunities.					
RKT 2	I possess a high level of adaptability in dealing with unpredictable situations.					
RKT 3	I find pleasure in facing challenging situations that may involve potential risks.					
RKT 4	I am not afraid about incurring debt.					
RKT 5	In order to exploit emerging possibilities, I am prepared to put at risk my financial resources.					
(2)	**Innovativeness (INV)**					
INV 1	I seek innovative workflows, techniques, and technologies.					
INV 2	Research, development, and invention are of utmost importance to me.					
INV 3	I consider that the process of acquiring new skills holds greater importance than the generation of a novel idea.					
INV 4	I frequently engage in thinking of creative applications for ordinary items.					
INV 5	I find it thrilling to work on projects that are different from what I have been doing in the past.					

Thank you for participating in the survey

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