PROBLEMS AND PROSPECTS OF INFORMATION TECHNOLOGY SERVICES START-UPS IN KERALA

Thesis
Submitted to the University of Calicut
for the award of degree of
Doctor of Philosophy in Commerce

By

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DECLARATION

I hereby declare that the thesis entitled **Problems and Prospects of Information Technology Services Start-ups in Kerala** submitted to the University of Calicut for the award of Degree of Doctor of Philosophy in Commerce under the guidance and supervision of Dr. Sreesha C.H., is a record of bonafide research work done by me and no part of the thesis has been presented for the award of any degree, diploma, fellowship, or other similar title or recognition of any University/Institution before.

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This is to certify that the thesis entitled **Problems and Prospects of Information Technology Services Start-ups in Kerala** done by **Mr. Muhammed Rafi. P**., for the award of the Degree of Doctor of Philosophy in Commerce of the University of Calicut is a record of bonafide research work carried out under my supervision and guidance.

No part of the thesis has been submitted for the award of any degree, diploma, fellowship, or other similar title of this or any other institute or University. He is permitted to submit the thesis.

Place: Tirurangadi
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LIST OF ABBREVIATIONS

ANOVA	:	Analysis of Variance
ASSOCHAM	:	Associated Chambers of Commerce and Industry of India
BPO	:	Business Process Outsourcing
IIA	:	India Industry Association
DIPP	:	Department of Industrial Policy and Promotion
DPIIT	:	Department of Promotion of Industry and Internal Trade
EFA	:	Exploratory Factor Analysis
FDI	:	Foreign Direct Investment
GDP	:	Gross Domestic Product
GEM	:	Global Entrepreneurship Monitor
GII	:	Global Innovation Index
GNP	:	Gross National Product
HEI	:	Higher Education Institution
ICT	:	Information and Communication Technology
IPO	:	Initial Public Offering
IT	:	Information Technology
ITES	:	Information Technology Enabled Services
KPO	:	Knowledge Process Outsourcing
KSUM	:	Kerala Start-Up Mission
MANOVA	:	Multivariate Analysis of Variance
MSME	:	Micro, Small and Medium Enterprise
MVP	:	Minimum Viable Product
NASSCOM	:	National Association of Software and Services Companies

NSSO	:	National Sample Survey Organisation
SAARC	:	South Asian Association for Regional Cooperation
SPSS	:	Statistical Package for the Social Sciences
TBI	:	Technology Business Incubators
UNCTAD	:	United Nations Conference on Trade and Development

CHAPTER 1

INTRODUCTION

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1.1 Preamble

The world is changing rapidly along with the increasing population and facing new challenges. Entrepreneurs are the backbone of economic development in any country and they are important initiators for organizing new enterprises. The ultimate results of these activities are generating employment opportunities, balanced growth of regional development, effective distribution of resources, and active involvement in the economic development of the country. Entrepreneurship has been adopted worldwide as a measure to inculcate economic involvement in young people. The energy and passion of the youth if utilized properly can bring huge positive change to society and progress to the nation. The Commission of European Communities (2005) reported that entrepreneurship is very important for further social development through increased job opportunities and consequent economic prosperity.

The Start-up concept is a recent phenomenon in the 21st century and startup businesses have always a crucial role in national economies and wealth around the world by introducing and developing innovative products and services and thereby generating new employment opportunities and increasing national productivity and alleviating poverty (Decker et al., 2014). More and more start-ups are generated each year, and modern technology platforms ecosystems such as web and mobile technologies, cloud support systems, and open-source software are promoting this increasing trend. (Bosch et al., 2013)

Start-up companies are newly founded companies or entrepreneurial ventures that are in the phase of development and market research. They are usually, but not necessarily, associated with high-tech projects because their product is mostly software that can be easily produced and reproduced. Additionally, technology-

oriented projects have the greatest potential for growth in this digitalised world. However, there are more and more start-up companies in traditional industries and business sectors. A start-up is a temporary and small organization which is aimed at scalable, repeatable and profitable business model (Blank, S., & Dorf, B., 2020). A small start-up founded by two or three entrepreneurs with a handful of employees can produce and test the feasibility of tens of possibilities for a new business idea, producing a viable product in a few months. This agility fosters the creation of thousands of Technology start-ups around the world annually. According to the statistics of largest start-up database (Crunchbase, 2014), there have been more than 200,000 founded start-ups in the last 10 years.

Today, IT services or software start-ups have become one of the key drivers of the economy and innovation of any country. Software/IT start-ups are start-ups that build software-intensive products/services. New software ventures such as Google, Amazon, eBay, Uber, Facebook, LinkedIn, Spotify, Pinterest, Instagram, and Dropbox, to name a few, are examples of start-ups that evolved into successful businesses. At the international level, there is more and more research associated with the importance and ways of financing entrepreneurial ventures (formal and informal), especially in the period of intense globalization. Research by Korostelevae and Mickiewicz (2010) proved that financial liberalization affects the overall financial investment in start-ups, using either external or internal financing sources.

1.2 India context

India, as a developing economy encounters the problem of job scarce environment. Entrepreneurship provides a great opportunity for members of the society, economy and overall development of the country. Entrepreneurship is an effective platform for promoting innovation and developing economic growth in a country. In India, entrepreneurship has a deep-rooted tradition and many historical factors affected in the development of entrepreneurship during the 20th century. But after the post-liberalization era, dramatic reforms were introduced to foster the entrepreneurship

culture in India (Dana, 2000). Now India is the sixth-largest economy and a global engine of growth in the world.

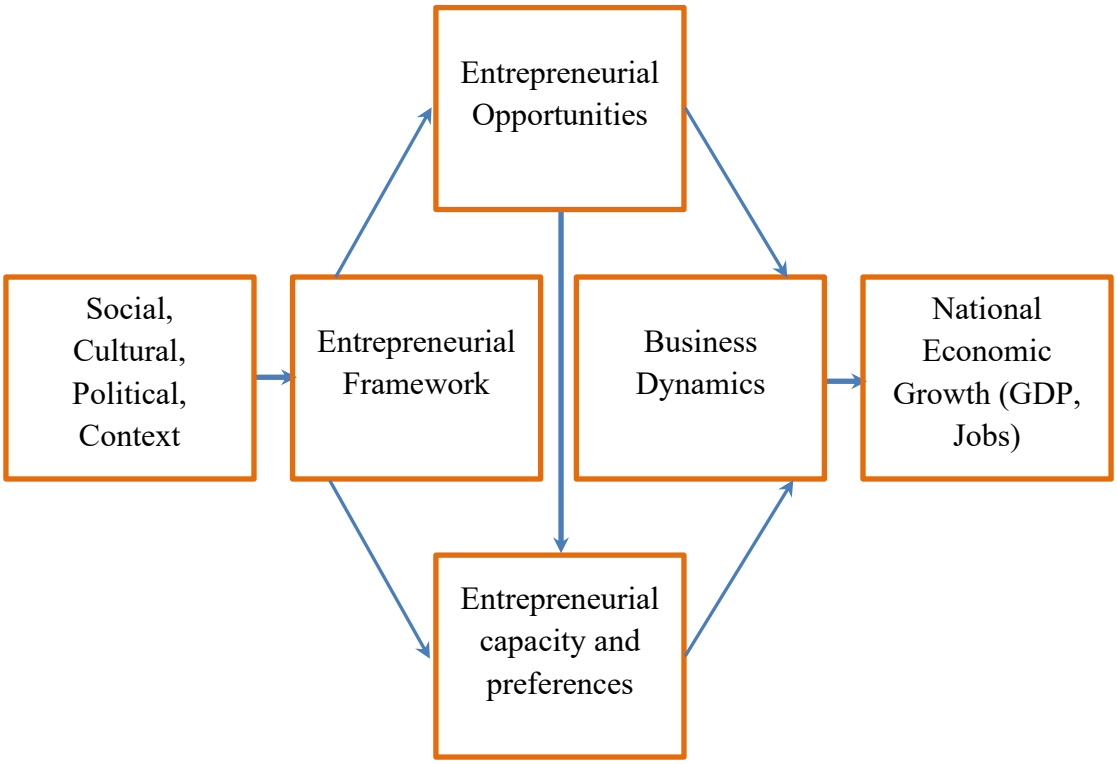
Presently India is a younger country compared to China and America and expects the average age of the Indian population is 31 years by 2031. India has produced 12 million educated youngsters a year and this provides an alarming picture of unemployment according to world bank data. This growing demand for jobs needs an urgent solution for the country. To generate job opportunities in the country, the government is introducing a series of steps to foster entrepreneurship culture among the Indian population through the initiatives of the Start-up India programme by creating a vibrant entrepreneurial ecosystem.

Then the country can improve the quantity and quality of entrepreneurship and technical knowledge, and reduce poverty and unemployment among young people. Young entrepreneurial firms have had an effective role in economic growth in the country during the last several decades. In particular, innovative start-up firms with growth ambitions are considered to contribute disproportionately to innovation, the creation of jobs, and wealth in the larger economy (Kirchhoff et al., 2007).

MSMEs are considered India’s growth engine and they directly affect the GDP of the country. In India, the MSME sector comprises 630 lakhs units and it accounts for 30% of India’s GDP and 48% of India’s exports. In India, MSME employs an 11.10 crore workforce. Moreover, 90% of India’s enterprises come under MSME (Ministry of MSME, 2020).

Figure 1.1

Entrepreneurial process affecting national economic growth.



Source: Amoros, J. E., & Bosma, N. (2014)

A start-up company or start-up (sometimes referred to as an innovative SME) is a young company usually small and initially financed and operated by an individual or a group of individuals. It is an entrepreneurial venture or a new business that is just beginning to develop in the form of a company, a partnership, a Limited liability partnership designed to achieve repeatable and scalable business model. These companies are innovative in a process of development, validation, and research for target markets.

1.3 DPIIT Recognition

Various initiatives have been developed and implemented by Government of India to promote startup enterprises. Under the start-up India initiative, a start-up can get recognized to avail of tax benefits, easier compliance, IPR fast tracking, etc. if they are eligible. Under the start-up India action plan, start-ups meet the definition

prescribed by the Government to apply for DPIIT recognition under the programme. The government of India defines a start-up as "an entity will be identified as a start-up

- Should be incorporated in the form of private limited company or registered as a partnership firm or a LLP,
- Turnover of the company should be less than INR 100 Crores in any of the previous financial years,
- An entity shall be considered a start-up up to 10 years from the date of incorporation of the company,
- The Start-up company should be working towards innovation/ improvement of existing products or services and processes and should have the potential to generate employment and create wealth,
- An entity incorporated by splitting up or reconstruction of an existing business shall not be considered a Start-up".

India is amongst the top five countries in the world in terms of start-ups. There are approximately 66000 start-ups in India. Considering the parameters of Startup in India as per Inc42 report (2021), India is the third largest Startup hub in the world, average age of founders under start-up business is 28 years, among the total founders 9% are women, and an average number of new IT services start-ups has moved from 480 in 2010 to 2000 in 2020. The majority of start-ups and investors are from metro cities. In 2015, the prime minister announced the "Startup India, Standup India" campaign and hopes that it will bring a significant amount of change in the lives of the citizens in all parts of the country. The government of India encourages various strategies and schemes towards start-ups and the integration of various ministries with startup missions.

In India, the start-up has grown the different sectors in all dimensions. Their increased number facilitates economic development. Increased innovation and scalable technology act as an engine and vehicle for social and economic

development in the country (Korreck, S., 2019). The emergence of most start-ups in India from four cities such as Banglore, Mumbai, NCR (National Capital Region), and Hyderabad. It also seems that many start-ups have witnessed a decline in their business operations, except for those start-ups that have been engaging in the delivery of essential services, the educational sector, and gaming services.

India has the third largest ecosystem for start-ups in the world. The United States of America (USA) and the United Kingdom (UK) are holding the first and second positions. But failure rate of the Indian start-ups are 90% due to various factors such as absence of unique business models, lack of proper strategic planning and deficiency of technological innovations. (Prashantham, S., & Yip, G. S., 2017). It also reported that the majority of tech start-ups failed in India due to a deficiency of inventions and competitiveness of ideas in technologies with western (Inc42, 2018).

But in recent years, India witnessed a dramatic boom in the start-up ecosystem, especially in digital and software services. In the study of Sikka, G. (2015), India is the world's fastest-growing start-up ecosystem having an average valuation of an Indian start-up is $2.3 million as compared to an American start-up of $4.2 million. Out of this 43% of the start-ups are focusing on the global market and 28% running as a technology hotspot. In India, the majority of the start-ups are using the Business to Consumer (B2C) model of business (59%) followed by Business to Business (B2B) (37%) and B2C/B2B (4%).

One of the major changes in making digital services more accessible to the masses was spurred by the telecom industry shake-up among new entrants, particularly Reliance Jio's price war over data through the internet in 2016. This advantage provides the Indians with the world's cheapest data plans and gets them an entirely new user base. The government also made an attempt to strengthen the initiatives to facilitate the growth of start-ups in India. It is reported that the investment trends in India is drastically signed during the last decade and showed that investment reached 14.5 billion dollars in 2019 compared to 550 million dollars in 2010.

Table 1.1

Top 10 highlighted sectors in terms of the number of start-ups in India

Sl. No.	Start-ups	Rank
1	IT services	1
2	Healthcare and life sciences	2
3	Education	3
4	Professional and commercial services	4
5	Food and beverages	5
6	Agriculture	6
7	Finance technology	7
8	Construction	8
9	Green technology	9

Source: Startup India website, 2021

1.4 Kerala context

Kerala has many developing parameters considering other states in the country even though the state occupies 1.18% of the total area of India like the highest life expectancy rate, highest literacy rate, high human development index, increased health awareness and social status, etc. Kerala's density of self-employment is 29, as against 51, at the national level (NSSO, 2014). The people of Kerala are job oriented and not ready to take risks. This gives a rather disturbing picture of the entrepreneurial spirit among youth in Kerala, even though they are getting accelerating growth in wages abroad. This environment should be monitored and changed by introducing corrective measurements and policies.

Table 1.2

Kerala start-up ecosystem- Key highlights

Sl. No.	Items	Figure
1	Total number of start-ups	4000+
2	Total investments in start-ups	4280 crores
3	Total Fund of Funds created by the Kerala government	$101 Mn+
4	Total entrepreneurs in start-ups	30,000
5	Percentage of women entrepreneurs in start-ups	9%
6	Total number of jobs created start-ups	40,000+
7	Total number of active incubators	63+
8	Total number of mini incubators	375
9	Total number of Super Fablab	1
10	Total number of Fablab	23
11	Total number of Mini Fablab	23

(Source: Inc42 report, 2022)

Nowadays, the government of Kerala has been taking necessary steps to provide adequate help and support in infrastructure and finance to young entrepreneurs in the state by setting up Technology Business Incubators (TBI). Now TBI has changed its name as Kerala Startup mission. As a nodal agency of Kerala government, Kerala Startup Mission (KSUM) has been actively initiating various programs and policies for promoting start-ups in the state. The KSUM identifies entrepreneurial talents among youth to promote and develop entrepreneurial culture in Kerala. More than 1,00,000 students pass out of higher education institutions in Kerala every year. There are few avenues for innovation and enhancing entrepreneurial behavior among students in Kerala.

1.5 Start-ups

The concept of entrepreneurship has already been widespread 21st century. But Start-up is a commonly and widely used term in the present era. The concept of start-up became popular with the introduction of the internet. Every nation focuses on entrepreneurial activity due to the fact that it has a great impact on the economic

development of the country. Because start-up companies help to generate job opportunities and create new markets. Thereby start-ups have a pivotal role in increasing production and technological progress. Start-up acts as a generator of creative ideas and innovation (Kee, D. M. H., & Rahman, N. A., 2020).

Todays are a prosperous world with a new way of innovations and inventions. People with creative skills bring innovative ideas to the business world and try to start and set up new ventures. In India, to inculcate and nurture entrepreneurial activities and start-ups, different schemes have been implemented by the central government in the country from time to time. Among these, the stand-up India – Start-up India scheme is a major milestone in the start-up boom in the country.

Department of Industrial Policy and Promotion (DIPP) renamed as the Department of Promotion of Industry and Internal Trade (DPIIT) is an implementing agency of this scheme. There are three pillars behind the implementation of this scheme such as to make the start-up process easy, to availability of funding support, and develop an Academy-Industry-Government partnership. The definition of DIPP indicates that the Start-up would be Innovative and scalable and also carry technology along with a website, mobile applications, etc. According to the National Innovation and Start-up Policy (2019) for Students and Faculty, the institutions are required to allocate a minimum of 1 percent of their total annual budget towards entrepreneurial activities.

1.6 Innovation

India achieved a significant improvement in Innovation (81 in 2015 to 48 in 2020) and entered the list of top 50 innovative countries for the first time in the year 2020 as per Global Innovation Index (GII). Among the seven pillars of the GII, India improved its rank in the following way.

Table 1.3

India's performance on pillars of the Global Innovation Index 2020

Sl. No.	Pillars	Rank
1	Knowledge and technology outputs (KTO)	27
2	Market sophistication	31
3	Business sophistication	60
4	Institution	61
5	Creative output	64
6	Infrastructure	75
7	Human capital and research	60

(Source: Dutta et al., 2020).

1.7 India start-up ecosystem

During the last decade, multiple start-up hubs have been introduced in the country in this digital revolution well. New introduced ventures called nascent digital enterprises require a well-balanced ecosystem comprising supporting elements, processes, and agents. This system is collectively known as the software start-up ecosystem (Cukier, D., & Kon, F., 2018). The start-up ecosystem consists of various elements such as stakeholders, incubators, accelerators, investors, service providers, educational and research institutions, big companies, etc.

One of the important milestones of the Indian ecosystem is India is planning to introduce the whole ecosystem on one platform in the form of Start-up India Virtual Hub. It will help all the investors to interact, exchange their information, etc. by developing a marketplace. This will be benefited both existing and potential start-ups to access their resources at the right time. A Start-up exchange programme is also planned with SAARC nations to develop the start-up culture among youth. Moreover, the country is tried to create large employment opportunities among youth, a fundamental change has been brought in the start-up-friendly policy.

Table 1.4

Trends of start-ups recognized and job generated in India

Year	Start-ups recognized	Jobs reported
2017	5425	49 K+
2018	8947	96 K+
2019	11701	1.5 Lakh
2020	14740	1.7 Lakh

Source: Five-year achievement report, December 2020, Startup India

India is currently making a fundamental change in the start-up-friendly policy and in the business environment-friendly environment. To do this, it is necessary to create opportunities for a large number of youth as well as to create employment opportunities for India. In order to pursue this challenge, the Indian Industry Association (CII) has stressed building a strong early ecosystem in the country with national and state governments and industry other stakeholders. The theme of this year's Start-up Conclave was the development of the start-up ecosystem in India, which inspires the Prime Minister's speech from India's 69th Independence Day and Start-up India, which progresses in the campaign of India. In the start-up ecosystem, accelerating non-financial assistance, including entrepreneurs, various types of financial and non-financial assistance such as loan finance, equity investment, subsidies, incubation, acceleration, consulting, and technical experts are involved. It also includes government policies and programs that are initially related to academic and other organizations, and platforms interact with each other in different ways or support start-ups. Indian start-up ecosystem evolution has evolved into more than a start-up environment in India.

1.8 Development of India start-up ecosystem

In India, the start-up ecosystem is in the process of maturing and significantly growing over the last two decades. During the 1990s, many start-ups came up with good ideas but many of them failed due to a lack of support factors, lack of internet penetration, and internet connectivity. Subsequently, many support organizations came into existence, creation of new start-ups increased fast. Investment flows to

start-ups have increased such as Flipkart in 2009, Paytm, Inmobi, etc. During the period of 2010 to 2018, 7200 to 7700 technology start-ups were incepted in India (NASSCOM, 2018). In that period, external capital was invested from India and foreign countries such as Singapore, the US, China, Japan, and the Middle East. But most of the investment invested in different start-up sectors resulted in huge financial losses. In the last two years, the environment began to improve again. Many start-up entrepreneurs came into existence by inspiring the successful stories of first-generation Indian entrepreneurs. Moreover, entrepreneurial culture has developed and emerged over time in the start-up ecosystem. Now Indian ecosystem has reached a good level and adequate support has also reached in dimensions significantly.

Table 1.5

Unicorn start-ups in India

Year joined	Start-up	Sector	Valuation (US$ billion)
2017	BYJU'S	Edtech	$22
2018	Swiggy	Supply chain, logistics, & delivery	$10.7
2018	OYO Rooms	Travel	$9
2019	Dream 11	Internet software & services	$8
2020	Razorpay	Fintech	$7.5
2020	National Stock Exchange of India	Fintech	$6.5
2014	Ola cabs	Auto & transportation	$7.5
2021	CRED	Fintech	$5
2021	Of Business	E-commerce & direct-to-consumer	$5
2020	Pine Labs	Fintech	$5
2019	Ola electric Mobility	Auto & transportation	$5
2020	VerSe innovation	Mobile & telecommunications	$5
2021	Sharechat	Internet software & services	$5

Source: CB Insights, (2022)

1.9 Geography of India and Kerala ecosystem

In India, the majority of start-ups are running in metro cities because of their own history and local peculiarities. Bangalore is the primary hub in India considering the parameters of a number of start-up support organizations and investors. Also, most of the technology start-ups are running in Bangalore city (NASSCOM, 2018). This may be because of the location of many engineering colleges and renowned academic institutions.

Bangalore is occupied with the biggest 3 IT companies in terms of employers which may include Infosys, IBM India, and Wipro (Economic Times, June 29, 2015). In addition, the government of Karnataka introduced welcoming policies to strengthen the opportunity for entrepreneurial culture and a conducive environment in the state.

Following Banglore, the majority of start-ups are running in Mumbai and National Capital Region especially Delhi, Gurgaon, and Noida. It is reported that out of the total Indian technology start-ups 21% are situated in NCR and 14% in Mumbai (NASSCOM, 2018). These three cities are members of "Elite Global Start-up Hubs". The above cities are considered global start-up hubs in India. But the start-up ecosystem is also developing in Tier 1, and Tier 2 cities such as Pune, Hyderabad, Ahmadabad, and Calcutta. These are considered as emerging start-up hubs.

Further Kerala is also considered as an emerging state and hub of start-ups (NASSCOM, 2018). But in some states including Kerala where people have fewer visibilities in entrepreneurship; fewer support organizations, and a lack of possibilities for founders to interact with others. So the ecosystem is not as mature as compared with Bangalore, NCR, and Mumbai. In Kerala, rural areas also need attention in entrepreneurial ecosystem development. But Kerala state government is introducing various initiatives through KSUM to nurture early-stage start-ups.

1.10 IT services start-ups

In the last two decades, drastic changes have taken place in our daily lives. In this digitalized world, every individual in their current urban social life should have a basic understanding of IT so-called digital economy (Tapscott, D., 1997) or platform economy (Srnicek, N., 2017) requires a basic understanding of IT to include

individuals in our current urban social life (Ziemba, D., 2017). This phenomenon happened due to various factors ranging from social media to digital trade, and technology start-ups, particularly those related to software or IT services start-ups. Facebook, Instagram, WhatsApp, Airbnb, and Amazon are considered a few well-known software start-ups or IT service start-ups in the world. Now IT services companies contribute $225 Bn revenue to the Indian economy and include $170 Bn exports under IT services sector. There are 5 Mn people are working in IT services sectors (Inc42 report, 2022). These technology-based software start-ups are engines of innovation and the economy of any nation (Start-up Genome. 2019; Marmer et al., 2011).

Table 1.6

Major sectors of Start-ups in Kerala

Sl. No.	Sectors	Numbers
1	IT services	660
2	Healthcare and life science	250
3	Education	210
4	Technology hardware	138
5	Enterprise software	122
6	Agriculture	101
7	Food and beverage	98
8	Artificial Intelligence	96
9	Marketing	86
10	Green technology	72
11	Real estate	68
12	IOT	66
13	Travel and Tourism	62
14	Media and Entertainment	60
15	Construction	58
16	Finance technology	54
17	Robotics	46
18	Others	873
Total		**3120**

Source: Start up India report, September 16, 2020

Table 1.7

Total IT Services Start-ups in Kerala (Stage wise)

Stage	India		Kerala	
	Total	**DIPP Registered**	**Total**	**DIPP Registered**
Ideation	8411	2539	458	213
Validation	5928	2729	371	222
Early Traction	6561	3017	384	221
Scaling	2828	1162	176	91
Total	**23728**	**9447**	**1389**	**747**

Source: Compiled data from Startup India (21/08/2022)

The above table reveals the stage-wise total services start-ups in India and Kerala. It also depicts the total start-ups along with DIPP-registered start-ups. This shows DIPP registered start-ups are changing parallel to the changing of total IT services start-ups in India as well as Kerala.

Table 1.8

District-wise list of IT Services start-ups in Kerala

Sl. No.	District	Number of IT services start-ups
1	Kasarkode	12
2	Kannur	55
3	Wayanad	14
4	Kozhikode	130
5	Malappuram	59
6	Palakkad	53
7	Thrissur	107
8	Ernakulam	427
9	Idukki	13
10	Kottayam	54
11	Alappuzha	33
12	Pathanamthitta	28
13	Kollam	55
14	Thiruvananthapuram	349
Total		**1389**

Source: Start-up India as on 21/08/2022

1.11 Statement of the problem

It is reported that Kerala has the highest unemployment rate among educated youth in India in terms of gender and rural-urban category (NSSO survey, 2014) even though the state has succeeded in the development of various other parameters such as high literacy rates, health index, high human development index, political awareness, etc. This unemployment problem may occur among educated youth due to economic and social problems of the state and there is an urgent need to solve it by changing the entrepreneurial culture in the state. Inculcating entrepreneurial talents among young people and easing the constraints of the labour market is vital for employment generation and inclusive growth. To develop an entrepreneurial culture among youth, start-ups provide a good platform to enter into entrepreneurial activities bringing innovative ideas that lead to entrepreneurship development in the country.

From the literature surveyed, most of the start-ups face different problems during different stages of development and are compelling to close down their business operations. In order to run start-up enterprises, especially technology start-ups which involve tremendous risks in terms of financial issues, operational issues, marketing issues, etc. are being identified as issues that need to be addressed apart from creating innovative and successful products or services.

Nowadays much attention has been given to high-technology firms. IT sector have relevance in this environment and IT companies can change quickly and are easily perceived (Davenport, T. H., 1993). Start-ups often develop applications to tackle a high-potential target market rather than developing software for a specific client. It has a huge scope for how sociotechnical interactions have changed over time. A report by Start-up India says that more than 20% of start-ups come under the purview of IT services start-ups in India. Another report says that, 2186 Technology start-ups under different sectors are registered in Kerala (Start-up India report, 2020). Among these, the Majority (35%) of start-ups belong to IT services start-ups.

It is reported that Information Technology (IT) Start-ups are those temporary organizations that create innovative products and/or services using high technology,

but these types of companies are also known to be inserted in uncertain and risky scenarios, proof of this is their high mortality rate (Cho, Y., & McLean, G. N., 2009). Based on the various kinds of literatures, it can be seen that the failure rate of such firms is high worldwide. It is found that only 1 out of 12 start-ups succeed and this portrays the alarming failure rate of start-up ventures (Marmer et al., 2011; Start-up Genome, 2019,). Majority of the start-ups fail within two years of their incorporation due to various factors such as poor problem-solution fit, negligence of the learning process during minimum viable product (MVP) development etc. (Tripathi et al., 2019). It is affirmed that more than 80% of total start-ups fail in their first year of existence (Hyder, S., & Lussier, R. N., 2016). Globally it can be seen that Shyp, Omni, Your Story, Sonar, and Atrium LTS are instances of major software start-ups that faced major failures. The stories of unsuccessful software start-ups give an opportunity to learn from failures.

To reduce these problems faced by start-ups, the government of Kerala comes forward to support start-ups and the growth of young entrepreneurs. The government has undertaken numerous policy initiatives to motivate and develop an entrepreneurship culture among young people through its nodal agency Kerala's start-up mission. This policy covers every pain point of the start-ups starting from capacity development, infrastructure development, and funding and industry association.

Despite having so many challenges found during the period of establishing and running entrepreneurial ventures, the state witnessed a drastic boom in the start-up ecosystem, especially in digital and IT services start-ups. The increasing trend of starting a new venture is an example of growth in entrepreneurship culture in the state also it envisages some sort of exposure and prospects behind start-up ventures.

In these contexts, the researcher intends to study, the reasons behind the failure of IT service start-ups in Kerala, the Problems faced by the founders of IT service start-ups, and the reason for mushrooming of IT service start-ups amidst of alarming mortality rate. Most of the previous researches mainly focused on success factors and problems of product-based start-ups in general. The researcher could not

identify any specific study related to IT services start-ups, its problems, reasons for failures and reasons for starting new venture start-ups in Kerala.Under these perspectives, the study is confined to answering the following research questions:

1. What is the present status of IT service start-ups in Kerala?
2. What are the focused areas upon which the IT service start-ups concentrate their business in Kerala?
3. Do they pass through different stages of development just like other businesses? If yes, what are the different stages of development through which the IT service start-ups are passing through?
4. What are the motivating factors that lead founders to focus on IT services start-ups?
5. Do the founders get any support and services from Kerala Start-up Mission? If yes, what is the perception of founders regarding it?
6. What are the policies and schemes extended by the State government to boost IT services start-ups in Kerala?
7. What is the perception of start-up founders regarding the factors that contribute to the growth of IT services start-ups?
8. Do they face any problems while running IT service start-ups in Kerala? If yes, what are the problems perceived by IT services start-up founders?
9. What are the various prospects for growth of IT services start-ups in Kerala?

1.12 Research objectives

1. To analyze the present status of IT service start-ups in Kerala in terms of numbers, focused business areas, business models, and development stages.
2. To identify the motivating factors that lead founders to start IT services start-ups in Kerala.

3. To analyze the supports and facilities perceived by the founders of IT services start-ups from the Kerala Start-Up Mission.

4. To know the opinion of founders about policies and schemes extended by the government to boost IT services start-ups in Kerala.

5. To measure the perception of IT services start-up founders regarding the factors that mandate the growth of IT services start-ups.

6. To identify major problems perceived by IT services start-ups in Kerala

7. To check the prospects for growth of IT services start-ups in Kerala.

1.13 Hypotheses of the study

H_1: IT services start-ups founders perceive positively the supports and facilities offered by KSUM.

H_2: IT services start-ups founders perceive positively the schemes and policies extended by the central and state Government.

H_3: Financial problem is the key problem faced by IT service start-ups in Kerala.

H_4: Entrepreneurial traits in individuals are the key factors that mandates the growth of IT start-ups in Kerala.

H_5: Motivating factors experienced by IT services start-ups founders are same with respect to their individual characteristics.

H_6: Founders' perception regarding supports and facilities offered by KSUM are same with respect to individual and start-up characteristics.

H_7: Founders' perception regarding policies and schemes extended by Govt. are same with respect to their individual and start-up characteristics.

H_8: Founders' perceptions regarding growth factors of IT services start-ups are same with respect to their individual and start-up characteristics.

H_9: Problems perceived by IT services start-up founders are same with respect to their individual and start-up characteristics.

H_{10}: Opinions of founders regarding prospects for the growth of IT services start-ups are same with respect to their individual and start-up characteristics.

H_{11}: Motivating factors experienced by founders influence the growth of IT services start-ups to a large extent.

H_{12}: Supports and facilities perceived by IT services start-up founders from KSUM influence the growth of IT service start-ups.

H_{13}: Founders' perception regarding policies and schemes extended by Govt. influence the growth of IT services start-ups.

H_{14}: Founder's experience on factors lead to growth of IT services start-ups influence the real growth of their business.

1.14 Scope of the study

The present study mainly focuses on the functioning of Information Technology services start-ups in Kerala. The study is confined to the perception of IT Services start-ups founders included in the database of Start-up India up to 31/01/2022 focusing on Application (Software) Development, IT Consulting, IT Management, Product development, Web development, and others.

The researcher tried to identify the motivating factors to start IT services start-ups and factors that will contribute to the growth of IT services start-ups in the state. The definition of growth of the startup used in the current study is the degree of the relative position of return on assets, sales revenue and profit of the firm. The researcher also focused on the various problems faced by IT service start-up founders. The study also makes an attempt to analyze the supports and facilities perceived by the IT services start-ups from Kerala start-up mission and check the opinion of founders towards policies and schemes extended by the State government to boost IT services start-ups in Kerala. The prospects for growth of IT services start-ups in Kerala are also included in the study.

1.15 Significance of the study

This study will be very useful to entrepreneurs aspirants especially young entrepreneurs who wish to start IT services start-ups in Kerala. Moreover, research will be useful to the students or tech-savvy coming out from different engineering, polytechnic, and other science students by providing necessary information and knowledge about the running of technology or IT start-ups in the state.

The creation of a Start-up company provides a significant contribution to economic growth by way of generating more employment opportunities in the country (Backes-Gellner, U., & Werner, A., 2007). The start-up success phenomenon is very significant to the future of technology start-ups, and the output from this research study might help to increase start-ups' success rates. The information on patterns that critically identify as successful start-up factors and factors that lead to the failure of start-ups lead to the body of literature on Information Technology services start-up organizations. The growth or success rate of IT services start-up helps to boost young entrepreneurs to establish more Information Technology services start-ups. This attracts more investors to the country, especially angel investors and ventures capitalist and it may lead to increasing of GDP rate, improvement in the standard of living of the people, and improving the conditions of society. This picture provides good value additions to the IT services industry. This research finding might be useful for aspirant entrepreneurs in the IT services start-up sectors and identify the growth factors and problems during different stages. Entrepreneurs and management team members might benefit from the findings and suggestions of the current study to handle the various strategic and tactical business challenging issues better, with insights into achieving growth in Information Technology services Start-ups.

The study may useful for policymakers of India for formulating policies and supports to inculcate entrepreneurship culture and ecosystem thereby generating more employment opportunities for the youth and various social issues can be solved indirectly in the state. This study identified motivating and growth factors and information regarding the challenging factors of IT start-ups that might useful

for research scholars to add a theoretical background or a body of knowledge to other start-ups related research work. Apart from these, this study will very much benefit the government in taking various actions to promote IT services start-ups in the state.

1.16 Operational definitions of terms and concepts used in the study

1.16.1 Start-ups

Start-ups are newly introduced small companies having no operating history and in search of innovative and scalable business models. The definition of start-ups specified here is the same as the definition provided by the DIPP of the Indian government as "an entity will be identified as a start-up:

- Should be incorporated in the form of private limited company or registered as a partnership firm or a Limited Liability Partnership,
- Turnover of the company should be less than INR 100 Crores in any of the previous financial years,
- An entity shall be considered a start-up up to 10 years from the date of incorporation of the company,
- The Start-up company should be working towards innovation/ improvement of existing products or services and processes and should have the potential to generate employment and create wealth,
- An entity incorporated by splitting up or reconstruction of an existing business shall not be considered a Start-up".

1.16.2 Technology start-ups

The technology start-up is a start-up company that creates and distributes its product and service with the help of the internet and software and searches for and executes its business model.

1.16.3 Software start-ups

Software start-ups are start-up companies that are focusing on developing new and innovative software-intensive products/services through which new business model and value is created.

1.16.4 IT services start-ups

IT services start-ups are information technology services start-ups focusing on software or IT services based on make-to-order mode and make revenue by providing services like Application development, product development, Web development, project development or consulting over a finite period, and others. The services are mainly for specific customers and cannot provide that service as a duplicate for other customers.

1.16.5 Mentoring support

Mentoring is a process of providing guidance, pragmatic advice, and continuing support by experts or experienced hands in the respective area to start-up entrepreneurs in their learning and development process in the form of technical and business mentorship.

1.16.6 Need for achievement

It is an individual's desire or intense and repeated efforts to accomplish high standards or something difficult in the business venture.

1.16.7 Networking skills

Networking skills are the skills of entrepreneurs having the ability to build and maintain contacts and relationships with other entrepreneurs or individuals and institutions in their respective sectors.

1.16.8 Incubators

Incubators or Business incubator is an organization that helps young start-up companies and individual entrepreneurs to innovate and growth of their businesses

by providing workspaces, mentorship facilities, access to networks and investors, co-working spaces etc.

1.16.9 Accelerator

Accelerators are the programs that provide services such as assistance in developing a business plan, prototypes, investor pitch desk, initial market testing, etc. through a cohort-based program of limited duration say 3 to 6 months.

1.16.10 IPR protection

IPR protection covers the IT services start-ups which need protection in information technologies, the internet, digital entertainment, financial services, etc. where significant innovations are created.

1.16.11 Digital Marketing

It is a new platform used by digital marketers in creating new opportunities and to attract customers through a digital platform such as search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, e-commerce marketing, campaign marketing, and social media marketing, social media optimization, e-mail direct marketing, display advertising, e-books, etc.

1.16.12 Entrepreneurial competencies

Entrepreneurial competencies are the underlying characteristics of entrepreneurs which involve specialised knowledge, skills, motives, and traits in new venture creation and help to succeed in their entrepreneurial endeavours.

1.16.13 Idea commercialization capability

It is the ability to commercialize innovative ideas or technology, to move a product from concept to market quickly and efficiently.

1.16.14 Competitive advantage

Competitive advantage refers to growth factors that allow a company to produce goods or services better than its competitor companies or rivals.

1.16.15 Co-founder misalignment

It means the founders are confused with other founders' actions or decisions with their capabilities or skills in the operations of a start-up business.

1.16.16 Asymmetric information

Information asymmetry is a situation under which one business company possesses more information than the other party they are dealing with.

1.16.17 Newness and smallness

Start-up is a company having no operating history and launch with a new and small size working towards innovative and scalable business.

1.16.18 Employee attrition

Employee attrition means employees are leaving the workforce due to personal reasons such as unhappiness about employee benefits, a lack of employee development opportunities, and poor conditions in the workplace.

1.16.19 Technology disruption

It is an innovation that significantly alters the existing business activities and has the potential to impact growth, and employment by creating new markets and business practices, new product infrastructure, and different labour skills.

1.16.20 Digital infrastructure availability

It refers to the availability of digital infrastructure comprising the physical resources that are necessary to enable the use of data, computerized devices, methods, systems, and processes. It requires to inter connect physical and virtual technologies to build the foundation for a company's digital operations.

1.16.20 Government policy

Government policy refers to any course of action which aims at regulating a specific condition. This study focuses on regulating the functioning of IT services start-ups in Kerala.

1.16.21 Minimum Viable Product

It is the product which has an attractive feature to get early adopter customers and validate the product idea based on the feedback for future in the early product development cycle.

1.16.22 Application development

It is the process of designing, creating, testing and launching an application to satisfy the needs of users by assisting to carry out a variety of function of computers and other electronic devices.

1.16.23 Web development

It refers to the process of building websites for clients and includes the process of creating, developing and maintaining website such as web design, web publishing, web programming, database management etc.

1.16.24 IT consulting

IT consulting refers to advisory services or technology consulting that help clients on how they can effectively utilise information technology strategies in line with their business and process strategies.

1.16.25 IT management

IT management refers to the planning, monitoring and administration of information technology resources of a firm such as hardware, software, cloud programs, network and emerging technologies in accordance with ensuring the firm's requirements and organisational goal.

1.16.26 Product development

Product development under IT services means software product development. It includes activities of conceptualizing, designing, prototyping, developing and delivering innovative and customised digital products to the firm for achieving their business goals such as increasing business growth, minimising operational cost, reducing resource requirements and meeting the competition.

1.17 Conclusion

This chapter provided an introduction to the study on start-ups in the current context of the world, India, and Kerala, and the status of IT services start-ups in Kerala. It depicts the statement of the problem, research objectives, research hypotheses, scope, significance, variables of the study, and finally operational definitions of specific terms and concepts used in the study.

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CHAPTER 2

REVIEW OF LITERATURE

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2.1 Introduction

The chapter presents the findings of prior research works done by various authors in similar areas. It covers the conceptual and empirical literatures reviewed for the purpose of this study. It discusses the findings and comments of prior research works. It includes the study of motivating factors of start-up entrepreneurs, factors that lead to the growth of start-ups and new ventures, and problems of entrepreneurs of start-ups and new ventures. This chapter also covers studies related to government policies and schemes pertaining to supporting start-ups to understand the different policies supports, incentives, and concessions given to start-ups and new ventures by the central and state government. By conducting the extensive survey about works already conducted, the research gap is derived. The literature review is organized under the following areas:

- Studies related to motivating factors of start-up entrepreneurs.
- Studies related to the supports and ecosystem facilities perceived by the start-ups and new ventures.
- Studies related to the policies and schemes extended by the governments to start-ups and new ventures.
- Studies related to factors that contribute to the growth of Information technology start-ups and new ventures
- Studies related to problems of start-ups and new ventures.
- Studies related to prospects for growth of start-ups.

2.2 Studies related to motivating factors of start-up entrepreneurs.

In the area of entrepreneurship, a considerable amount of study related to motivating factors to start or introduce new ventures has been done. Entrepreneurial motivation is the "desire or tendency to organize, manipulate and master organizations, human being or ideas as quickly and independently as possible" (Solesvik, M.Z., 2013). So, the individual is driven by motivation that is happened by doing certain actions through psychological reason (Schacter et al., 2011). This section contains the motivating factors of various types of entrepreneurs especially start-up entrepreneurs under which less number of studies have been found.

Birley, S., & Westhead, P. (1994) conducted a detailed study about a taxonomy of business start-up reason and their impact on firm growth and size. This study explored the difference in the reasons of owners – managers for starting their business and if there is any difference, it affects the subsequent growth and size of the business. By using Principal component analysis, they found 23 diverse reasons leading to start-ups and grouped such into the need for Approval, need for Independence, need for Personal Development, welfare Considerations, Perceived Instrumentality of Wealth, Tax Reduction and Indirect Benefits, and Follow Role Models. The types of owner-managers are classified based on cluster analysis and grouped such as the insecure, the followers, the status avoiders, the confused, the tax avoiders, the community, and the unfocused. These seven clusters are found appropriate and ensured with the help of discriminant analysis. The study concludes that there are different reasons that may lead to the start-up creation but these significantly different reasons of individuals have only a minimal influence on the growth, wealth creation, and job generation of new ventures.

Mazzarol et al. (1999) investigated the factors influencing small business start-ups by comparing past studies. They selected 3 demographic variables such as gender, previous government employment and recent redundancy for the study and used multivariate techniques such as logistic regression to analyse the data. The study found that the selected 3 variables have a potential negative influence on small

business formation. They suggested that special attention should be given to women in the development of role models and specific business advisors.

Shane et al. (2003) made a study about entrepreneurial motivation. The study shows that prior research has been focused only on macro-level environmental forces and entrepreneurial opportunities. This study focused on human motivation in entrepreneurship decision-making. It involves cognition, opportunities and environmental forces that influence the entrepreneurial process at each of its stages.

Ismail et al. (2006) explored a study of motivation in business start-ups among Malay entrepreneurs. They concentrated on motivating factors that may be influenced in decision-making to start up new businesses. The study used factor analysis to identify the most influencing motivating factors which include spiritual liability, personal development and satisfaction, financial security, opportunities, freedom, accommodation and escapism. The study analysed the relationship between the level of education, gender, previous work and parent's occupation with motivating factors using ANOVA and MANOVA. The study concludes that the level of education of entrepreneurs is significant with motivating factors and all other factors are not significant. While taking a combination of gender and level of education certain levels of significance seem with motivating factors.

Goel et al. (2007) made an attempt to compare the cross-cultural category of India and China in terms of the attitudes of the youth towards entrepreneurs and entrepreneurship. They argued attitude towards entrepreneurs and entrepreneurship is the most important determinant in shaping future entrepreneurial activity. This study reveals that these attitudes may be impacted by the familial occupational background of an individual and the entrepreneurial development of the region which an entrepreneur comes from because entrepreneurs have a positive attitude towards entrepreneurial backgrounds and entrepreneurially more developed regions.

Raman et al. (2008) conducted a study on motivational factors affecting entrepreneurial decisions between Malaysian women entrepreneurs and women non-entrepreneurs engaging in the manufacturing, trading and service sectors in small

and medium industries. They classified motivational factors into the economic core, work core, social core, individual and entrepreneurial core. Among these, the work core is found to be the very important motivational factor. The entrepreneurial and individual core also appears to be very important factors as well. It also shows that the educated generation is more interested in becoming entrepreneurs.

Linan et al. (2011) has undertaken a critical study on the influence of perceptions on potential entrepreneurs. Based on the empirical analysis using GEM data, they identified three kinds of perceptions: individual perceptions, perceptions about entrepreneurial opportunities and socio-cultural perceptions. The logit regression model was used to analyse the data. The study shows that socio-demographic characteristics such as gender, education, income, age and work status significantly influence the entrepreneurial intention of respondents. Three kinds of perceptions have a significant influence on intentions, among these, individual perceptions especially self-efficacy, and role models are the most important variables of entrepreneurial intention followed by regarding perceptions of economic opportunities. It is not high as expected. Perception about socio-cultural is also significant but, their influence on intentions is the weakest.

Tong et al. (2011) explored the factors influencing entrepreneurial intention among university students. This study reflects that need for achievements; family business background and subjective influence are important factors influencing becoming an entrepreneur. Unlike this, desire for independence is not a factor for entrepreneurial intention among University students.

Barba-Sanchez, V., & Atienza-Sahuquillo, C. (2012) made a detailed study on the motivational profile of entrepreneurs. They identified that merely making money or being one's boss does not lead to sufficient reasons to create a new venture. It shows that the motivation content of entrepreneurs influences their decision to start a business and these motivational factors influenced entrepreneurs' entrepreneurial behaviour. They found that certain motivational reasons of the entrepreneurs such as

the need for achievement, self-realisation, independence, affiliation, competence and power have more influence on the decision to start a new venture.

Ooi, Y. K., & Ahmad, S. (2012) examined the motivations and obstacles to becoming entrepreneurs in business start-ups among Malaysian University students. The study revealed that extrinsic rewards and change management are the main motivators to inspire them to start up a new venture. Apart from these, government support plays a prominent role in promoting entrepreneurship and gender and birth order affects the entrepreneurial intention of students significantly. It is also seen that working experience also affects entrepreneurial intention. The study revealed that endogenous factors (financial and operational problems) are the main obstacles and challenges that impede students' efforts to launch a new business start-up.

Estay et al. (2013) made attempt to study the needs which are required to create the business as motivating factors at the beginning of the start-up and evaluate the motivating factors which influence the project. For this need and their intensities taken as characteristics of entrepreneurial motivations, identify the antecedents connected to this attitude such as the perception between actions taken by entrepreneurs and results and expectations of entrepreneurs and results and isolate the entrepreneur logics of action including imitation, innovation, adventure, reproduction, and innovation–valorization. This study concludes that certain personality traits such as risk-taking, accomplishment, control, and creativity help to increase the likelihood of starting an entrepreneurial activity in the case of the population of French entrepreneurs and vary from country to country. Moreover, antecedent independence will bring their business concrete financial and material results in terms of development. The study also shows that innovative business entrepreneurs are more realistic about the difficulties to overcome and expect a return on investment.

Solesvik, M.C. (2013) investigated institutional and economic determinants that influence the perception of business opportunities and the latter's influence on entrepreneurial intention. By using a structural equation model, the study discloses

that the perception of abilities positively and significantly affects both the perception of opportunities and entrepreneurial intention. Also shows that the perception of opportunities affects entrepreneurial intention. Entrepreneurship education and training in the education system do not influence the perception of opportunities and government programme for supporting entrepreneurship does not affect the perception of opportunities.

Zimmerman, M. A., & Chu, H. M. (2013) intended to analyse the motivation, success and problems of Venezuela entrepreneurs. The results indicate that being one's own business and increasing one's income are important motivators. It is also indicated that important problems faced by them are competition, a weak economy, and foreign exchange limitations. Success factors they found those good general management skills, appropriate training, accurate record keeping and political involvement.

Jin, C. H. (2017) analysed the study related to the psychological capital on start-up intention among youth start-up entrepreneurs in China and Korea. The study examined the relationship between psychological capital such as hope, resilience, self-efficacy and optimism and entrepreneurial intention. The result shows that all sub-factors of psychological capital except optimism were found to have positive effects and are closely related to start-up intention. To test the hypothesis, multi-group confirmatory factor analysis with covariance structure analysis was conducted. With regard to cultural dimension, resilience and self-efficacy of entrepreneurs affected the start-up intention in accordance with the cultural differences (such as individualism, collectivism, power distance, uncertainty avoidance, masculinity/ femininity and long-term orientation).

Demiral, O. (2016) discussed factors affecting individual attitudes and perceptions towards entrepreneurship with a special focus on education classified as general and entrepreneurship education. The study clearly found that the effects of education indicators are still ambiguous and in general, individual attitudes and perceptions are more sensitive to the market-based aspect. It is also revealed that education in both

general and entrepreneurial contexts is needed to be capability oriented and customised according to country-specific.

Khuong, M. N., & An, N. H. (2016) examined the factors affecting the entrepreneurial intention of the students of Vietnam National University. They applied statistical techniques such as factor analysis, multiple regressions and path analysis. The result shows that prior entrepreneurial experience, external environment and perceived feasibility are the three independent variables that significantly affected the positive perception towards entrepreneurship and it leads to a positive indirect effect on entrepreneurship intention. But perceived feasibility and personality traits factors are significantly affected the negative perception towards entrepreneurship and consequently lead to a negatively indirect effect on the entrepreneurship intention.

Islam et al. (2018) explored a study about factors inspiring female university students in Saudi Arabia to choose entrepreneurship as their career choice in the context of a culture of socialisation strongly attached to religion. The study explained that the most influential factors explaining reasons for the choice of occupation and career are entrepreneurship and business-related courses and media roles. The study also disclosed the opposite of the previous finding that social learning theory was negatively and significantly related to the decision to start up a business as a career choice.

Zarefard, M., & Cho, S. E. (2018) conducted a study on managerial competencies and innovative start-up intentions entrepreneurs among university students. Data were collected from several graduate students in Iran by using both online and offline questionnaires in June 2017. The study showed that self-efficacy and the attitude of students towards entrepreneurial activities positively influence their intentions to run and operate start-ups. The results also indicated that higher entrepreneurial competencies and positive attitudes among university students lead to stronger innovative start-up intentions. Moreover, the associated factors of managerial competencies of entrepreneurs such as administration, knowledge and

technology, entrepreneurial leadership, network building and creativity and innovation strongly influence the entrepreneurial self-efficacy and attitudes of university students as mediating variables.

Lasso et al. (2018) discussed the profiles of different types of technological entrepreneurs in a large emerging company. They granted four district clusters of entrepreneurs using Ward's hierarchical clustering Algorithm such as financial success entrepreneurs, new challenges groups, leaders and pessimistic entrepreneurs. The study shows that different clusters of entrepreneurs have different factors regarding the reason for the enterprise. This study was conducted among Brazilian founders and owners of nascent technological start-ups by using convenient sampling.

Ohanu, I. B., & Ogbuanya, T. C. (2018) tried to investigate determinant factors related to electronic technology education students' intentions towards entrepreneurship in Nigerian Universities. They studied the influence of entrepreneurial factors and entrepreneurial learning experience on entrepreneurial intention among the students. Data were analysed by descriptive statistics and multiple regression. The study reveals that students are engaged in more entrepreneurial activities, which influences less the entrepreneurial factors on their entrepreneurial intention and leads to preferring a career as an entrepreneur. They also found that there is a positive relationship between the variables gender, age, parent occupation, career choice and entrepreneurial intention of electronic technology education students.

Yukongdi, V. (2018) made an attempt to study the motivating factors of Thai entrepreneurs using cross-tabulation analysis. The result showed that pull factors are more influencing factors than push factors for explaining motivating factors. The study reveals that the factors such as the desire to own a business, the opportunity to earn higher income passion for a product the desire to be one's own boss, taking over a family business and unemployment motivate male entrepreneurs to start an enterprise. In the case of female entrepreneurs, the factors such as the desire to own

a business, unemployment, the desire to be one's own boss, passion for a product, the opportunity to increase income, and taking over a family business are considered as the top motivating factors.

Lasso et al. (2019) analysed the reasons that lead entrepreneurs to open in Brazil or abroad. They also compare the start-ups of Brazils with foreign countries by studying six factors such as self-realisation, finances, independence, innovation, roles and recognition. The result shows that there are different reasons to enterprise between people from different countries.

Linton, G. (2019) conducted a case study on innovativeness, risk-taking and proactiveness in start-ups as sub dimensions and how these affect process and outcomes attributes of the entrepreneurial orientation. The study shows that each of the sub-dimensions of entrepreneurial orientation has process and outcomes (product) and the process and outcomes of each sub-dimension may vary independently from each other. The implication of the study is that to get an entrepreneurial advantage, managers can select a suitable sub-division of entrepreneurial orientation based on the specificity of the firm.

Jafari-Sadeghi, V. (2020) made a study on motivational factors of business venturing. The study explores the interaction of three types of motivation behind entrepreneurship development such as opportunity-driven motivation, necessity-driven motivation and mixed motivation among women and men in 24 European countries. For this, a dynamic method, the Generalised Method of Moments (GMM) was used for analysis at the two levels such as established business and total early-stage entrepreneurial activities. The study reveals that all three types of motivations positively influence the employment of females at both levels. It is also found that there is a significant positive relationship between opportunity-driven motivation and entrepreneurship by men at the established business level. The study concluded that 3 types of motivational factors have different influences on gender's entrepreneurial activities.

Jena, R. K. (2020) intended to analyse the impact of management students' attitudes towards entrepreneurship education on entrepreneurial intention. He studied the cognitive, affective and behavioural components of students' attitudes towards entrepreneurship education in Indian institutions. The result shows that the intentions are increased due to the stimulation of educational programmes and influenced by the components of student's attitudes like behavioural, Cognitive and affective and perceived environment. So there is a positive impact of attitude towards entrepreneurship education on entrepreneurial intention. The study also revealed that gender has no influence on the relationship between attitude and intention, but the family background has a significant influence on the relationship between them.

Meoli et al. (2020) assessed in detail the influence of entrepreneurial intention on entrepreneurial career choice with moderating variable of social context. They assessed how the influence of relevant others and organizational and environmental factors as a social context affect new venture creation. This study was built on social cognitive career theory (SCCT). The result shows that social context has a great role in explaining about people act or do not act on their intentional level. It also shows that relevant other, organizational and environmental factors are influencing new venture creation.

2.3 Studies related to the supports and ecosystem facilities perceived by the start-ups and new ventures.

The core element of the ecosystem is — the stronger the ecosystem, the better the start-up growth and the higher the chance of success for firms operating in that ecosystem. Considering this parameter, it is important to review the various support system and constituents of an entrepreneurial ecosystem and their relationship may lead to start-up growth. The literature related to supports and ecosystem facilities perceived specifically by IT services start-ups are not found and is seen as little related to technology start-ups. Some important studies related to start-ups are the following:

Meru, A. K., & Struwig, M. (2011) conducted an evaluated study about the entrepreneur's perception of business incubation services in Kenya. The main objective of the study was to identify the gap that exists between how entrepreneurs perceive the business incubation (services) process and what they actually perceive. The study shows that the entrepreneurs actually received less than they anticipated. For analysis paired t-test was used in this study.

Sarma, S., & Sunny, S. A. (2017) made a study on the civic entrepreneurial ecosystem with reference to Kansas City. They observed that the incumbents turn to local entrepreneurs for potential sources of innovation to cover civic and technological entrepreneurship. In order to scale up the existing civic innovations for social impact, better business models that infuse resources by collaborating with ecosystem actors are crucially needed.

Cukier, D., & Kon, F. (2018) conducted a detailed study about the software start-up ecosystem. They developed a maturity model for software start-ups ecosystem based on systematic qualitative research through multiple case studies across three popular eco-system in the world such as Tel-Aviv, Sao Paulo, and New York. The collected data were analyzed by using the Grounded Theory. They observed that all these three ecosystems passed or passed through the same stage of evolution over time and found that in different countries, high-tech entrepreneurial ecosystems comprised of same agents such as entrepreneurs, society, universities, funding institutions, government etc. They also observed that the interdependencies and relationships across these agents in different ecosystems occur in a similar manner.

Melegati et al. (2019) investigated the requirement engineering in software start-ups in Brazil. The study reveals that software start-ups do not follow a single set of practices, but the process is influenced by different factors such as founders, software development manager, developers, market, business model and start-up ecosystem and the process changed throughout the development of the company.

Thomas & KI (2019) made attempt to study the role of incubators in Kerala and found that start-up entrepreneurs in Kerala are highly satisfied with the

infrastructural facilities offered by the incubators in Kerala. Apart from these, administration and seed fund support provided by incubators are also beneficial to entrepreneurs. But start-up entrepreneurs are not satisfied with the lack of support of incubators relating to investor connections.

Tripathi et al. (2019) explored a detailed study of start-up ecosystems through the exploration of multi-vocal literature. They studied the definitions and major elements of the start-up ecosystem and also studied the role of start-up elements in start-up product development. They used a multi-vocal literature review to analyse the articles. They identified eight major elements such as finance, demography, education, human capital, entrepreneurs, technology, market and support factors. The study revealed that to nurture a start-up, the stakeholders are interested to collaborate in the form of a network for their development. They also found that elements of the start-up ecosystem have a key role in start-ups product development.

Tripathi et al. (2019) examined the start-up ecosystem and its effect on minimum viable product development in software start-ups. They identified six ecosystem elements such as entrepreneurs, technologies, market, support factors, finance and human capital. The result revealed that internal sources are the backbone for identifying requirements for the product idea in the development of MVP. Also found that by providing entrepreneurship skills and education needed to create the right product, supporting factors such as incubators and accelerators have a great role in influencing MVP development. The study concluded that founding team experiences and advanced technological skills may influence the development of MVP.

Elia et al. (2020) examined about digital entrepreneurship ecosystem. It examines the impact of digital technologies and collective intelligence on technology entrepreneurship and may lead to the creation of new innovative technology start-ups. It can be seen that the digital entrepreneurship ecosystem is defined as a digital-output and digital environment ecosystem, in which entrepreneurial activities can take advantage of these.

2.4 Studies related to the policies and schemes extended by the governments to start-ups and new ventures.

Sanghi, S., & Srija, A. (2002) discussed entrepreneurship development in India with special reference to start-ups. He found that various policies have been implementing for the promotion of small industries and greatly benefited to India's transformation process. They revealed that start-ups and MSMEs are the same sizes with limited revenue, high cost of operation and job creation but they operate on entirely different business models, Even though the Govt. introduced a lot of policies and programs such as Udog Adhaar, Atal innovation mission, self-employment and talent utilisation, Digital India, IPR, India Aspiration fund, electronic development fund to the successful start-ups in e-commerce and IT based services sector but not in the manufacturing sector. Moreover start-up new policy initiatives are to be developed by both central and state government to create an ecosystem to promote start-ups, especially in the manufacturing sector.

Schwartz, M. (2013) made a detailed study on incubators' impact to promote firm survival. He studies a large–scale matched –pair analysis of the long-term survival of 371 incubator firms from five German incubators. The study found statistically significant higher survival probabilities for firms located in selected incubator organizations. It also showed that for three incubator locations, statistically significantly lower chances of survival for those start-ups receiving support by an incubator. He also concluded that there is doubt regarding the impact of incubation on long-term survival.

Obaji et al. (2014) made an attempt to study titled Innovative policies in technology business incubation: key elements for sustainable entrepreneurship development in Nigeria. They studied the role of government policy in entrepreneurship development. The study shows that there is a relationship between entrepreneurship and economic development with the presence of mediating factors of government policy.

Kumar, K. (2015) made an attempt to study on online start-ups in India. He tried to compare the Indian online start-ups with other selected countries online start-ups with respect to start-up ecosystem, government initiatives and marketing segments of each selected countries. He identified that India is the fastest-growing start-up ecosystem globally. Start-up incubators and accelerators have a significant role in boosting start-ups in India, but there is a lack of support from Govt., the market and a blind view of the business aspect. At last, he identified online payment gateway is actively involved in the present market scenario of start-ups such as Saas model, microfinancing, voice recognition, mass reach and mobile ad networks etc. He also identified some important factors that obstruct the growth of online start-ups like end consumers and the supply of risk capital.

Okpa, O.N., (2015) made an attempt at a detailed study about the impact of government policy on the relationship between critical success factors and incubation contribution and concluded that infrastructure, financial resources and business support are the important critical success factors contributing to the success of a business incubator. Government policy is the important moderating variable to connect critical success factors and incubators' performance.

Potabatti, P. S., & Boob, N. D. (2015) investigated Youth Entrepreneurship: Opportunities and Challenges in India. The study made the conclusion that it should enable entrepreneurs to provide a magical touch to an organization, whether in the public or private or joint sector, in achieving speed, flexibility, innovations, and a strong sense of self-determination. They bring a new vision to the forefront of the economic growth of a country. More than increasing national income by creating new jobs, entrepreneurship acts as a positive force in economic growth by serving as the bridge between innovation and the marketplace.

Batthini, G., & Saxena, K. (2016) conducted a critical study of the trends in the growth and development of entrepreneurship research in Indian Universities for the eleven years from 2000 up to 2011. This study reveals the number and percentage of Doctoral Dissertation (PhD) programmes in entrepreneurship carried out in various

Indian universities in comparison to that of Social Sciences. The distribution of research in entrepreneurship, university-wise, gender wise and language wise has been examined. He found that the percentage of PhD theses in entrepreneurship as compared to social science disciplines is very discouraging. He pointed out that Indian universities should increase the availability of PhD programs and concentrate on providing methodological education, training and research in entrepreneurship.

Wagh, M. (2016) made an attempt to study about the government initiatives of start-up India and stand up India for development of entrepreneurship. It seems that through start-up India stand up India initiative of Govt. India, the country can attain its target by achieving the sustainable economic growth and create employment opportunities. This initiative included a detailed action plan such as liberalising the Govt. Policies, provide training and education to entrepreneurs to increase their capacity, promote entrepreneurship by giving incentives and schemes and increase investment in research and development. The researcher identified that the action plan includes 19 points and divided it into 3 categories- simplification and handling, funding support and incentives and industry-academia partnership and incubation.

Bala Subrahmanya, M. H. (2017) conducted a study to compare the entrepreneurial ecosystems of Banglore and Hyderabad for the successful operations of technology start-ups. The study found that in both cities, three clusters such as, information technology sector, industrial cluster and biotechnology sector are directly and gradually supporting the creation entrepreneurial ecosystem for technology start-ups. The modern industrial sector is influenced by the initial foundation of the triple helix (a form of Government-Industry-Academia). This study initiated that the start-up eco-system operates within this triple helix model and has a nucleus with two outer layers (an inner layer of primary and an outer layer of supplementary factors.

Sanyal, S., & Hisam, M. W. (2018) made an attempt to study the role of business incubation centres in creating an entrepreneurial ecosystem in the country of Oman. The study found that the country has to implement various programmes and supports

to encourage business incubators, especially in the educational institutions, even though there is a vibrant and enthusiastic start-up community in Oman. They identified that private incubators are essential to promote start-up ecosystem in the country and should motivate private organisations to come forward actively for participating in the incubation sector. Public-private partnerships in the incubation sector are also recommendable. They also identified that industrial incubators are needed to support various manufacturing industries.

Adler et al. (2019) made an attempt study about the city and high-tech start-ups using Schumpeterian entrepreneurship of spatial organization. They collected data from venture capital-financed high-tech start-ups and two scales – a macro geographic scale and a microgeographic scale. A macro-geographic scale occurs across city regions or metropolitan areas reflects Jacobs like mechanism and found key inputs required for innovative and entrepreneurial activities such as talent, research universities and knowledge institutions, global gateway airports that connect to other key global cities, a diverse array of end users, related and supplier companies and other factors. A micro-geographic scale that occurs within city regions at the neighbourhood or district level reflects Marshallian Mechanism and found inputs for innovation such as proximity, density, knowledge sharing, networking, face-to-face communication, combination and recombination of knowledge and talent and ideas. They suggested that these two spatial mechanisms are not opposed but work together and combined to shape the geography of entrepreneurial activity.

2.5 Studies related to factors that contribute to the growth of Information technology start-ups and new ventures

Watson et al. (1998) made a detailed study about success factors and support implications for small business start-ups. For that 504-business owner-managers were surveyed by a postal questionnaire. Push criteria such as redundancy, unemployment, frustration with previous employment and earning a reasonable living are more critical motivators for start-ups to men than women. That

independence, being one's own boss, doing enjoyable work, using creative skills and making a lot of money are the important pull factors to motivate business start-ups and these are closely associated with survival. Comparing the growth and static companies more ambitious aims and objectives are found in the development of growth groups. Moreover, managerial skills, employing people in the business and giving leadership/ motivation are critical for growth group founders. The study shows that reasons for business discontinuance are business not earning enough money, poor funding conditions, cash flow problems and personal problems. In the case of women, personal problems associated with home and family are important problems to the business.

Reid, G. C., & Smith, J. A. (2000) studied and discussed the success of a new business. They measured the business performance of new businesses by various dimensions of business strategy. Three criteria are used such as employment growth, return on capital employed and labour productivity to measure the performance in terms of low, medium and high. Cluster analysis was used to categorise the performance into high, medium and low. The study indicates that many features of small business strategy discussed earlier have little or even negative impact on performance. Out of various aims, the owners adopt only the highest rate of return is taken to measure their survival or growth. Of that many capabilities, they perceived the business as false or unimportant.

Shane, S., & Stuart, T. (2002) investigated organizational endowments and the performance of university start-ups. The collected data includes the population of 134 firms under MIT. They examined the influence of a start-up's initial resource endowments on the incidents of critical, early–life performance milestones. They also emphasised how the founder's social capital endowments affect the development of the entrepreneurial venture. It showed that two measures of founder's social capital sharply decrease the hazards of mortality and increase the likelihood that start-ups obtain external funding. Moreover, comparing the effect of many different terms and industry characteristics, social capital endowments have a

long-term, positive influence on the performance of new ventures being IPO the single largest contributor.

DR, P. (2003) evaluated the effectiveness of entrepreneurial development programmes for the development of small-scale industries in Kerala. The study indicated that training should be not only to set up an industrial venture but also to enable the trainee to run it successfully. The study also revealed that major problems faced by training organizations are lack of awareness among participants, lack of interest, and trainees from different backgrounds. Effective and timely follow-up of trainees upon completion of this programme was necessary in order to achieve a high success rate in business creation and survival.

Bosma et al. (2004) conducted a detailed study of firms investing in human and social capital for improving performance. They also found that one has no favourable aspect in respect of investing than innovative entrepreneurs putting more in their human and social capital. Individual entrepreneurs have more skilful in the industry and perform better than others. And finally, they conclude that investing in human and social capital increase the entrepreneurs' performance.

Khan et al. (2005) conducted a study about success factors of entrepreneurs by using factor analysis and they found that background factors like strong education and training facilities, hard work, desire to achieve, accepting responsibility, and risk orientation of the entrepreneur are the success of entrepreneurs. Moreover, to attract and create entrepreneurs' factors such as socio-economic factors, good banking facilities, social integration, good democracy, free trade with low tariffs, enterprise location, available technology, and strong telecommunication and distribution networks are important.

Lasch et al. (2007) investigated critical growth factors of ICT start-ups by collecting data from 220 ICT services start-ups. They analysed the impact of human capital and the initial organisational setting and used a cohort analysis of ICT services start-ups. The result shows that human capital and working experience have

no significant influence on the success of ICT services start-ups. It also shows that critical growth factors are financing and customer-related variables.

Song et al. (2008) intended to analyse the success factors in new ventures. They used meta-analysis for the study. They found 24 possible success factors in the literature, from which 8 are homogeneous significant success factors such as supply chain integration; market scope; firm age; the size of the founding team; financial resources; founders' marketing experience; founders' industry experience; and the existence of patent protection. These factors are positively correlated to new venture creation.

Perez, E. H., & Canino, R. M. B. (2009) probed into the importance of the entrepreneur's perception of success. For this, they collected samples from 98 entrepreneurs and analyse the data using a logit regression model. They identified the success of a new venture can be measured in different dimensions such as financial perspective, customer perspective, internal business perspective and workforce perspective. The study shows that the most used indicators from entrepreneurs are customer satisfaction in the case of measurement of success in the first years of the company. The study also found that the success of firms can be easily achieved if owners have a broader diverse vision of the success of their business. Also, this empirical study shows that enterprises can achieve a higher degree of success if entrepreneurs pay more attention to customer-related indicators than financial, internal business and workforce indicators. They also concluded that non-financial indicators (balanced scorecards) can help entrepreneurs to know the progress and performance of the companies in the early years because financial situations are not reflected in the early years.

Al-Mahrouq, M. (2010) made an attempt to study the success factors of SMEs in Jordan. Descriptive statistical techniques of factor analysis were used. The study shows that five factors such as technical procedures and technology, the structure of the firm, financial structure, marketing and productivity and human resource structure have a positive and significant impact on the success of SMEs in Jordan.

Colombo, M. G., & Grilli, L. (2010) made a critical study about the effect of human capital and access to venture capital financing jointly on the growth of 439 Italian new technology-based firms. For that Cross-sectional econometric methodology was used. It can be seen that founders' human capital has a direct positive effect on the growth of NHBs and an indirect positive effect of mediating factor of accessing Venture capital and also shows the dramatic impact on the growth of firms of venture capital investment. It also shows that there is a joint consideration of human capital and venture financing which may lead to the growth of the firm.

Stefanovic et al. (2010) studied about motivational and success factors of entrepreneurs from a developing country. They conducted empirical research for the study and used principal component factor analysis with varimax rotation. They used 4 motivational factors such as greater business environment, independence, intrinsic factor and job security and seven factors affecting entrepreneurs' success such as position in society, interpersonal skills, approval and support, competitive product/service, leadership skills, always to be informed and business reputation. They conclude that entrepreneurs' motivational factors are generic in developing countries and lack of motives among entrepreneurs adversely affect in the sustainable development of business in the long run. Apart from these, different other success factors depend on the current situation in the local environment.

Bailetti, T. (2012) presented a study on the early and rapid globalization of technology start-ups. The study shows that a start-up must get the right to globalize early and rapidly due to the six elements such as problems scope, stakeholders' commitment, collaborative entrepreneurship, relational capital, legitimacy and global capability. According to him, a start-up needs to develop prescriptive rules and practitioner-oriented models to help a technology start-up globally from an early start-up.

Groenewegen, G., & de Langen, F. (2012) made a detailed study on critical success factors of the survival of start-ups in the first 3 years. For these 75 start-up

entrepreneurs were selected and collected data through a questionnaire. The researcher designed a conceptual model involving three main factors that determine the success of the growth of start-ups namely the uniqueness of the advantage of the innovation, the start-up organisation characteristics and the personality of the entrepreneur. The growth of the firm was studied in terms of the growth in turnover and the growth in employment. The study reveals that different factors affecting with different growth concepts in different ways. Business plan and more than 75 K Euro seed capital are positively correlated to both two growth concepts. Turnover growth is influenced by factors like uniqueness of the advantage of the innovation, customer proactiveness, multiple founders and a relevant social network. Employment is positively influenced by factors like external advice, investor capital, thorough business plan, 75 K Euro initial capital and using investors' capital.

Uyar, A. S., & Deniz, N. (2012) measured the perception of entrepreneurs on the strategic role of human resource management. The result shows that entrepreneurs have positive approach towards human resource management and human are more important than money for entrepreneurs. It also revealed that entrepreneurs have at least an average level of knowledge of human resource management and its function.

Tu. C & Suechin (2013) discussed the role of the entrepreneurial creativity process in the entrepreneurial process in high technology start-ups. This study divided the start-up process stage into two: The initiation stage and the Implementation stage. The study explains that entrepreneurial creativity helps the successful launch of a new enterprise in the initiation stage and restructures all new products and services in the implementation stage in future development needs.

Bortoluzzi et al. (2014) tried to find out the growth performance of start-up forms in technological sectors. They tried to identify different growth drivers after summarising the most relevant research perspectives on the theme and business models that can represent a major driver of growth. Other growth factors are

entrepreneurial factors, contextual factors, strategic factors and access to resources and capabilities.

Lotfi et al. (2014) conducted a study to identify the factors that affect the growth and development of SMEs. For this, a descriptive –survey method of research was undertaken. The study developed a model by using independent variables such as organisational structure, business strategy, competitive structure, supply structure, demand structure and government policies and dependent variables such as growth and development of small and medium enterprises. The SEM explain that organisation structure, business strategy, supply structures and government policies have a significant positive relationship in the growth and development of SMEs and the result also shows that competitive structure and demand structure are not significantly related to the growth and development of SMEs.

Ummah, M. A. C., & Jamaldeen, A. (2014) intended to analyse entrepreneurs' perception towards technology change in SMEs. The study found that there is a significant strong positive relationship between the perception towards coping with technology change and business growth in the small and medium business sectors.

D'Avino et al. (2015) conducted a detailed study on e-start-up promotion strategy. This paper disclosed a decision-driven tool for creating an effective and successful promotion strategy. According to them, the promotional strategy involves 3 processes which eliminate non-optimal advertising formats. The first stage is the feasibility stage, where the start-up concentrates on e-market analysis. The second stage stresses on the economic environment by linking costs to the availability of funds. The third stage is a cost- effective analysis and the most effective marketing strategy is selected.

Janakova, H. (2015) examined the successful prediction of the technological product in Slovak conditions. The study shows that dedicated information, professional services and technical advice support are important of increase the resilience and competitiveness of the firm. It also shows that advice and mentoring by experienced entrepreneurs improve resilience, and increase internationalisation,

these may lead to an increase in more founded enterprises and their growth in Europe and the US.

Kumar, K. (2015) discussed Indian online start-ups. He found that online firms in India still lag behind when compared with the rest of the world by considering the factors initiatives taken by the respective government to boost up the ecosystem, role incubators and accelerators, access to finance and factors that are hampering the progress of the online market in India.

James, O., & Alexander, N. (2017) tried to understand the factors affecting start-up innovations and growth. The result shows that financing is greatly influenced by innovation and internal market openness is also positively influenced by innovation. But the study realised that turnover has no influence on the innovations of start-ups. They identified certain factors such as environmental, social, technological, and political factors that caused the failure of most start-ups. They also identified major factors affecting the performance of the start-ups and involve leadership skills, financing, marketing, and promotion are also major factors which affect the performance of the start-ups. The study also revealed that some factors like financial and internal market openness are highly influencing innovations that bring success to start-ups.

Lonkar, S., & Gupte, R. (2017) studied new product development and innovation for a sustainably profitable business. They found that firm continues to work on new product development and innovation. The study found that various factors influencing innovation and new product development such as customer inputs, market feedback, product and process quality, change in customer patterns, environmental changes, regulations, competition, things gone right, things went wrong and supplier end development.

Manshani, S., & Dubey, A. (2017) made an earnest attempt to study start-up women in start-up India and attempted to analyse the contribution of women start-ups in economic development and various factors encouraging them to become entrepreneurs. They found that investors are starting investment in woman's

leadership at a considerable rate leading to economic development. Start-up India, a stand-up India initiative of the Government introduced various programmes to support women entrepreneurs.

Picken, J. C. (2017) investigated the essential steps in the transition from a nascent start-up to a scalable start-up capable of sustained and profitable growth in the business. According to him the life cycle of an entrepreneurial venture consists of four stages such as start-up, transition, scaling, and exit and in each stage principal challenges are faced by the founding team. The articles identified eight hurdles of transition that provide the founding team to establish a solid foundation for the growth and scaling of ventures during a transition period that may ultimately have a greater influence on the success of the venture. It includes setting up of a direction and maintaining focus, products/services positioning in an expanded market, customer/market responsiveness maintenance, organization and management team building, effective processes and infrastructures development, financial building capability , appropriate culture development and risks and vulnerabilities management.

Picken, J. C. (2017) described about the start-up to scalable enterprise: Laying the foundation. The study shows that there is a period of transition between the start-up stage and the scalable stage, in which the entrepreneur must establish a solid and clear out foundation of growth and scaling which may influence the enterprise's success. The researchers found that there is either hurdle to be covered during the transition period to establish the foundation for a scalable business.

Salamzadeh, A., & Kirby, D. A. (2017) made a detailed study on new venture creation and how does a start-up grow? The study mainly focused to develop and build a comprehensive and supportive framework for start-up creation. The model suggested that the creation of start-ups involves a series of multiple stages identification of idea, entrepreneurial intention, preparation, networking, value creation and organization.

Santisteban, J., & Mauricio, D. (2017) investigated the critical success factors of IT start-ups through a systematic literature review. They identified 21 critical success factors grouped under three categories such as organizational, individual and external. They also identified 4stages of development of IT start-ups through which start-up passes such as seed, early, growth and expansion. They found that previous start-up experience and government support are critical factors in the seed stage, the venture capital is the critical factor in the early stage, the clustering factors, technological/business capabilities of the founding team and venture capital factors are the critical factors in the growth stage and clustering factor is considered as critical factor in the expansion stage. Also in their study, a successful start-up is considered a new company that offers products/services capable of being well received in the market, expecting repeatable, profitable and scalable business models and generating jobs.

Skumar, A. (2017) made an attempt to an explorative study about management Challenges in Information Technology Services Start-ups in India. The study conducted by using semi-structure exploratory interview and collected data through deep exploration of 30 entrepreneurs or senior management professionals of IT services start-ups working in India. He identified a success factor model for IT services start-ups in India and it includes strategic business plans, work environment, Leadership styles, service portfolios, external factors, and internal strategic aspects in start-ups. These factors are to be reassessed according to the different start-up phases in the lifecycle of the organization.

Veselovsky et al. (2017) intended to analyse the access of viability of innovative start-ups in Russia. They assessed the viability of innovative start-ups in their first 3 years of business. The study disclosed the major source of funding for innovative and emerging start-ups in Russia. They identified crowd funding as the effective outside funding for start-ups in the country. To assess the availability of start-ups, they developed a model for considering various elements like level and speed of knowledge capitalisation, the well-balancedness of the system of borrowed funding, innovative business ideas, implementing novel digital technology, novel

methodologies in implementing start-ups founders' experience, horizontal organizational management structure, and the availability of a promising market share and quick adaptation of projects.

Cukier, D., & Kon, F. (2018) conducted a detailed study on the maturity model for software start-up ecosystems based on three ecosystems such as Tel Aviv, Sao Paulo and Newyork. The data were analysed using the Grounded theory. They developed a maturity model with four levels, i.e., Nascent evolving, mature and self-sustainable and these are considered as four stages that the ecosystem passes through. The study shows that talented entrepreneurs are necessary at the first stage of an ecosystem and rewards that high-quality research universities attract talented entrepreneurs. Media plays an important role in reaching the self–sustainable maturity level became it helps to maintain the momentum and awareness of the public. The study also shows that the selected three ecosystems passed through the same stage of evolution and the same agents (entrepreneurs, society, Government, Universities, Funding agencies etc.) are involved in high-tech entrepreneurial ecosystems in the above three countries.

Honjo, Y. (2018) conducted a detailed study on the faster growth of profitable start-ups IN Colombia. The study focused on the impact of profitability on the growth of business start-ups. The researcher studied the relationship between profitability and growth of the start-ups using a cash flow ratio. The study shows that profitability is attained through sales growth and it will lead to total asset creation. The study also implies that sales growth mainly depends on the firm life cycle or age rather than the level of cash flow during the start-up stage.

Kalabeke, W. (2018) examined about the effect of start-up capital, education system and culture on entrepreneurial intention among fresh graduates in Nigeria. This study shows that there is a strong positive relationship between the variables of the study. And cultural values are the most closely positively related to the entrepreneurial intention of students and fresh students. For this, Pearson correlation

was conducted to examine the relationship between entrepreneurship intention, start-up capital, education and culture.

Khong-Khai, S., & Wu, H. Y. (2018) analysed the critical success factors of start-ups in Thailand. They used Fuzzy Delphi Method (FDM) for data analysis based on experts' consensus. They found various criteria and sub-criteria related to CSFs. The study shows that human capital is the top criterion influencing start-up success. Sub-criteria like entrepreneur capability, innovation capability and start-up team are the important factors influencing start-up success and growth in Thailand.

Kim et al. (2018) conducted a study to identify the critical success factors affecting design start-ups. They identified success variables from the previous research and the CSF of design start-ups was identified. For this, Analytic Hierarchy Process (AHP) was used to find the entrepreneur's priorities related to the selected factors. The study shows that idea commercialisation is the most important factor of design start-ups and continuous investment is the most important aspect of technology start-ups. Under entrepreneurial conditions, goal orientations and entrepreneurial competence are the important success factors of design start-ups.

Kofanov, O., & Zozulov, O. (2018) tried to understand the key success factors of start-ups and to develop an instrument for evaluating the success of start-ups. It is mainly studied to minimise the loss of time and resources and overcome the high uncertainty rates in a specific sector. They used a multidisciplinary approach. They identified three main constituents which influence the start-up's success such as external environment, start-up activity and internal environment. These determining success factors were analysed according to the group corresponding to the constituents. They developed a Bayesian network mathematical model for evaluating and predicting start-up success.

Nooh & Bustamam (2018) in the study of helping attitude among start-ups, compared the helping attitude of start-ups based on several demographic factors. The researcher used Helping Attitude Scale (HAS) by Gary S Nickell. The result shows that male start-up owners possess a better-helping attitude than their female

start-up owners. It is also found that the allocation of funds for the needy is higher in the case of men than women from the respondents who started their business in one year or less than others.

Sommer, C. (2018) demonstrated a study on the market orientation of new start-ups. He found that market orientation is important for the success of new start-ups in an unstable environment. He investigated the processes and practices of market orientation in the media and provided attention to learning about users and less attention is provided to examining business and competitors. He concludes that market orientation has a positive influence on new start-up survival and supports innovation. That is market orientation is characterised by generating, disseminating and co-ordinately responding to market intelligence about users, businesses and competitors on an ongoing basis.

Tomy, S., & Pardede, E. (2018) in their study on uncertainties of start-ups and prediction of successful start-ups, they studied different sources of uncertainties and predict the future success of an organisation by analysing and evaluating uncertainty factors surrounding opportunities in the opportunity evaluation stage. The study helps to identify the strength, weaknesses; opportunities and threats associated with perceived opportunity and will be benefited new entrepreneurs through studying the most influential uncertainty factors surrounding their enterprise. In the first phase, classified and analysed the certainty factors based on their source and in the second phase, success prediction model is implemented using machine learning techniques and strategic analysis.

Zhong et al. (2018) made an attempt to measure the personalised portfolio strategy to invest in start-ups. They used a probabilistic Latent factor model to estimate the investment preference of investors by using their historical investment records and profiles of start-ups and venture capitalists. The study also assessed investment outcomes by considering the potential returns and risks by using non-parametric methods. They identified the optimum investment strategy through modern portfolio

theory based on the investment preference model. They found that this investment strategy can yield maximum return with suppressed potential risk.

Barba-Sanchez et al. (2019) made a study to determine whether smart cities promotes entrepreneurship and whether the ICT in the core element in the development of a smart city. The study found that smart city labels have influenced positively the effective creation of new business and ICT has a major driver in boosting the local economy and it contributes to the efficiency of the services. It also shows that ICT may contribute to increasing the efficiency of services provided by the local government.

Giudici et al. (2019) analysed the role of knowledge availability and environmental awareness leading to the creation of cleantech start-ups at the local level. The study found that both the local availability of scientific and technological knowledge and the local environmental awareness are the critical factors of cleantech entrepreneurship in a geographical area.

Staniewski, M. W., & Awruk, K. (2019) investigated about the relationship between entrepreneurial success and achievement motivation. The study revealed that significant correlation between entrepreneurial success achievement motivation the variables such as flexibility, courage, faith in success, dominance, preference for a difficult task, independence and objective orientation. It is also deeply shown that considering the four perspectives such as short and long-term subjective perspectives and short and long-term objective perspectives, entrepreneurial success modifies the above correlations. That is elasticity and dominance dimensions of achievement motivations are found to be correlated with entrepreneurial success. To compare high entrepreneurial and low entrepreneurial success, five tools as Questionnaire for Entrepreneurial Success (QES), Achievement Motivation Inventory (AMI), General Self-efficacy Scale (GSES), Entrepreneurship Efficacy Scale (EES), the Self Esteem Scale (SES) were employed. Here, high entrepreneurial success entrepreneurs obtained high scores in AMI, EES, SES, and GSES. It seems there is a significant difference in terms of flexibility, dominance,

self-esteem, the effectiveness of gathering market information, business entrepreneurial efficacy and business entrepreneurial efficacy in the case of individuals who have high entrepreneurial success compared to low entrepreneurial success.

Van Le, H., & Suh, M. H. (2019) aimed to study the changing trends in different start-up value propositions from the perspective of the customer. The study reveals that the value proposition of customer is changed gradually over the last decades. It may affect the success or failure of a given start-up, especially an internet start-up. The study shows that many value propositions such as security services, privacy protection, legitimacy in trust etc. are increasingly affecting the internet start-up. Among these, privacy protection and security service remain seen as major factors of value propositions which affect today's information technology start-ups.

Dehghani et al. (2020) investigated market-driven management of start-ups with special reference to wearable technology. It was conducted by a case study using convenient sampling. The study shows that four stages are to be considered for a successful market of start-ups such as the time of entry and overcoming market entry barriers, product attributes, product development process and commercialization.

Del Sarto et al. (2020) discussed the accelerator's role in firms' survival. They used Fuzzy-set Qualitative Comparative Analysis (FsQCA) to explore the relationship between participation in an accelerator programme and firm survival by collecting data from38 accelerated start-ups from five Italian accelerators and 38 non-accelerated Italian start-ups as a control group. The result shows that accelerator programme participation does not influence firm survival. It also shows that there is a relationship between firm survival and accelerated technology-based firms that do not export. There is also a relationship between a firm's survival and accelerated firm in the service sector with a small team that does not export. The study concluded that factors affecting the survival of accelerated firms and incubated firms are different.

Diaz-Santamaría, C., & Bulchand-Gidumal, J. (2021) examined the factors that influence Technology start-up success. They identified two success indicators from the literature such as achieving significant revenue and obtaining financing. For this, a multivariate model based on independent econometric estimates regarding the two success indicators. The study identified four factors that have a significant influence on the two success indicators. They are the location of the start-up, the age of the company, the partner's dedication and the existence of non-promoting partners. A number of other variables are also influenced by the start-up's potential for success such as dedication, technological background and commercial abilities of promoters, age of the start-up, number of workers, the presence of non-promoting partners, and the start-up's ability to reach the breakeven point.

Santisteban et al. (2021) tried to study about the critical success factors for technology-based start-ups in Peru. The study adopted descriptive empirical study and used a simple correspondent analysis for studying the perceptions of 125 CEOs of technology-based start-ups operated in Peru using a student's t-test. They identified ten critical success factors for Technology-based start-ups such as technological factors, dynamic capability, absorptive capacity of knowledge, product and/or service quality, satisfaction of customer, financing in different stages, business incubator support, adequate ecosystem for innovation and entrepreneurship, perceived performance and entrepreneurial and innovative culture.

2.6 Studies related to problems of start-ups and new ventures.

Nair et al. (1998) conducted an evaluation study on entrepreneurship in Kerala. Based on a field survey involving 300 rural entrepreneurs in Kerala, the study found that in the particular context of Kerala, contextual circumstances play a dominant role in facilitating entrepreneurship. The institutions created to support the growth of small-scale industries suffer from complex, cumbersome and bureaucratic practices and cause many problems for entrepreneurs. The study also identified various problems such as complex procedures, hierarchy, role conflicts between agencies, lack of accountability, and information gaps.

Evers, N. (2003) made a detailed conceptual study about the process and problems of business start-ups. It revealed the most important variables in the process of creating new venture and the most common problems faced by the start-ups in the early stages of establishments irrespective of the sector or industry. The researcher found that there exists no single best model or solution for explaining the creation of new venture process, but encompasses all its elements have been mentioned in individual approaches. Moreover, they identified different problems experienced by start-ups through various literature reviews. Among these important problems is no demand in the marketplace, lack of adequate external financing, lack of proper business experience, interest rates hike, rise in inflation and labour costs, asymmetric information etc.

Kanchana et al. (2013) tried to identify a study on important challenges faced by new entrepreneurs. They used secondary data and identified various challenges faced by entrepreneurs related to programmes related to developing the vision and business idea, raising capital for the start-up, assembling the business team, finding the right business location, finding good employees, finding good customers, lack of adequate support, entrepreneurs negative mindset, lack of adequate marketing facilities, dealing with severe competition, unexpected and unforeseen business challenges and expenses, keeping up with industrial change and trends, lack of adequate infrastructural facilities etc.

Giardino et al. (2015) brought down the key challenging issues in early-stage software start-ups from idea conceptualisation to the first time to market. To study the key challenges, they used a mixed-method research approach which includes both a large-scale survey of 5389 responses and an in-depth multiple-case study. The study found that initial findings reveal that flourishing in technology uncertainty and acquiring the first paying customer is among the top challenges experienced by early-stage software start-ups.

Nikhil, Joy & Santha (2015) found that in Cochin Start-Up village, the majority of the start-ups operating are non-revenue generating units due to various problems such as poor product market fit and lack of mentoring support even though the majority of the start-ups had high family support. The main problem faced by start-

ups was the return on investment and time, failure to develop a proper product, mentoring and funding.

Sharifi, O., & Hossein, B. K. (2015) conducted a literature study on financing challenges faced by start-ups in India. Important problems they identified are the imperfect education system and conservative style, lack of support networks and entrepreneurship ecosystem, and lack of enough angel investors and human talent. They also studied the main financing difficulties of SMEs in India such as the weak credit concept and low credit performance, poor ability to resist risk and slow development, limited guarantee agencies, limited profits of banks in lending, and slow development of the capital market and private financial institutions.

Shorewala. P., & Chaudhary, P. (2016) conducted a study on common reasons for the failure of start-ups across different sectors. They have taken a few successful models start-ups and a few failed start-ups for case-by-case analysis. They found that India has moved away from deep-rooted Asian culture even though some success and failure factors of start-ups. In India, it has been seen that failure is a step to go ahead for success. They suggested that comprehensive and long-term planning is required for sustainable start-ups in India.

Wang et al. (2016) make an attempt to study the key challenges in software start-ups across life cycle stages for that longitudinal research was used. They identified key challenges under the framework of learning and product development stages and dealt with different life cycle stages. One of the biggest challenges of software start-ups is building products in the learning stage. In the later stages, customer acquisition and scaling are important challenges.

Bednar, R., & Tariskova, N. (2017) pointed out the factors leading to the failure of start-ups. They found that start-ups are low-cost projects mostly created by programmers and designers who want to create something unique and earn a lot. The study disclosed that more than 90% of start-ups may lead to failure. They identified five main problems leading to failures such as incorrect product pricing, poor cost estimate, lack of capital, lack of market needs and poor team.

Wavhal, S. S. (2017) investigated about Challenges, Issues, and Prospects of Small and Medium Scale Enterprises in the Pune Region. The study reveals that poor financing, insufficient social infrastructures, Lack of managerial skills and various taxation are the key challenges facing MSEs in the Pune region.

Burrier, C., & Sarfati, G. (2018) discussed the challenges that women face to become high-growth entrepreneurs in Brazil. They used an exploratory study and collect data from 21 high-growth women entrepreneurs in Brazil. Lack of support, discrimination and lack of knowledge and networks are the important challenges to entry into the entrepreneur world.

Cantamessa et al. (2018) tried to conduct a detailed study about the factors that lead to the failure of start-ups. For the analysis of start-up failure, the SHELL model was used (adapted from the original work proposed by Edwards in 1972, SHELL comes from Software, Hardware, Environment, Liveware and central Liveware). The analysis of start-up failure has been done on two different axes, a) the SHELL categories and b) the duration of the start-up. Based on the descriptive statistics, the study concluded that the lack of a structured business development strategy is the key determinant of start-up failure.

Ghazali, N. H., & Yasuoka, T. (2018) studied the awareness and perception of Malaysian SMEs and start-ups on the existence of alternative financing channels such as peer-to-peer lending and crowd funding. They found that the level of awareness of most respondents is still insufficient towards alternative financial instruments. It also showed that SMEs and start-ups have positive perceptions/responses to the development of fin-tech. They suggested that authorized government bodies should take the adequate opportunity to raise awareness among SMEs and start-ups.

Kalyanasundaram (2018) tried to identify various factors which are different for successful start-ups compared to failed start-ups. These factors include time to minimum viable product cycle, age of founders in respective domain, personality traits of founders, attitudes of founders towards financial independence time for revenue realization and mentorship support at a critical stage.

Da Silva et al. (2019) made attempt to study about why technology-based start-ups fail? An IT management approach. The study was conducted by using bibliographic database exploratory research and collection of secondary data. They found 20 reasons for failure in the start-ups surveyed by CB insights (2014), out of which 6 six reasons will be benefited IT start-ups if they are properly solved. They are lack of pivoting, technical aspect, bad location, cost and/ or price issues, ignoring customers or unsuitable products or services, and lack of interaction with the customers especially potential customers.

Melegati, J., & Kon, F. (2020) made an attempt to study titled early-stage software start-ups: Main challenges and possible answers. They classified the challenges into four categories such as related to product, market, finance, and team. They used a pattern format, where social process connecting people, as a technique to understand the challenges of early-stage software start-ups such as (1) Get help from the methodologies, (2) Acquiring customers, (3) Hack money incomes and outcomes, (4) Use available and simple tools, (5) Go up to the cloud, (6) Find your mentors, (7) Long-term purpose instead of money, and (8) Networking.

Ferratti et al. (2021) made a critical investigation about addressing controversies involved in an information technology start-up by using a critical actor-network analysis of the entrepreneurial process. For this, they used different primary data such as interviews, focus groups, field journals, and other documents. The study found that five critical controversies related to the entrepreneurial process such as socio-demographic biases, reproduction of economic and cultural inequalities, conflicts among organizational elites, disputes between owners and workers, and overdependence of start-ups on larger technological firms.

Rafiq et al. (2021) investigated common information mistakes that software start-ups make while dealing with analytics that may cause the failure of software start-ups. They identified four groups of information mistakes. It includes a) information Collection mistakes such as avoiding information collection, trying to collect everything, focusing on the unproductive key information, and collecting vanity metrics, b) Information analysis mistakes including information mishandling, information misinterpretation, and confirmation biases, c)Information

Communication mistakes cover communication mistakes in the workplace and d) information usage category contains reacting slowly to a piece of information and planning fallacy.

2.7 Studies related to prospects for growth of start-ups.

Mehta, P. (2013) made a detailed study about the purpose, problems and prospects of women's entrepreneurship. She identified important problems such as lack of finance, societal problems, absence of entrepreneurial attitude, marketing problems, family conflicts, lack of knowledge, competition etc. The study explained various prospects for developing women's entrepreneurial development such as by providing regular entrepreneurship awareness programmes to women as a target group, providing training, entrepreneurial learning, motivating, giving mentoring and counselling etc. to the women entrepreneurs.

Olaore et al. (2020) made an attempt to study the prospects and challenges of entrepreneurship internationalization on the competitiveness of SMEs. They used a descriptive study and a random and stratified sampling technique was used for the study. CFA and structural equation models are used for data analysis. The study reveals that there is a significant positive relationship between internationalization strategy and SMEs' competitive performance. It also found that Socio-cultural factors positively affect SME competitive performance in the home country due to foreign alliances. They found that the international environment and Nigerian SMEs' value creations are highly related.

Sharma, D and Gautam, K.P. (2020) conducted a study about the challenges and prospects of entrepreneurship in Bhutan from the viewpoint of Business Educators. This reveals that a wide range of challenges is faced by aspiring entrepreneurs and entrepreneurial ventures such as lack of adequate capital and policy, poor planning, fear of taking credits, the small size of the market, excessive imports, personal beliefs in making fast money and luxurious life. The study found that there is a good prospect for entrepreneurial venture in the country by leveraging technological support from other countries, increasing the consumption of indigenous products, discouraging imports of products and services, regulating the price of the homemade

product, exploring the market, taking adequate infrastructural facilities and entrepreneurship education at the initial level.

Meero et al. (2021) conducted an exploratory study about the prospects of Bahrain's entrepreneurial ecosystem. They found that the Support of the Government with effective public institutions and encouraging society are found significant factors contributing to the success of the start-up company. They also found that the government and various supporting organisation extends different nourishments to simplify the formation of the start-up company and their sustainable growth. They identified the most common reasons for the failure of start-up ventures such as technology and technical-based factors, market-based factors, customer-based factors, and funding and financial management-based factors. The study identified various prospects for start-ups in Bahrain such as the rapidly growing population of Bahrain and the diversified cultural atmosphere.

Kuratko, D. F., & Audretsch, D. B. (2021) investigated the future of entrepreneurship: the few or the many. Based on the literature, they found that entrepreneurship for the crowd is diminishing and concentrates on the few. It also shows that some start-up entrepreneurs who are necessity focussed will find growth more difficult because were already flowing to a few large dominant firms. But the rapid expansion of crowdfunding is considered a guiding element to entrepreneurship in the future. Moreover, coaching entrepreneurs, partnerships and heterogeneity of social and individual goals and preferences are the important guiding elements of future entrepreneurship.

Van Gelderen et al. (2021) explored entrepreneurship in the Future. They used a Delphi method of study to elicit views on entrepreneurship in 2030 by reviewing Entrepreneurship Theory and Practice and the Journal of Business Venturing Editorial Board. The outcome of this study is the richness of the themes and predictions by the panel as a whole. The study found that certain themes have less consideration than others such as the gig economy, everyday- everyone entrepreneurship, entrepreneurship in developing economies and the ever-accelerating pace of entrepreneurship. Many themes are more considered related to the political context of entrepreneurship such as big business dominates small

business, whether entrepreneurship promotes equality or inequality, and the personal entrepreneurial agendas of billionaire investors.

2.8 Conclusion and research gap

Based on the literatures studied, the researcher found that motivating factors of entrepreneurs of different types of business are almost same and it also affects the success of the firm. It is seen that government interventions and supporting organisations help the business ventures to go in a better way. The literatures also stated that critical success factors and problems faced by the entrepreneurs of all business venture are quite different from business start-ups especially technology start-ups. While reviewing prospects of start-ups in future, it is found that there are abundant possibilities and opportunities to start-ups. In a nutshell, all entrepreneurs face some problems and IT services start-up entrepreneurs are not excluded from those issues. It seems that there is not much empirical research conducted on the problems and growth factors of IT services in India, especially in Kerala. Many start-ups deal with problems differently which may lead to the success or failure of that start-up. So, under this research the researcher mainly focuses on the different problems faced by IT services start-up entrepreneurs at the different stages of the development of start-ups.

Numerous small IT services start-ups have emerged during the last few years, but only a few have survived. This failure story of IT services start-ups would be studied and it would be beneficial for aspiring entrepreneurs to know the main reasons for failure and what steps to be taken to make it a success. Few studies focus on the growth factors of IT services start-ups and the problems faced by them. However, the researchers do not provide much insight into the Indian context especially since no study is found in the state of Kerala. The researcher tried to include:

- What are the most critical growth factors that will affect the new IT services start-ups in Kerala?
- How do the factors affect the growth of the start-up?

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CHAPTER 3

RESEARCH METHODOLOGY

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3.1 Introduction

This chapter consists of research design, sources of data, target population, sampling strategy, data collection tools and techniques, limitations of the study, stages of research, and scheme of the chapters.

3.2 Research design.

This study is descriptive in nature. Descriptive information often provides a sound basis for the solution of a social problem. Descriptive research is concerned with gathering data that describe events or characteristics and then organizing, tabulating, analyzing and describing the data. A descriptive study is well structured, more rigid and preplanned based on a large sample (G. Churchill & D. Iacobucci, 2002). Quantitative data are mainly used in descriptive research designs. (G. Churchill & D. Iacobucci, 2002).

Descriptive research can be carried out by using two basic techniques namely a cross-sectional survey and a longitudinal survey. The cross-sectional survey involves the collection of information from a given sample of the population at only one point in time, but a longitudinal survey deals with the same sample units of the population over a period of time (Burns, A.C., & Bush, R.F., 2002). This study used a cross-sectional survey under which selected individuals are asked to respond to a set of standardized and structured questions about what they think, feel and do (Hair et al., 2003).

A cross-sectional survey related to a sample survey was well suited to study the deeper insights of start-up founders about various challenges and problems that ultimately lead to the failure of IT services start-ups. The researcher also helped to

know the growth factors of IT start-ups from their lived experience which start-up founders can overcome the problems they faced.

3.3 Sources of data

The current study mainly used data from primary sources. Secondary data were also collected to know the present status of the IT service start-ups.

3.3.1 Primary data

A structured questionnaire was developed and distributed to IT service start-up founders. To investigate into the motivating, growth factors, problems and prospects of IT service start-ups, to analyze the supports and facilities perceived by the Technology start-up founders from Kerala start-up mission and the perception of entrepreneurs regarding state government policies and support, a structured questionnaire was used.

3.3.2 Secondary data

Data and Information related to recent trends and growth of IT service start-ups and various statistical reports were used. The researcher used the following sources for secondary data:

- Website of Kerala Startup Mission,
- Website of start-up India,
- Reports of ASSOCHAM,
- Reports of NASSCOM,
- Reports of various incubation centres,
- Statistical reports of the Ministry of Corporate Affairs,
- Industrial Reports of Government of Kerala,
- Annual survey of industries
- Study reports
- Research publications
- Periodicals
- Books related to the current topic

- Websites of other related institutions of the study area and
- Data from district industry centres etc.

Apart from the exhaustive reference to available literature, it should be included information and data collected from knowledgeable persons, experts, Government departments, traders and experienced persons through the field visits.

3.4 The target population

The total number of Kerala-based IT services start-ups included in the database of start-up India are taken as population (1226 units on 31/01/2022) under this study. Here the researcher focuses only on IT services start-ups under the stages of validation, early traction and scale-up. This study was mainly conducted based on the experience and perceptions perceived by IT services start-ups founders. Hence start-ups under the ideation stage are not taken for the study because IT services start-ups are entering into the market only from the validation stage onwards. So, in this study, the target population is 852 as per the database of Start-up India as on 31/01/2022.

3.5 Sampling strategy

Start-ups spread all over Kerala. The study covers Kerala-based IT services start-ups in the database of Start-up India up to January 31st 2022, since the directory is updated frequently. There were 1226 IT services start-ups included in the database of Start-up India under different stages of development. For this study, the researcher used 852 IT services start-ups as a population coming from the validation stage onwards. This population (852) includes IT services start-ups from different sectors such as IT applications, IT consulting, IT management, Product development, Web development and others. But after starting the company, each company is working in more than two or three sectors. So, sector-wise sampling of IT services start-ups has no importance. Then systematic random sampling method was used in the study. The total sample size was calculated by using a formula developed by Yamane, T. (1973) and the sample size was 285. The informants include startup founders or co-founders.

Table 3.1

Selection processes of Samples of IT Services Start-ups

Stages	Total IT services start-ups	Research population	Total Sample size
Ideation	374		
Validation	346	346	**285**
Early Traction	349	349	
Scaling	157	157	
Total	**1226**	**852**	

Source: Compiled data from Startup India as on 31/01/2022

3.6 Sample size determination

For sample size determination the following formula (Yamane, T., 1973) was used to determine the sample size.

$$n = \frac{N}{1 + N(e)^2}$$

Where n = number of sample size

N = Total population (852)

e = Desired level of precision (5%, so 0.05)

$$\begin{aligned} n &= \frac{852}{1 + 852 \times (0.05)^2} \\ &= \frac{852}{3.13} \\ &= 272 \end{aligned}$$

Then systematic sampling method was used to select the samples.

Firstly Kth item was calculated:

$$K = \frac{852}{272} = 3.13 \text{ (rounded to 3)}$$

Then select one item out of three by using the lottery method and got 2.

Then the researcher after ordering the population items (852) orderly and select 272 samples by taking every Kth item in the order of 2,5,8 etc. but the 272nd item was 817. After that 13 samples were also added with 272 by considering the population unit from 817 to 852. Then the final sample size was rounded to 285.

3.7 Developing Questionnaire scale and measurement

To conduct the research, quantitative research was used. A structured questionnaire was used for collecting data from the respondents. The questionnaire contains Yes/No questions, multiple choice questions and Likert scale questions (1 to 5). To achieve a precise and unambiguous measurement of the variables of interest, an ideal scale should be used (Emory, W, & Cooper, D.R., 1991). This research used rating scales called five points Likert scale to know the opinion about the perception of IT services founders regarding Motivation factors, supports and facilities of KSUM, policies and initiatives of governments, growth factors of IT services start-ups, Problems faced by IT services start-ups and prospects for growth of IT services start-ups in future. According to Borman, W. C. (1979), the rating format is a better way to make each point of the scale more meaningful to the rater and to increase the reliability of the response to the questionnaire. The respondents were asked to rate 1 to 5 Likert scale and asked to interpret the gap between each scaled item and select one unit.

3.8 Pilot study and pretesting of the questionnaire

The sections in the preliminary questionnaire instruments were checked and discussed with four experts in the field of IT services start-ups in Kerala as well as with three academicians. Based on their advice and comments, some of the questions and statements were modified. To get more precise results, the author conducted a pilot study by using this modified questionnaire with 55 IT service start-up entrepreneurs. This helped the author to clarify the objectives, variables used in the study, the type of data collected, questionnaire construction, statistical and analytical tools used for the study etc. After conducting the pilot study, testing

of reliability and validity were checked by using appropriate methods. The final modified questionnaire was then used to collect data from all the respondents in this research. The final full version of the questionnaire is given in Appendix.

3.9 Reliability and Validity

Reliability and validity are important in establishing the truthfulness, credibility, or believability of data and findings of the study (Neuman, 2003). All the activities of research should be systematic and scientific such as data collection procedure, data analysis methods, and reporting of findings and all are reliable and valid in nature. The researcher prepared a descriptive research design to reduce the validity problems such as internal validity and external validity.

3.10 Testing of data reliability

Reliability refers to the extent to which an instrument produces a consistent result if measurements are repeated. Reliable instruments only provide reliable data to the study. To estimate data reliability or internal consistency of data of the current research, Cronbach's alpha was used and it is the widely used method to check the reliability of data. This method uses internal consistency reliability and split-half reliability by determining the proportion of systematic variation in a scale. If the Cronbach's alpha value is more than 0.70, the data is considered as reliable (Nunnally, J. C., & Bernstein, I. H. (1994). If the alpha is closer to 1, the data should have higher internal consistency. If the alpha value is higher than 0.70, we can accept the validity of the instrument for further use (Streiner, D. L., 2003). By using SPSS, this study found that Cronbach's alpha is more than 0.70 and it confirms data reliability.

3.11 Testing of content validity

The content validity should be ensured in the study. The content validity was checked by interviewing experts and a few start-up entrepreneurs. Also, the content was checked by consulting various researchers who have worked and completed the research work in the same area. The researcher has also done an extensive review of

the literature in the field of technology start-ups and IT services start-ups made the researcher change and add scale content to cover the constructs of the study.

Table 3.2

Results of reliability analysis of various scales used

Sl. No.	Variables	No. of items	Alpha value
1	Motivating factors experienced by IT services start-up founders	21	.846
2	Founders perception regarding support and facilities offered by KSUM	11	.926
3	Founders perception regarding policies and schemes extended by government	14	.851
4	Founders perception regarding growth factors of IT services start-ups	34	.864
5	Problems perceived by IT services start-up founders	41	.899
6	Opinions of founders regarding prospects for the growth of IT services start-ups	12	.737

Source: Survey data

3.12 Testing normality of data

While using the powerful test such as parametric tests, certain assumptions should be followed like normality, homogeneity etc. the current study tested the normality of the data by using Kolmogorov – Smirnov and Shapiro-Wilk tests, Normal Q-Q Plot, and P-P plot etc. are used. In the case of Kolmogorov – Smirnov and Shapiro-Wilk tests, if the p-value is more than 0.05, the null hypothesis is accepted and it is considered normal. Under Normal Q-Q Plot, and P-P plot, if points are close to the diagonal line, it is considered as normal. To check the normality skewness and Kurtosis are also used where the values of skewness and Kurtosis should be zero. If values deviate from zero, it also deviates from a normal distribution (Field, 2009).

Table 3.3

Demographic variables of the study

I. Demographic variables		
Sl. No.	**Variables**	**Sources**
1	Gender of the entrepreneur	Friar et al. (2003), Nooh et al. (2018)
2	Age of the organisation	Song et al. (2008); Haltiwanger et al. (2013)
3	Age of the entrepreneur	Oakey (2003)
4	Educational qualification	Kalabeke (2018); Kofanov et al. (2018)
5	Entrepreneurial family	Barba-Sanchez et al. (2012).
6	Previous experience	Watson et al. (1998)
7	Structure of start-ups	Niţu, C. R. (2013)
8	Incubated or not	Kofanov et al. (2018)
9	Nature of start-ups	Muramalla et al. (2019)
10	Sectors of start-ups	Andersson, M., & Noseleit, F. (2011)**;** Evers, N. (2003),
11	Business models	Muramalla et al. (2019)
12	Sources of capital	Kalabeke (2018); Kim et al. (2018)

Source: Literature Survey

Table 3.4

Objective wise variables of the study

Sl. No.	**Variables**	**Sources**
II. Opinion of founders regarding motivating factors to start IT services start-ups in Kerala		
1	Desire for independence	Watson, K., et al. (1998), Shane, S., et al. (2003), Barba-Sanchez, et al. (2012)
2	To be my own boss	Watson, K., et al. (1998), Barba-Sanchez et al. (2012), Zimmerman, M.A., et al. (2013)

Sl. No.	Variables	Sources
3	Need for achievement	Barba-Sanchez et al. (2012); McCllelland, D. (1961)
4	Self-employment	Potabatti et al. (2015); Raman et al.(2008); Watson et al. (1998)
5	Ambition to become an entrepreneur	Raman et al. (2008)
6	Technical qualification / Knowledge	Vliamos, S. J., & Tzeremes, N. G. (2012).
7	Use own creative skills	Pillania & R. K. (2008); Rotter, J,B. (1966),Watson et al. (1998); Barba-Sanchez et al. (2012); Scheiner, C.W.(2009)
8	Financial success	Barba-Sanchez et al. (2012); Watson et al. (1998)
9	Infrastructural facilities	Gwija et al. (2014).
10	Minimum capital requirements to start IT services start-ups	Pillania, R. K. (2009)
11	University courses	Bushell, B. (2008); Lasch et al. (2007); Pillania, R.K. (2009)
12	Availability of financial assistance	Zimmerman, M. A., & Chu, H. M. (2013)
13	Fiscal incentives and support from Government	Arruda et al. (2013); Lasch et al. (2007); Pugliese et al. (2016)
14	Networking skill	Barba-Sanchez, V., & Atienza-Sahuquillo, C. (2012)
15	Social recognition	Barba-Sanchez, V., & Atienza-Sahuquillo, C. (2012); Lasso et al. (2019)
16	Success stories of others	Tong et al. (2011)
17	Contribution to the society	Raman et al. (2008)
18	Marketing opportunities	Lumpkin, G. T., & Dess, G. G. (1996); Lasch et al. (2007)
19	Business background	Nieman, G., & Nieuwenhuizen, C. (2009); Tong et al. (2011)

Sl. No.	Variables	Sources
20	Take challenges of risk	McClelland, D. C. (1965); Lasch et al. (2007), Lumpkin, G. T., & Dess, G. G. (1996)
21	Previous experience	Bocken, N. M. (2015); Gartner, W., & Liao, J. (2012); Pugliese et al. (2016)
III.	**Supports and ecosystem facilities perceived by the IT services start-ups from Kerala start-up mission**	
1	Technical mentorships/consultancy	KSUM Report (2020); Schwartz, M. (2013); Tripathi et al. (2019)
2	Business mentorships/consultancy	KSUM report (2020); Michael Schwarts, (2012); Tripathi et al. (2019)
3	Connecting with network of corporates and renowned entrepreneurs	KSUM Report (2020)
4	Entrepreneurial workshop, training and development facilities	KSUM Report (2020)
5	Connecting with network academic and research institutions.	KSUM Report (2020) Adler et al. (2019)
6	Adequate infrastructural facilities	KSUM Report (2020)
7	Regulatory support	KSUM Report (2020); Cukier, D., & Kon, F. (2018)
8	Proper awareness programme	KSUM Report (2020); Ghazali et al. (2018)
9	Various funding schemes	KSUM Report (2020); Tripathi et al. (2019),
10	Helps to access funds from different sources.	KSUM Report (2020)
11	Marketing facilities	KSUM Report (2020); Tripathi et al. (2019)

Sl. No.	Variables	Sources
IV.	**Founders perception on policies and schemes extended by the State government to boost IT services start-ups in Kerala**	
1	Interventions of academic, educational and industrial institutions	Bala Subrahmanya, M. H. (2017)
2	Start-up schemes and initiatives implemented by the Central government	Muramalla et al. (2019); Obaji et al. (2014); Wagh, M.(2016); Sanghi, S., & Srija, A. (2002)
3	Approach of bureaucracy in the state is a problem in the proper implementation of government policies and support system	Ghazali, N. H., & Yasuoka, T. (2018); Nair et. al (1998); Wagh, M. (2016); Obaji, et al. (2014)
4	The govt. provide adequate awareness to IT start-ups regarding concessions, incentives and various initiatives.	Ghazali et al. (2018); Muramalla et al. (2019); Wagh, M. (2016)
5	The concessions and incentives offered by the state governments	Muramalla et al. (2019); Wagh, M. (2016)
6	Purchasing and marketing opportunities.	Baraldi et al. (2019); Gruber et al. (2013),
7	The government's involvement in the upliftment of women entrepreneurs	Manshani, S., & Dubey, A. (2017), Mehta, P. (2013)
8	Single window scheme and simplified /liberal regulations	Wagh, M.(2016)
9	Start-up funding implemented by the government	Muramalla et al. (2019); Obaji et al. (2014); Wagh, M.(2016)
10	The state has succeeded in building confidence in IT services start-up entrepreneurs	Muramalla et al. (2019); Wagh, M. (2016)
11	The government brings adequate infrastructure	Muramalla et al. (2019); Wagh, M.(2016)

Sl. No.	Variables	Sources
	facilities	
12	Taxation policies related to IT services start-ups are satisfactory	Muramalla et al. (2019); Wagh, M.(2016)
13	The role of KSUM as a facilitator between the start-ups and the Government is as expected.	Sanghi, S., & Srija, A. (2002)
14	The government provides IPR protection	Sanghi, S., & Srija, A. (2002)
V.	**Major factors that might be affecting the growth of IT services start-ups in the state as per founders perception**	
1	Accelerator's support	Del Sarto et al. (2020); Hausberg, J. P., & Korreck, S. (2021); Kumar, K. (2015); Schwartz, M. (2013)
2	Incubators support	Kumar, K. (2015); Santisteban et al. (2021); Schwartz, M. (2013)
3	Good business climate	Santisteban et al. (2021); Watson et al. (1998),
4	Support through Co-working space	Santisteban et al. (2021)
5	Favourable regulatory environment	Lotfi et al. (2014)
6	Favourable political environment	Gupta et al. (2013).
7	Adapt to customer needs	Lasch et al. (2007); Perez et al. (2009),
8	Team expertise and their commitment	Bailetti .T (2012); Khong-khai, S., & Wu, H. Y. (2018); Picken, J. C. (2017); Song et al. (2008); Veselovsky et al. (2017)
9	Appropriate training	Hyder, S. and Lussier, R.N. (2016); Pillania, R.K. (2009); Rojas, F., & Huergo, E. (2016)

Sl. No.	Variables	Sources
10	Ability to exploit business opportunities	Bortoluzzi et al. (2014); Kim et al. (2018); Khong-khai, S., & Wu, H. Y. (2018)
11	Availability of Government fund	Arruda et al. (2013); Kim et al. (2018); Lasch et al. (2007)
12	IPR protection	Kim et al. (2018)
13	Financial assistance from banking institution	Veselovsky et al. (2017)
14	Tax incentives	Abu et al. (2011)
15	Better services quality	Santisteban et al. (2021)
16	Brand image	Muramalla et al. (2019)
17	Relationship with customer	Lasch et al. (2007); Perez et al. (2009)
18	Comfort administrative system for ease of doing business	Stefanovic et al. (2010)
19	Digital marketing strategies	D'Avino et al. (2015); Sommer, C. (2018),
20	Technical knowledge	Adler et al. (2019); Diaz-Santamaria et al. (2021); Giudici et al. (2019); Santisteban et al. (2021); Tripathi et al. (2019)
21	Alliance with another company	Groenewegen, G., & de Langen, F. (2012); Sefiani, Y., & Bown, R. (2013)
22	Entrepreneurial competencies	Diaz-Santamaria, C., & Bulchand-Gidumal, J. (2021); Dehghani et al.(2020); Khong-khai, S., & Wu, H. Y. (2018); Kim et al. (2018); Veselovsky et al. (2017)
23	Availability of adequate capital	Veselovsky et al. (2017)
24	Availability of infrastructure	James, O., & Alexander, N. (2017); Santisteban et al. (2021)
25	Idea commercialisation	Groenewegen, G., & de Langen, F. (2012)

Sl. No.	Variables	Sources
	capability	
26	Competitive advantage	Stefanovic et al. (2010)
27	Availability of Talent employees	Watson et al. (1998); Adler et al. (2019); Rauch et al. (2005)
28	Managerial skills of entrepreneurs	Watson et al. (1998)
29	Leadership skill of entrepreneurs	Stefanovic et al. (2010); Watson et al. (1998); Kouzes, J. M., & Posner, B. Z. (2012)
30	Problem solving and decision making skill	Arora et al. (2019)
31	Ownership structure of the firm	Al-Mahrouq, M. (2010); Lotfi et al. (2014); Shorewala. P., & Chaudhary, P.(2016); Veselovsky et al. (2017)
32	Propensity for risk taking of entrepreneur	Picken, J. C. (2017)
33	Creative and up to date technology utilization	Kim et al. (2018); Santisteban et al. (2017); Scarborough, N. M., & Zimmerer, T. W. (2003); Ummah et al. (2014); Veselovsky, M.Y., (2017)
34	Innovative IT product/ Service features	Ardito et al. (2015); Groenewegen, G., & de Langen, F. (2012); Kim et al. (2018); Khong-khai et al. (2018); Veselovsky et al. (2017); Watson et al. (1998)
35	Mentoring support	Janakova, H. (2015), Kalyanasundaram, G (2018)
VI.	**Perception on the problems experienced by IT services start-ups running in Kerala.**	
1	Socio-cultural problems related to the basic ethics of the society, language, religion etc.	James, O., & Alexander, N. (2017), Ferratti et al. (2021)
2	Unstable political and social conditions	James, O., & Alexander, N. (2017); Cantamessa et al. (2018)

Sl. No.	Variables	Sources
3	Co-founder misalignment	Cantamessa et al (2018); Bednar et al. (2017); Ferratti et al. (2021); Kanchana et al. (2013)
4	Complicated administrative procedures to acquire permit, licence etc.	Nair et al. (1998),
5	Restrictive labour regulations	Nair et al. (1998)
6	Lack of team commitment	Bednar et al. (2017); Kanchana et al. (2013); Cantamessa et al. (2018)
7	Unfaithful customers	Cantamessa et al. (2018),
8	Services offered did not evolve with the market	Bednar et al. (2017); Cantamessa et al. (2018); Da Silva et al. (2019); Evers, N. (2003)
9	Wrong price of the services	Bedna et al. (2017); Da Silva et al.(2019)
10	Unable to build brand image	Muramalla et al. (2019)
11	Bad marketing strategies	Kanchana et al. (2013)
12	Loss of original vision and mission of idea	Cantamessa et al. (2018); Kanchana et al. (2013); Shorewala. P., & Chaudhary, P. (2016)
13	No / wrong business model	Cantamessa et al. (2018); Shorewala. P., & Chaudhary, P.(2016); Sharma et al. (2020)
14	Problems with newness and smallness	Patton, D., & Marlow, S. (2011); Witt, P. (2004); Zhang, J., & Wong, P. K. (2008),
15	Asymmetric information	Backes-Gellner et al. (2007); Burrier, C., & Sarfati, G. (2018); Evers, N. (2003); Rafiq et al. (2021)
16	Lack of proper guidance and mentoring	Melegati et al. (2020); Rani, M. A. (2017)

Sl. No.	Variables	Sources
17	Employee attrition	Uyar, A. S., & Deniz, N. (2012)
18	Difficulty in hiring and retaining high quality talent	Sharifi, O., & Hossein, B. K. (2015); Kanchana et al. (2013)
19	Lack of entrepreneurial development training	Rauch et al. (2005).
20	Inexperienced management	Cantamessa et al. (2018); Evers, N. (2003)
21	Lack/ unavailability of adequate capital	Bednar, R., & Tariskova, N. (2017); Cantamessa et al. (2018); Evers, N. (2003); Kanchana et al. (2013); Mittal, S. K., & Kumar, R. (2014); Sharifi, O., & Hossein, B. K. (2015); Sharma et al. (2020); Watson et al. (1998),
22	High credit and collateral requirement	Evers, N. (2003); Kumar, K. (2015),
		Sharifi, O., & Hossein, B. K. (2015); Wavhal, S. S. (2017)
23	Inadequate disbursement of loan	Evers, N. (2003); Sharifi, O., & Hossein, B. K. (2015)
24	Less return on capital	Nikhil et al. (2015); Reid et al. (2000)
25	Change of customer taste	Muramalla et al. (2019)
26	Inadequate customer feedback or ratings	Shorewala. P., & Chaudhary, P.(2016)
27	In ability to compete with big brands	Kanchana et al. (2013)
28	Not keeping pace with disruptive technology	Diaz-Santamaria, C., & Bulchand-Gidumal, J. (2021); Prashantham et al. (2017)
29	High cost of customer acquisition	Cantamessa et al. (2018); Evers, N. (2003); Giardino et al. (2015); Melegati et al. (2020); Kanchana et al. (2013); Wang et al. (2016)
30	Lack of business management skill	Cantamessa et al. (2018); Wavhal, S. S. (2017)
31	Inability to manage risk	Simon, M. (2000)
32	Lack of leadership skill	Stefanovic et al. (2010)

Sl. No.	Variables	Sources
33	Poor knowledge of financial management	Ghazali, N. H., & Yasuoka, T. (2018)
34	Difficult to find investors	Cantamessa et al. (2018); Sharifi et al. (2015)
35	High cost of technological acquisition	James et al. (2017); Ummah et al. (2014)
36	Difficulty in getting continuous investment	Sharifi, O., & Hossein, B. K. (2015)
37	Inadequate technology infrastructure	Prashantham, S., & Yip, G. S. (2017)
38	Lack of protection of Patent, copy right and IPR issue	Zimmerman, M. A., & Chu, H. M. (2013)
39	Lack of supporting networks	Burrier, C., & Sarfati, G. (2018); Melegati et al. (2020); Sharifi, O., & Hossein, B. K. (2015)
40	Tax related problems	Wavhal, S. S. (2017); Ooi, Y. K., & Ahmad, S. (2012)
41	Lack of support from government	Kumar, K. (2015); Muramalla et al. (2019)
VI. Prospects for growth of IT services start-ups in Kerala		
1	Easing government regulations	Meero et al. (2021)
2	The state actively involved in the upliftment of women entrepreneurs	Mehta, P. (2013)
3	Taxation policies related to IT services start-ups and Angel investors are effective	Muramalla et al. (2019)
4	Easing FDI norms and various funding initiatives of government	Meero et al. (2021)
5	Technological advancement and technology disruption in the industrial world	Meero et al. (2021); Muramalla et al. (2019)
6	The changing axis of	Sharma, D. & Gautam, K.P. (2020);

Sl. No.	Variables	Sources
	international trade and opportunities in export of IT products or services	Olaore et al. (2020)
7	Tremendous potential in market size in future	Sharma, D. & Gautam, K.P. (2020)
8	Big companies are looking in search of diversified information, creative people and process at IT services start-ups.	Ferratti et al. (2021); Van Gelderen et al. (2021)
9	E-Commerce boom in the online market place	Muramalla et al. (2019)
10	IT Start-up movement in the present era inculcate the entrepreneurial culture among youth	Van Gelderen et al. (2021); Muramalla et al. (2019)
11	Changing mind set of working class	Muramalla et al. (2019); Pustovrh et al. (2019)
12	Digital infrastructure availability and increasing internet users	Muramalla et al. (2019); Sharma, D. & Gautam, K.P. (2020)

Source : Literature survey

3.13 Growth factors

It is needed to know the key factors involved in the growth of IT services start-ups, which is necessary to work out the hypothesis set up by each entrepreneur. Only a few researchers tried to find out the success or growth and failure pattern of a start-up. Growth or success of start-ups can be measured based on various parameters. Important parameters of growth or success of start-ups listed below:

Table 3.5

Parameters to measure growth of start-ups

	Parameters	Source
D1	Increase in sales and profits of company, and compare it with industry average.	Hormiga et al. (2013); Oakey, R.P. (2003); Strehle et al. (2010)
D2	High financial performance.	Dornberger, U., & Zeng, X. (2009); Morteza et al. (2013); Spiegel, B. (2017)
D3	Achieve goals and objectives of business and effective management.	Anh et al. (2012); Hyder, S. and Lussier, R.N. (2016)
D4	Number of jobs generated by a company.	Maine et al. (2010); Banda, J. & Lussier, R. (2015)
D5	Meet the demands of customers and employees.	Strehle et al. (2010); Santisteban et al. (2021)
D6	Return on assets	Suominen et al. (2017)

Source: Literature survey

In this study the researcher used the following parameters to measure the growth of IT services start-ups:

- Level of sales revenue
- Level of profit
- Level of return on assets

To measure the growth of IT services start-ups, respondents were asked about growth parameters by using likert scale in the following way:

Table 3.6

Variables for measuring IT services start-ups growth

Sl. No.	Variable	Very high	High	Moderate	Low	Very low
1	The degree to which your company's revenue has grown.					
2	Rate your opinion about the degree to which your company's profit has grown.					
3	The degree to which your company's return on assets has grown.					

Source: Literature Survey

3.14 Business failure

Failure is a common phenomenon among enterprises, especially among start-ups. It may happen due to newness and uncertainty. In past studies related to business failure, various factors are causing failures such as insufficient experience, worrying, emotions, and negative emotional reaction. (Hisrich, R. D., & Kearney, C., 2013).

3.15 Analysis of Data

The collected data was coded, edited and tabulated in a data-sheet in a systematic manner for further analysis. Then these data are analysed electronically by using SPSS. Charts such as Bar charts, Pie charts and frequency distribution were used to present the data in a meaningful manner. Statistical tests such as parametric and non-parametric tests were used for analysis purposes. The following tests were used for analysing data:

3.15.1 Mean

Mean is the measure of central tendency and is used to find out the central position within that set of data. It is used to identify the mean values to know the important variables among constructs.

3.15.2 Percentage analysis

Percentage analysis is a simple and basic data analysis tool to compare two or more series of data. It provides a relative value of the hundredth parts of any quantity.

3.15.3 Standard Deviation

The standard deviation is the most basic and common measure of variability. It is used to know how the data are dispersed from its mean. A low standard deviation indicates data are clustered around the mean and a high standard deviation reveals data are more spread out or varied from its mean.

3.15.4 Chi-square test

The Chi-square test is a statistical test using a contingency table. This test is primarily used for examining whether two categorical variables are independent or not considering the statistic.

3.15.5 Independent Sample t Test

The Independent sample t-test is the most common statistical test of hypothesis testing used to compare the means of two independent groups or categories or items.

3.15.6 One-Way ANOVA

This test is an extension of the independent sample t-test. It is used to examine whether there are significant differences among the means of three or more independent groups or categories or items.

3.15.7 Tukey Post Hoc Test for Multiple Comparisons

This test is used after one-way ANOVA where the F-test has indicated the existence of a significant difference between some of the tested groups. Tukey's Post Hoc analysis reveals the significance of the difference between pairs of group means.

3.15.8 Correlation Analysis

Correlation analysis is a bivariate analysis used to measure the degree of association or strength of the linear relationship between two variables. It may be positive or negative. Positive correlation explains when two variables move in the same direction and negative correlation explains when two variables move in the opposite direction.

3.15.9 Multiple Regression

Multiple regression analysis is a multivariate analysis used to analyse the relationship between a single dependent variable and several independent variables. This analysis is used to model the relationship between this dependent variable and one or more predictor variables or independent variables.

3.15.10 Exploratory Factor analysis

Factor analysis is a multivariate analysis and data reduction technique and helps the researcher to study concepts that cannot be measured easily and directly. Here, factors are rotated after extraction and fewer dimensions are derived from many individual items which help to reduce and simplify data for further analysis.

3.16 Period of the study

The primary data for the pilot study were collected from the IT services start-up founders whose start-ups have been included in the database of start-up India up to 30/08/2021. After finalising the questionnaire, the start-ups that have been included in the database of start-up India up to 31/01/2022 were used for final data collection. The secondary data required for studying the current status of IT services start-ups in Kerala were collected for the period of the last 3 years, from 2019 to 2022.

3.17 Limitations of the study

1. This study is based on Information Technology services entrepreneurship prevailing in Kerala in the current scenario. A radical change in technology may affect the result in a different manner.

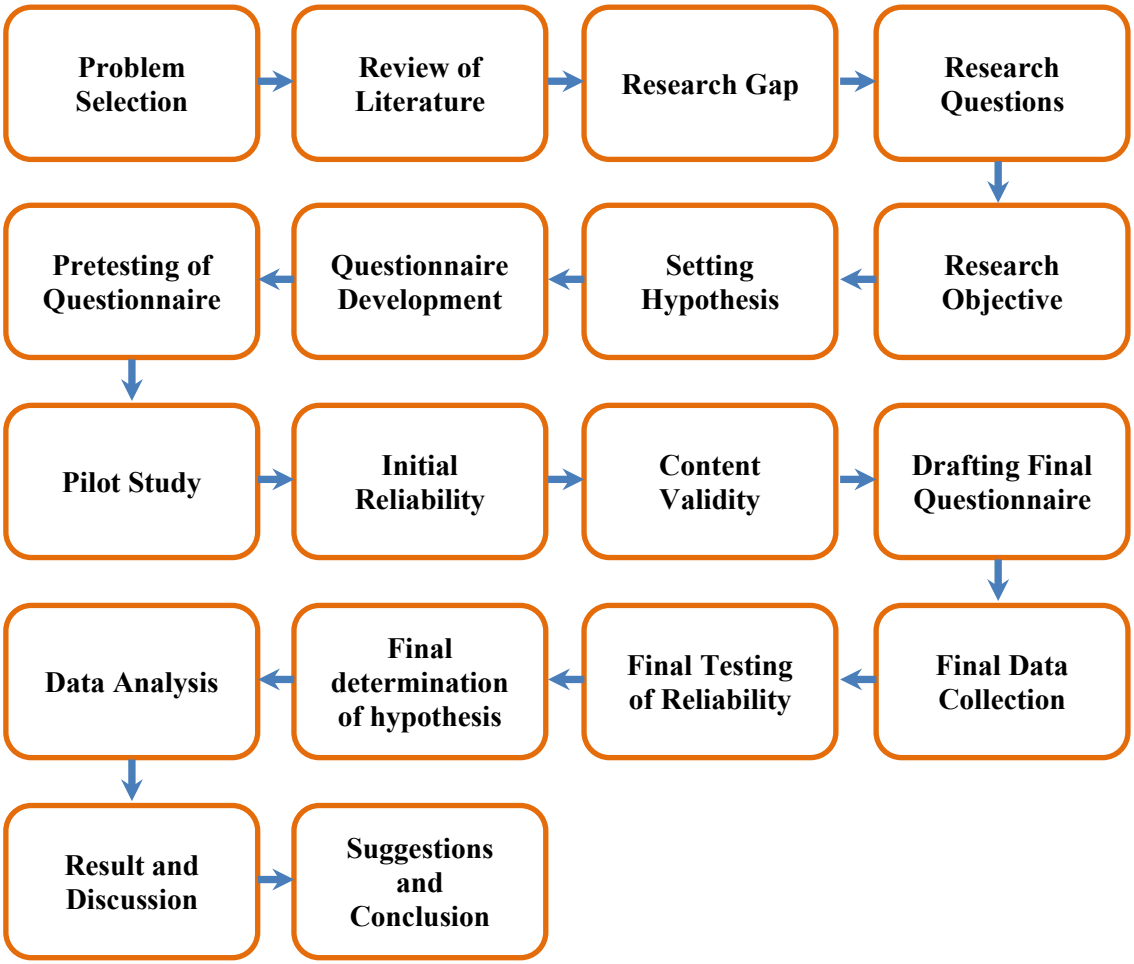
2. Since the study is based on sampling, sampling errors will be there.

3. Due to the reluctance of providing data showing the financial performance of the founders, the present status (profitability) of IT service start-ups could not be measured.

3.18 Stages of research

Figure 3.1

Stages of research



3.16 Scheme of the chapter

In the present research entitled **"Problems and prospects of IT Services start-ups in Kerala"** researchers have organized the work into six chapters outlined below.

Chapter I: Introduction

The introductory part of this first chapter describes the general information on recent trends of Start-ups in India and Kerala, the concept of entrepreneurs, entrepreneurship, start-ups and research methodology. It explains the statement of the research problem, research questions, objectives, hypotheses framed in the study, the scope of the study and limitations.

Chapter II: Review of Literature

Reviewing of the literature covers the review particularly related to the present research topic. It is the preliminary step before attempting to prepare the plan of the study. In this chapter, a detailed literature review is carried out with the help of primary sources and secondary sources.

Reviews from books, articles, online sources, periodicals and newspapers have been collected during the study. The collected literature was found very useful for completing this research work satisfactorily.

Chapter III: Research Methodology

Research Methodology explains research design, sampling design by using systematic random sampling, calculation of sample size and methods of data collection, data analysis tools used for the study and limitations.

Chapter IV: Start-ups- Theoretical framework

In this chapter, the researcher tried to include the concept and definitions of entrepreneurs, entrepreneurship and start-ups. It also described the innovation and information technology services start-ups, software start-ups, stages of start-up growth, approaches of new venture creation, financing sources of start-ups, the evolution of start-up ecosystem and elements of a start-up. This chapter clearly

described various theoretical aspects of the objectives of the study such as motivating theories and motivating factors to start a business, various policies of central and state government to foster start-ups in India, critical growth factors and main problems faced by start-up entrepreneurs. It also includes the prospects and opportunities of start-ups in Kerala and India.

Chapter V: Perception of founders regarding motivating factors and Governments interventions in boosting IT services start-ups in Kerala

This chapter covers the analysis and interpretation of different motivating factors, supports and facilities offered by KSUM to IT services start-ups in Kerala and policies and schemes extended by central and state governments to IT services start-ups in Kerala through various statistical tools.

Chapter VI: Perception of founders regarding growth factors, problems and prospects for growth of IT services start-up in Kerala

This chapter includes the analysis and interpretation of important growth factors mandate for IT services start-ups that influence the performance of start-ups in Kerala and different problems faced by IT services start-ups in Kerala. It also includes various prospects for growth of IT services start-ups in Kerala.

Chapter VII: Findings and Conclusion

This chapter suggests the list of major findings on the basis of analysis and interpretation of primary and secondary data. Further, the study finalised with a logical conclusion.

Chapter VIII: Recommendations and Scope for further research

This chapter covers the recommendations based on the findings of the study. The recommendations are mainly provided to IT services start-ups entrepreneurs and the governments. Further scope for future studies are also mentioned under this chapter.

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CHAPTER 4

START-UPS - A THEORETICAL FRAMEWORK

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4.1 Entrepreneur

The term entrepreneur is derived from the French word “Entreprendre” means to undertake. So entrepreneur is a person who is ready to undertake something with his potentials and skills and become successful. The concept entrepreneur used in different context in different period before it was used in business. The term entrepreneur was used for architect and contractors in public works in 1700 A.D. After that it was initially applied in business by French economist Cantillon in 18th century. He used it for a dealer who make marketable product by combining the purchased means of production.

4.2 Defining entrepreneurs

Joseph Alois Schumpeter is considered as one of the pioneers in the field of entrepreneurship. Schumpeter has given importance to entrepreneurs and innovation. He associated innovation by entrepreneurs with five elements:

(a) The introduction of a new good;

(b) The introduction of a new method of production;

(c) The opening of a new market;

(d) The conquest of a new source of supply of raw material;

(e) The carrying out of the new organization of any industry.

The other important definitions of entrepreneurs are as follows:

Table 4.1

Definitions of entrepreneur

Sources	Definition
Cantillon, R. (1755)	"An entrepreneur is a person who pays a certain price for a product to resell it at an uncertain price, thereby making decisions about obtaining and using the resources while consequently admitting the risk of enterprise".
Say, J. B. (2017)	"An entrepreneur is an economic agent who unites all means of production-land of one, the labour of another and the capital of yet another and thus produces a product. By selling the product in the market he pays rent of land, wages to labour, interest on capital and what remains is his profit. He shifts economic resources out of an area of lower and into an area of higher productivity and greater yield".
Schumpeter J. (1934)	Schumpeter explained that an entrepreneur is an individual who introduce something a new method of production in the economy not yet experienced in the area of manufacturing, a new product with which consumers are not familiar, a new source of raw material which isnot used yet or of new market etc.
McClleland, D. (1961)	"An entrepreneur is a person with a high need for achievement [NAch]. He is energetic and a moderate risk taker".
Drucker, P.F. (1964)	"An entrepreneur searches for change, responds to it and exploits opportunities. Innovation is a specific tool of an entrepreneur hence an effective entrepreneur converts a source into a resource".
Kilby, P. (1971)	He emphasizes the role of an imitator entrepreneur who does not innovate but imitates technologies innovated by others. It is very important in developing economies. Developing countries always have potential for imitated products because of huge demand in market. Imitating entrepreneur has great opportunities in such markets and can create more number of jobs for others.
Shapero, Albert. (1975)	"Entrepreneurs take initiative, accept risk of failure and have an internal locus of control".

Source: Literature Survey

4.3 Entrepreneurship

Entrepreneurship is a process whereby an entrepreneur undertakes an action to establish his business enterprise. It involves a creative action of an entrepreneur. An entrepreneur should have creative mind to seek or exploit business opportunities under calculated risk and derive benefits by setting up a business venture. Creation of new venture involves a series of activities starts from its conception, creation and running of an enterprise. Entrepreneurship is a broad discipline of knowledge with the result of connecting various factors like psychological, technological, socio-economic, legal and other factors. This creative process involves high risk in terms of capital, human and technology.

4.4 Definition of entrepreneurship

Entrepreneurship is a broad discipline of knowledge with the result of connecting various factors like psychological, technological, socio-economic, legal and other factors. This creative process involves high risk in terms of capital, human and technology. So entrepreneurship refers to a purposeful creative activity to establish a new venture by identifying business opportunities in the business environment by taking all types of risk. Important definitions of entrepreneurship are shown in the following table:

Table 4.2

Definitions of entrepreneurship

Sources	Definitions
Hartman, H. (1959)	"Entrepreneurship is the process whereby people, money markets, production facilities and knowledge are brought together to create a commercial enterprise which did not exist before".
Pareek, U., & Nadkarni, M. (1978); (Sinha, P.(2004)	Entrepreneurship can be defined as general trend of setting up new enterprises in a society and dynamic function of individual, socio-cultural factors, support systems and the environment
Drucker, P. F. (1985)	Entrepreneurship as innovations.

Sources	Definitions
Timmons, J. A. (1990)	Entrepreneurship to be an ability to create and build something from practically nothing.
Sugumar, M. (1996); Sinha, P. (2004)	Entrepreneurship as the qualities which are required to innovate and establish a new enterprise, accept the challenge and bear the risk.
Harper, M. (1991; Leff, N. H. (1979)	Entrepreneurship has been considered as the fourth factor of production that helps to discover new frontiers leading to all round economic growth

Source: Literature Survey

The Commission of European Communities (2013) reported that the results of entrepreneurship is further social development by generating increased job opportunities and consequent economic prosperity, it is very important for the nation. Entrepreneurial activity has been considered as an engine of a nation's long term economic growth (Romer, P. M., 1994). When persons shoulder the responsibilities and take risks, it results in the development of an economy. These persons are known as entrepreneurs and the process is known as entrepreneurship. According to Schumpeter's system entrepreneurship is essentially a creative activity. These definitions have been used in many studies to study the characteristics of those who have started business ventures (Sinha, P., 2004). The development of entrepreneurship enriched with innovation has been challenge now a days. As mentioned by the Schumpeter (1997) entrepreneurship is referred to the perception and exploitation of opportunities by using available resource through innovative way and this could only be achieved with introduction of advancement of technology and easy access to information.

4.5 Promotion of entrepreneurship

National Knowledge Commission (2008), reports that enhancing entrepreneurship involves different groups such as the community, family, academia, financial players, government, industry, and potential entrepreneurs themselves. They also assert that to promote entrepreneurship people have to be encouraged to be self-reliant in taking economic decisions and creating wealth and employment. National

Knowledge Commission also expressed the fact that entrepreneurship has enormous scope in the growth story of India.

4.6 Start-up

A start-up is a small and new company operated by one individual or handful of founders. These small companies sell products and services that are not currently offered elsewhere, to the customers. The companies have no past experience in their business and faced many problems and encounter great risk. Thus start-ups are the newly introduced small organizations designed to create new products/services under the condition of extreme uncertainty. They constantly concentrate on repeatable, profitable and scalable business models and aim at rapid and sustainable growth (Blank, S., & Dorf, B., 2020; Ries, E., 2011).

4.7 Definition of Start-up

Start-up can be defined as "Early stage in the life cycle of an enterprise where the entrepreneur moves from the idea stage to securing financing, laying down the basis structure of the business and initiating operations or trading." According to Graham, P. (2012) start-up growth is key element and a start-up goes on three phases to become successful start-ups. The phases are:

4.7.1 First phase:

In the first phase, there is an initial period of slow or no growth where the start-up tries to design what it is doing.

4.7.2 Second phase:

In the second phase, there is a period of rapid growth where the start-up decides how to make something lots of people want and how to reach those people.

4.7.3 Third phase:

In the third phase, eventually start-up will grow into a big company and become successful start-ups and growth will slow, partly due to internal limits and partly

because the company is starting to overcome against the limits of the markets it serves.

4.8 Definitions of start-ups

The important definitions of start-ups are shown in the following table:

Table 4.3

Definitions of start-up

Source	Definitions
Blank, S. (2012)	"A start-up is a temporary organization in search of a scalable, repeatable, profitable business model".
According to Ries, E. (2011)	A start-up is a human institution designed to create new products and services under conditions of extreme uncertainty.
Graham, P. (2012)	A start-up is a company designed to grow fast. He connects start-up to the growth. According to him growth is key element and a start-up goes on three phases to become successful start-ups.
Kakati, M. (2003); Vliamos, S. J., & Tzeremes, N. G. (2012)	A start-up is temporary organisation that creates innovative products and /or services using advanced technologies.
World Economic Forum (2018)	Start-ups are emerging companies which are used intrinsically innovative technologies.
Petru et al. (2019)	Start-ups are companies which are scalable in nature that have low incremental costs and highest potential for growth in the short-term period.

Source: Literature Survey

4.9 Technology start-ups

India has been considered as the emerging hub and potential sources of Technology based start-ups in the global economy (Gai, B., & Joffe, B., 2013). The technology start-up is a type of start-up that create and distribute its product with the help of internet and software and to search for scalable business model and execute it (Blank, S., 2012). According to the National Innovation and Start-up Policy 2019 for

Students and Faculty, the institutions are required to allocate a minimum of 1 per cent of their total annual budget towards entrepreneurial activities.

4.10 Information Technology Industry

IT industry became a core part of economic development of India through varieties of encouraging factors such as employment generation, increased GNP, standard of living of people etc. Now IT industry seems to be competitive industry with the introduction of dot com boom in 20th century and this movement helps India to become an IT hub among the industrial world. India witnessed a range of successful IT companies which are running more competitive and latest technology service providers in the world such as Infosys, Wipro, TCS etc. (NASSCOM, 2014). These companies were at a time start-up companies and scale their business step by step with few years by using innovative and latest technology service to the community in the domestic and foreign countries.

Start-up especially IT service start-up constitute a major part of Indian start-up history. As per report of NASSCOM (2014) information technology service has been an attract sector showing number of angel investors and venture capital have increased and number of technology start-ups has tripled last 6 years. This provides a growth of IT services start-ups and seem an attracted sector by investors. The statistics of various institutions says that large number of IT services start-up entered into the business operation and later with in one or two years, they are disappeared for business environment. The risk is very high in the initial 2.5 years, but the risk of business failure is rather low if the business survives the initial period (Casson, M., Yeung, B. & Basu, A., 2008).

This failure phenomenon is going on and creates serious problems to the development of nation and the society at large. This failure rate in IT service start-ups affects the stakeholders such as investors especially angel investors and venture capitalist who are not interested in investing IT start-ups or technology start-up and this lead to decrease in the business climate in the country.

4.11 Internet and Technology business

Internet is very indispensible part of daily life and this is helpful to drive economic growth and job creation. It is reported that 8% of GDP in economies, powering growth and job creation from the contribution of internet (Dean, D, 2012).

With the introduction of free and open source software, a dramatic change is happening in the internet technology, which witnessed a pivotal role and introduction of software business. It seems that most successful companies in the world come from the software or technology industry and considered as the most emerging industry in the world. It is reported that today's most valuable global brands are technology based firms. According to the Millward Brown's index, top 4 technology firms are 1) Apple, 2) IBM, 3) Google and 4) Microsoft. But due to the disruption of technology business, risk related with starting an internet business is extremely high, failure rate may also increase.

Today's competitive world, Technology industry has grown increasingly than before, where globalised community accept it in effective manner. This is because of year- specific and industry- mix effects (Luo, T., & Mann, A., 2011). This is happened because of easiness to start IT business and low start-up cost, young entrepreneurs are attracted to internet start-up. But they face different problems during the completion of each stage of creation of start-ups. The theory says that there are different factors at each stage of start-ups which affect their performance.

It is estimated that 50% of India' population is digitally connected and number of internet users have increased to 500 million (ASSOCHAM, 2019). Digital infrastructure is also connected to telecommunication infrastructure and the country intended to develop 5G technologies by revisiting regulatory norms. 5G is a key enabler of the digital world in future. It will help in shaping ubiquitous ultra-high broadband infrastructure and supports the transformation of processes in all business sectors. 5G will open new business opportunities and help to growing consumer market demand. It is reported that in India, the quantity of internet clients was pegged at 483 million out of 2018 and is anticipated to reach at 666.4 million in 2025 as per Statista (August 2019). Moreover, the government initiative, "Pradhan

Mantri Gramin Digital Saksharta Abhiyaan", was started to accelerate digital literacy and assist individuals in getting digitally educated people about the digital world.

4.12 Software product/ Service

Software products are launching everyday world wide with the parameters of an increase of new markets, new technologies and venture capital (Smagalla, D., 2004). There is a history of successful start-ups but many software start-ups fail before they achieved their commercial potential (Crowne, M., 2002). Here software start-ups are those organizations having no operating history, focusing on the creation of high tech and innovative product aiming at scaling their business in highly scalable market (Blank, S. A., 2005). Software start-ups provide cutting edge software products to global economy. Building a software start-up is crucial part especially in the early stage, where severely high failure rate may be occurred due to lack of scientific body of knowledge (Paternoster et al., 2014). Software start-ups are start-ups that are focusing on developing new and innovative software-intensive products/services, from which the new business model and value is created (Unterkalmsteiner et al., 2016).

Innovative product consists of software products and services. It is reported that more than 90% of start-ups fail primarily due to self-destruction than competition (Marmer et al., 2011). Today remarkable bubbles have been occurred in the growth of software start-ups with the notorious dot com bubble in 2000s (Perkins et al, 2001). In the present scenario, a large number of IT services start-ups and software start-up are created due to inspiration of various success stories but some study revealed that these start-ups may fail within two years of their operation (Crowne, M., 2002).

4.13 Natural Policy on Software Product (2019)

The information technology and information Technology Enabled Services (IT-ITES) industry is considered as a critical pillar in the economic growth of the India. This industry has huge potential to develop capabilities in developing various sectors such as agriculture, health, education, manufacturing etc. This will lead to

generating large employment entrepreneurial opportunities. According to NASSCOM report in 2019-20, IT and ITES industry generates estimated revenue around USD 168 billion which is around 8% of contribution of India's GDP. The industry exports revenue is USD 126 billion on an annual basis. IT industry is the largest organised sector in terms of large number of employees and generates 14 million direct and indirect jobs. India introduced various initiatives especially Digital India programme to transform India into knowledge based economy and directly empowered slowly. It ensures society to digital access, digital infrastructure through digital inclusion by delivering world class services at competitive cost and quality. By building this environment, India became one of the fastest growing country in the world in the digital footprint and expects to become a Trillian Dollar Digital Economy by 2025. Today, IT industry is a major part of Indian IT industry, which has high potential to strengthen Indian IT industry. In the report of NASSCOM Strategic Review 2017, about USD 413 billion revenue is contributed from global software product in the world. Out of which contribution of software products in Indian IT and ITES industry provides revenue of USD 7.1 billion.

4.14 IT services start-ups

IT services sector is the fastest and emerging sector in the field of IT outsourcing, cloud based services and attracts all customers-enterprise, consumers, government SMEs. An information technology services start-ups work in a make to order mode and basically software or IT services are initiated after a customer proposes the request. The services are mainly for specific customers and cannot provide that service as duplicate for other customers. The IT services start-ups usually make revenue by providing services like Application development, Web development, testing or project development or consulting over a finite period and the manpower is billed to the client over this period (KSUM ecosystem report, 2016).

4.15 Start-up ideas

Idea is the basic foundation of a start-up business. If the idea is successful, majority of the start-up will be successful. According to Moore et al. (2008), there are three types of start-up ideas.

4.15.1 Type A

It focuses on customers from somewhere who are provided with a product where that product is not available.

4.15.2 Type B

This idea deals with making a new product with new technology and shows it to the customers.

4.15.3 Type C

This idea mainly deals with upgraded or improved product that is delivered to customers.

4.16 Founders of IT services start-ups

The founder is person who has different characteristics involved in establishing a new IT service start-up. There may be one or more founding members while starting IT start-ups. They can tackle different problems occurred at different stages of technology stack by using multi-role in the development of business. But they have lack of entrepreneurial motivation and not able to evaluate risk involved in the business (Blank, S. A., 2005).

4.17 Cloud computing and IT services start-ups

Cloud computing is a good technology which supports IT services start-ups in a better manner. It offers on-demand information technology products and services to the business. This technology helps start-ups to use application without installing services in the business premises and they can access data using internet (Hurwitz et al., 2012). Cloud computing offers services by using both applications delivered through internet and hardware and systems software in the data centre. Unlike conventional model, cloud computing offers pay per use model to the customer. IT services start-ups mainly focused on IT infrastructure availability and this facility can be accessed through cloud computing technology and gain affordable and less cost services. Now India has become a global hub of information technology

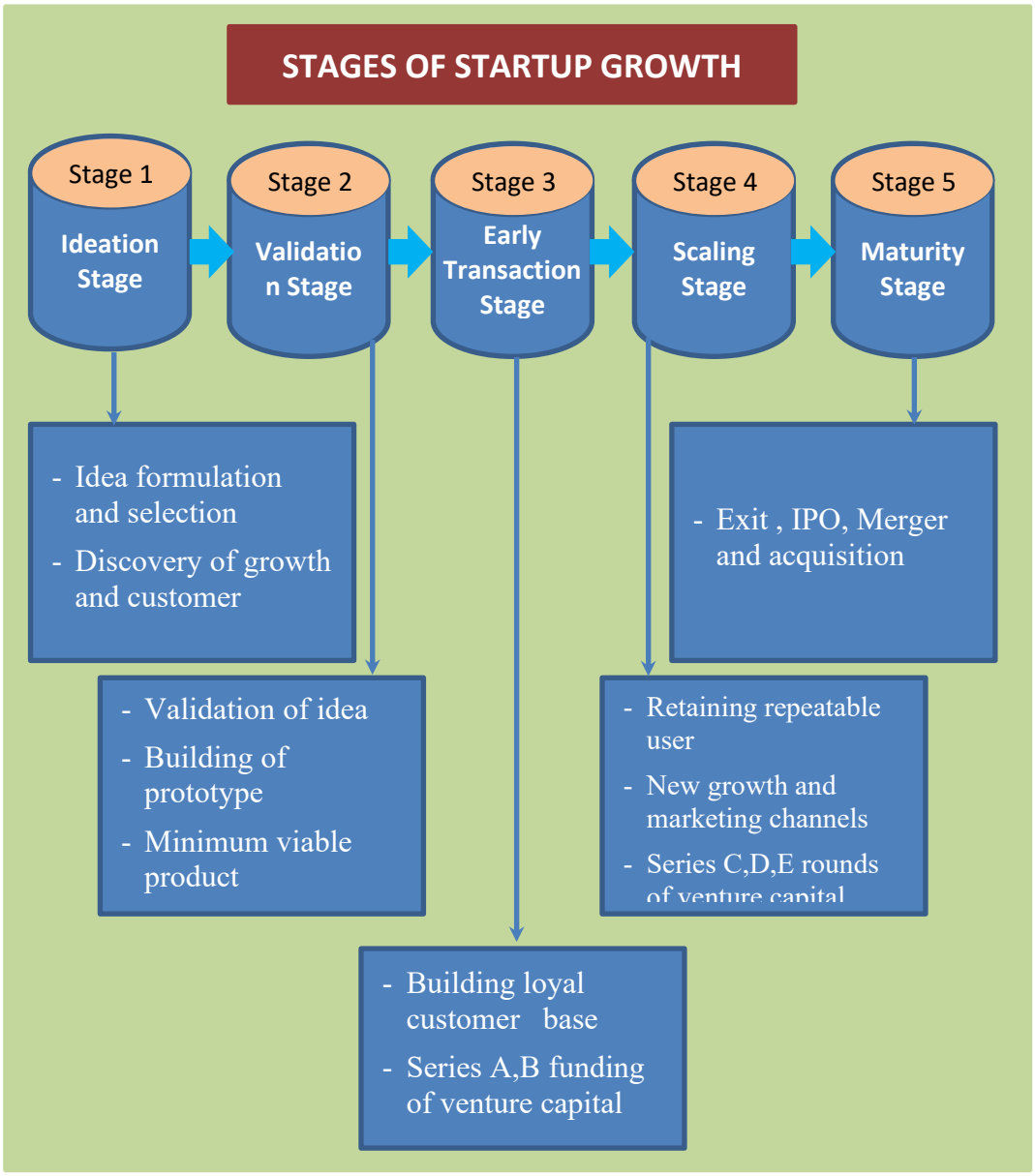
services or software, this may attract the large number of cloud services provider to India.

4.18 Different stages of growth of Start-up

A start-up wants go through different stages and each stage has its own new problems and challenges that an entrepreneur faces. They are:

Figure 4.1

Different stages of growth of Start-up



(Source: Compiled from Kumbhat, A. (2018) & David et al. (2021)

4.18.1 Concept or idea stage:

This stage involves the identification of problem or an opportunity having a good business potential. This stage requires adequate mentorship support to ensure business plan and all as expected by the entrepreneur. It needs only fewer amounts of fund and used self-financing and bootstrapping. Huge investment is not needed at this stage.

4.18.2 Pre-seed or validation stage:

This stage deals with building probable solution in the form of "a proof of concept" or "prototype "of product or service with sufficient assumptions. Then it is validated with small sample target audience about the product and services in the form feedback and responses. This stage may provide better development if getting the services of incubators and mentoring support to identifying and approaching early customers, building MVP and identifying product-market fit for their product or service.

4.18.3 Seed or early traction stage:

At this stage, demand for the product or services are identified after analysing the feedback of initial customers with the help of mentor. This stage requires more funds and generate from crow fund, angel investors, government fund and incubators. This stage is crucial to start-ups for escaping from the valley of death from the time the initial capital contribution and the time when it begins generating revenues.

4.18.4 Growth or scaling stage:

In this stage, the business becomes established and most of the business processes are well defined. This stage should have the opportunity to build a customer acquisition process, access repeatable user, identifies different channels of market growth and to expand the business to different segments or markets. This expansion can be attaining with the help of funding of institutional investors such as Venture Capitalists (VCs) and acceleration programs. It includes:

4.18.4.1 Series A funding:

It refers to an investment in growing privately-held start-ups by venture capitalists to acquire more customers, product optimisation, identifying new market channels and explore the opportunity to expand the business and their growth. Series A funding is the first round of venture money of a start-up in the beginning stage after the investment of seed and angel investors.

4.18.4.2 Series B funding:

It is another capital raising method or scaling fund from institutional investors for scalable start-ups. It is considered as the third stage of start-up financing in growing start-ups and second stage of venture capital financing. This financing is mainly used by start-up to expand the business through conducting talent research, market research, team building, advertising strategies, bringing well infrastructure facilities and going global expansion.

4.18.5 Maturity or Exit, IPO, Merger & Acquisition stage:

In this stage, the start-up founders and investors ready to exit the business to realize the profit from the relevant start-up ventures through partial or full sale of business entity. The investors or founders then identify other investment platform in the same sectors to gain market share and profit through public issue etc.

4.18.5.1 Series C funding:

This is the fourth stage of start-up financing and considered as the last stage of venture capital financing in the established or successful start-ups who are getting solid revenue and profit. The main purpose of this funding is to scale up its operation and continue its growth by acquiring other markets to gain market share and go for globalisation of their business.

4.18.5.2 IPO:

After reaching start-up C funding, they may go for new market or places by issuing Initial Public Offers or sale of entire business. It involves large deals of funds normally includes entities such as banks, IPO, private equity funds.

4.18.5.3 Exit:

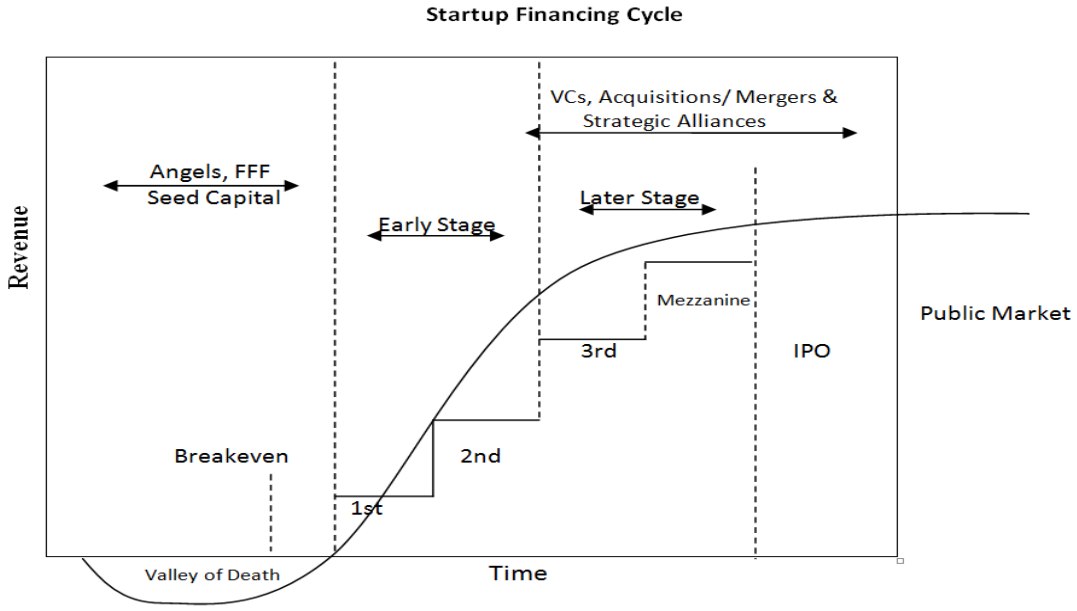
This stage provides an option to exit the entire business to founders and promoters. They may go for legal proceedings for either acquisitions of mergers or even for sale of full or partly shares of their business to other prospective investors.

4.19 Start-up financing at different stages of start-ups

From the above stages of start-up growth, each stage of start-up growth has different financing sources based on the nature of start-ups. According to Cohan, P. (2014) following funds are needed in different stages of start-ups growth period.

Figure 4.2

Start-up financing at different stages of start-ups

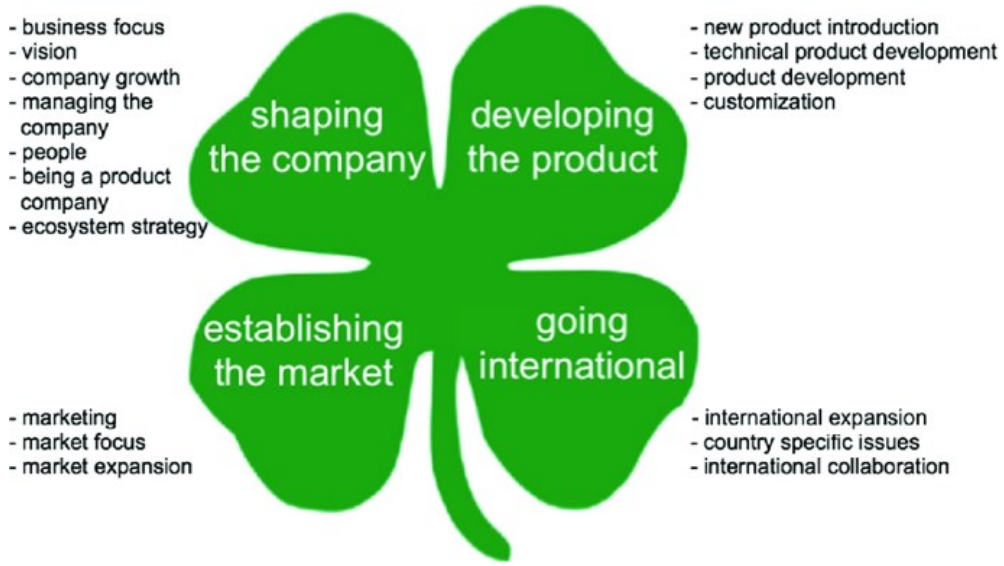


Source: (Cohan, P, 2014)

So, several decisions have to take in each stage of development of start-ups in general and IT services start-ups in particular. These decisions and their outcomes are important determinants in the success of new venture. According to Afonso, P., & Fernandes, J. M. (2018), these decisions in the early process of start-ups are grouped into four dimensions such as shaping the company, developing the products, establishing the market, and going international.

Figure 4.3

Early-life Decision Model (ELDM) for software entrepreneurs



(Afonso, P., & Fernandes, J. M., 2018)

4.20 Entrepreneurial Ecosystem

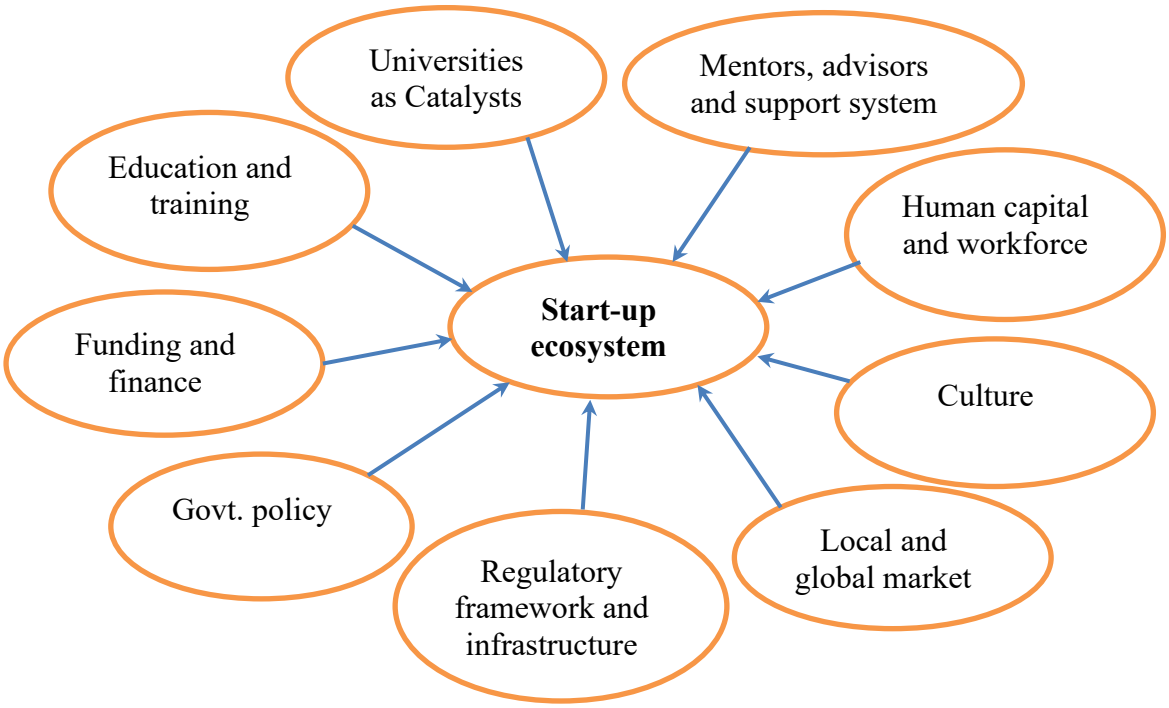
The concept of the entrepreneurial ecosystem has attracted by various parties such as academics, policymakers, practitioners and the broader business community due to its impact on creating resilient economies through entrepreneurial innovation (Spigel, B., 2017). Entrepreneurial ecosystem is defined as "a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory" (Stam, F. C., & Spigel, B., 2016). This provides a close relationships or interactions among various factors or elements which is required for the development good ecosystem. Based on these interactions, EE is defined as "a system of mutually beneficial and self-sustaining relationships involving institutions, people and processes that work together with the goal of creating entrepreneurial ventures" (UNCTAD, 2010). Among these, triple helix model of university-industry-government interactions is popular model which includes businesses, government agencies and educational institutions (Etzkowitz, H., 2003). Entrepreneurial programs in HEIs or universities are also found a positive impact on student entrepreneurial intentions (Khieng et al., 2019). So a start-up ecosystem mainly consists of various elements such as entrepreneurs with new business ideas, investors who are investing in new business ideas, other non-financial systems (incubators, accelerators), and educational institutions across the

country, and central and state government with policies, programs and schemes supporting emerging Start-Up's.

Developed and matured entrepreneurial eco system is considered to be a potential in developing start-up culture in any country with benchmark of Silicon Valley and Israel (Arrude et al., 2013). India also witnessed a third position in terms of number of start-ups and number of start-up exists (Nasscom, 2015) and the country has potential sources of technology based start-ups in the global economy (Gai, B., & Joffe, B., 2013). In India, Hyderabad and Banglore are upcoming start-up locations (Start-up Genome, 2015). These two states provide a conducive environment for the growth of start-up culture through implementing the triple helix model by combining industry-institute- government (Balasubrahmanya, M.H., 2017). It seems that only less tax benefits to young firms which are associated with more use of debt (Day et al, 1983) and also fact that failure rate is more in the case of young firms compared to older ones (Cressy, R., 2006). Thus, entrepreneurial ecosystems play an important role in this creation and development of leveraging technological or software start-ups.

Figure 4.4

Start-up ecosystem components



Source: Department of Industrial Policy and Promotion Start-up, India Ranking, 2018 Start-up ecosystem in India)

Figure 4.5

Global start-up ecosystem rankings

Global start-up ecosystem rankings

India's ranking over the years

2019 → 17

2020 → 23

2021 → 20

Top 25 countries globally

Global Rank	Country	Rank change from 2020
1	US	-
2	UK	-
3	Israel	-
4	Canada	-
5	Germany	-
6	Sweden	+4
7	China	+7
8	Switzerland	-
9	Australia	-2
10	Singapore	+6
11	The Netherlands	-5
12	France	-
13	Estonia	-2
14	Finland	-1
15	Spain	-6
16	Lithuania	-1
17	Russia	-
18	Ireland	-
19	South Korea	-
20	**India**	**+3**
21	Japan	-
22	Denmark	-
23	Belgium	+1
24	Brazil	-4
25	UAE	+18

Top 25 cities globally

Global Rank	City	Rank change from 2020
1	San Francisco Bay, US	-
2	New York, US	-
3	Beijing, China	+3
4	Los Angeles Area, US	+1
5	London, UK	-2
6	Boston Area, US	-2
7	Shanghai, China	+3
8	Tel Aviv Area, Israel	-1
9	Moscow, Russia	-
10	**Bangalore, India**	**+4**
11	Paris, France	+1
12	Seattle, US	-1
13	Berlin, Germany	-5
14	**New Delhi, India**	**+1**
15	Tokyo, Japan	+1
16	**Mumbai, India**	**+6**
17	Chicago, US	-4
18	Austin, US	-1
19	Washington DC Area, US	+11
20	Sao Paulo, Brazil	-2
21	Shenzhen, China	+12
22	San Diego, US	+6
23	Seoul, South Korea	-2
24	Stockholm, Sweden	+5
25	Singapore City, Singapore	+1

Sourec: (Startup Genome. 2021; *Global startup ecosystem report, 2021)*

4.21 Entrepreneurial process

It involves process of a new venture. It involves four distinct process:1) identify and evaluate the opportunity, 2) Develop business plan, 3) Determine the resources required and 4) Manage the enterprise (Hisrich et al. 2013).

4.22 Theoretical approaches to new venture formation

4.22.1 Schumpeterian conceptualisation of the entrepreneurial creation process

Joseph Schumpeter studied creation of new ventures as a factor of economic development in his book titled "The Theory of Economic Development" (1934). In his opinion, new venture is created mainly depends on the entrepreneurs identification of opportunities through technological change which contribute to combination of production factors which results entrepreneurial profit. In Schumpeter's point of view, innovation is a central factor in the creation of new firm and industrial change.

4.22.2 Population Ecology theory:

This theory was developed by Hannan, M. T., & Freeman, J. (1977) and they believe that the entire existence of new firm from the beginning at birth, growth and death depended on external environment such as structural, economic and political conditions. This theory explains that the driving force behind the creation of new firms is resources in the society and not motives, decision or behaviour of individuals. This theory developed through empirical evidence by taking various sectors such as Newspaper, Automobile, Brewing and semi- conductor sector.

4.22.3 Literature Review of approaches to new venture creation

In the opinion of Gartner, W. B. (1985), for studying new venture, a framework of four dimensions is to be considered.1) the individuals 2) the activities undertaken by those individuals, 3) the organisational process, structure and strategy and 4) the environmental factors which affect the operations.

4.22.4 Entrepreneurial approach (Trait approach)

In this approach, the founder is the key determinant in the creation of the new venture. This approach was proposed by Aldrich and Wiedenmayer (1993). They explained that traits and behaviour of the founders are the main factor to venture creation and not paid attention to organizational and environmental factors. But this approach has not accepted by audience in entrepreneurship.

4.22.5 Human capital/ Knowledge approach

In this approach, founders expertise, experience and education acquired in previous work are used to identify opportunities for creating new venture (Aldrich, H., 2000). Based on these approach human capital accumulated through experience and know how has been regaining importance as a key factor in emerging start-up creation.

4.22.6 Organizational approach:

This approach focuses on the organization as a social institution in which idea will be transformed into a new venture through collective and network building achievement that helps to inception, diffusion and adoption of a set of ideas (Van de Ven et al., 1984). This approach is widely accepted by prominent writers in academic community (Gartner, W. B., 1985; Vesper, K. H., 1990 and Van de Ven et al., 1984).

4.22.7 Network approach (Social-economic model)

This approach was proposed by Larson and Starr (1993) and it mainly focuses on network. It explains that to create a new venture, a new process by which the relationships between the entrepreneur and resources provider is created.

4.23 Finance

IT services start-ups are financed in different ways. Many theories have been conducted in the area of capital structure of Start-up Company. Among these, Trade off theory and pecking order theory are important. Trade off theory is not suitable and profitable for young firm (Mac an Bhaird, C., 2010). This is because younger firms have less tax benefit compared to older firms with the use of more debt. (Myers, S. C., & Majluf, N. S., 1984).

4.24 Fund raising

Capital is the lifeblood of business; start-up is also not except from it. Raising fund for business is a difficult task in each stages of business especially the early stage start-ups. From the literature review, to start a new venture the sources of fund are classified into two: Internal sources and external sources.

4.24.1 Internal sources: Bootstrapping:

It means fund raised entrepreneur himself. It involves two forms: one is using the profit gained to utilise the business opportunity and second is owner puts his or her money into the business. The main idea behind using bootstrapping is that nobody is ready to accept the idea, products and services (Feldman, D. N., 2013). So the entrepreneur should have full ownership of the company and listening to others word in the business. So entrepreneurs can maximises their freedom along with retaining ownership (Feldman, D. N., 2013). Like that time can be saved due to the avoidance of external sourcing of fund. This source of fund is essentially suitable for family business to keep the ownership (Feldman, D. N., 2013).

4.24.2 External sources:

These are the sources of funds provided by other people to support our start-ups. It includes:

4.24.2.1 Family:

This source of money is essentially needed for early start-up operation from those directly know entrepreneurs such as family members and friends. It is a form of debt by we need to pay back later with the agreed rate. They are not expecting big target and profits from the business but just for fun because of friendship (Feldman, D. N., 2013).

4.24.2.2 Bank loan

This source of money is used by entrepreneur for running his business. Bank loan is more accessible when the economy is in peak season. During recession period, bank will not be interested to provide or grant loan. The start-up should repay the loan amount rather than renew the amount, otherwise the bank stops providing loans to the business.

4.24.2.3 Angel Investors:

Angel investors are individuals or entrepreneurial managers who are ready to invest their own money in early stage of business. They have enough experience in starting a business.

4.24.2.4 Venture capital

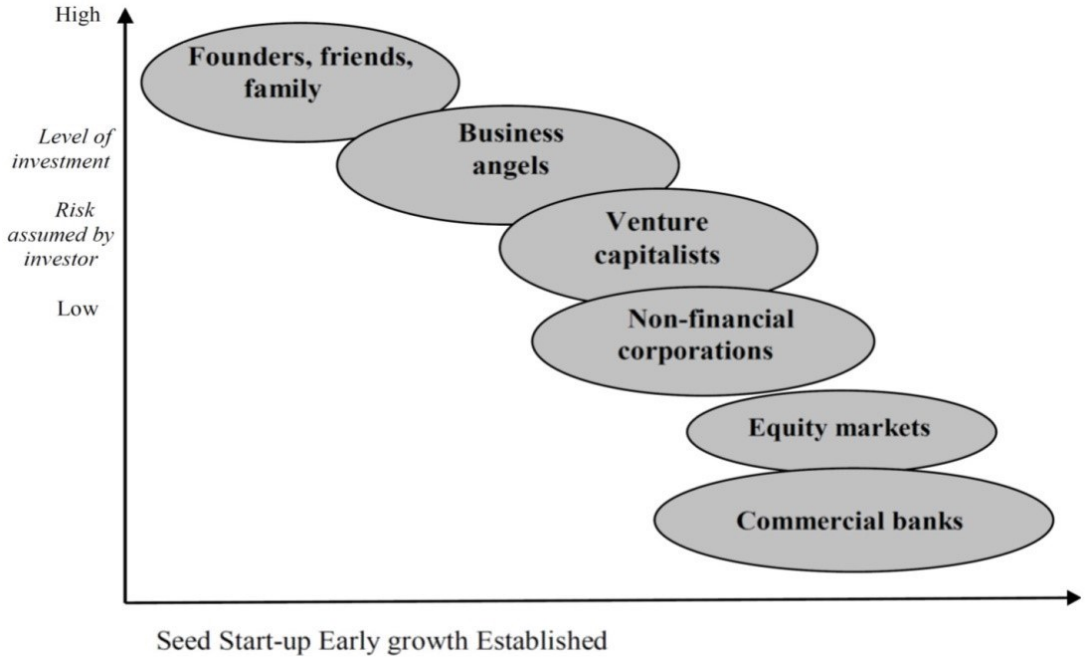
These sources of funds are usually collected from a group of wealthy investors, large institutions and pension fund. Venture capital firm focuses on high technology business, high growth profit companies having innovative ideas. They use the capital collected from other people. They invest in seed or early stage companies where risk is more compared to other business (Dutta, S., & Folta, T. B., 2016). Venture capital can be used in different stage of business.

4.24.2.5 Crowd funding:

It is a source of money to start-up business, where the entrepreneurs want to publish their ideas, products and services to public to attract them to invest in their business. People expect reward from the start-up companies against their money pledged. If the start-up business reach their target or profit, investors will get reward otherwise nothing comes back to the backers (Vismara, S., 2019). Crowd funding is suitable only for suitable products, here entrepreneurs may actively resistant to using crowd funding (Gleasure, R., 2015)

Figure 4.6

Sources of finance start-ups company's development phases



(Giurca Vasilescu, L., 2009)

4.25 How can incubators and accelerators help the start-ups to grow?

Along with the global trend, the number of incubators and accelerators has emerged in an increasing numbers. These were about 210 incubators and accelerators in India in 2018 which is equal to 11% as compared to 2017. These are the institutions which provide different kinds of resources and services to support the foundation and growth of new ventures. Incubators charge certain rent from start-up without a priori fixed time horizon, but accelerators take start-ups for fixed term in exchange for equity (Korreck, S., 2018).

Incubators and accelerators are classified into two: Publicly sponsored and privately sponsored ones. Publicly sponsored incubators and accelerators are running by academic institution or industry association. It mainly promotes the growth of start-ups, creating employment opportunities and its impact on society. This institution receive fund for them government. It is considered as non-profit organisation.

But privately owned incubators focuses on profitability and its main goal is to achieve their corporation's strategic goal. Established companies run corporate incubators and accelerators where start-ups are selected for their strategic objectives or relevance for the established corporation (Korreck, S., 2018). These start-ups may be future suppliers or customers of the main company. They considered as revenue sharing model start-ups and the established companies can evaluate the market trend and new technologies. But corporate incubators mainly concentrate tech start-ups.

Table 4.4

List of top incubators in Kerala and their classification based on number of firms

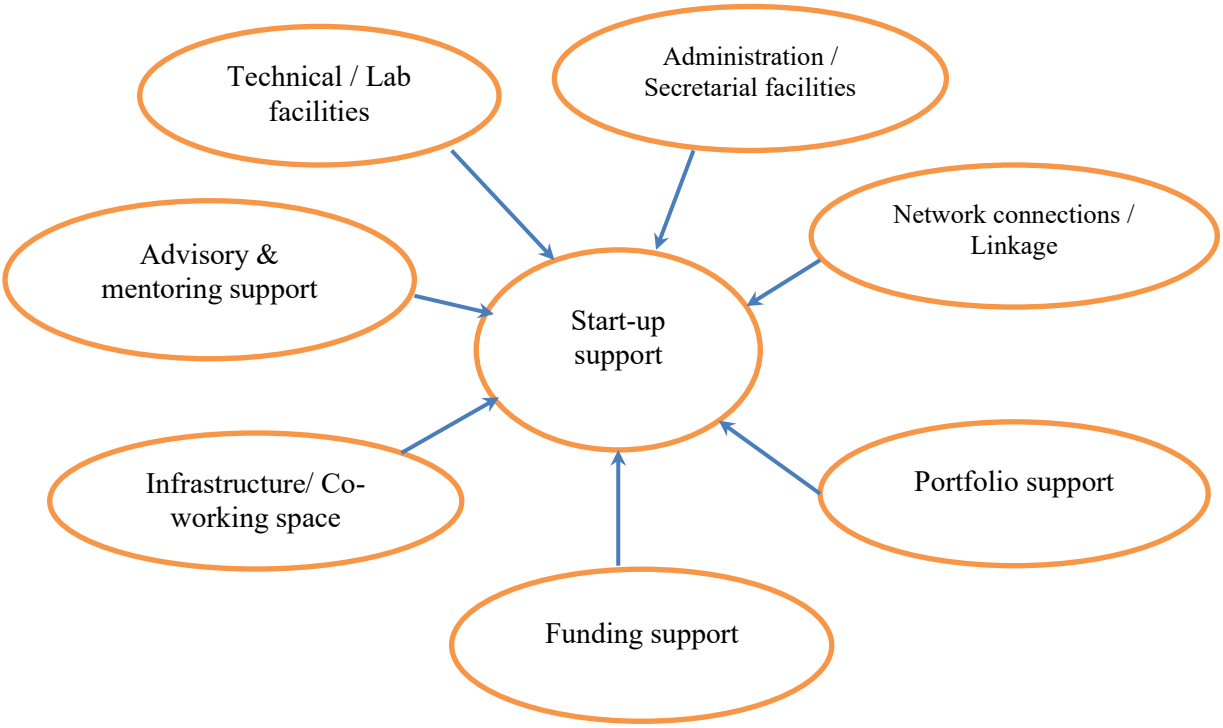
Name of Incubation centre	Place	Year of setup	Number of firms	Type
Amrita TBI Virtual	Kollam	2015	120	Hardware, Artificial intelligence
Infopark Smartspace	Kochi	2015	90	Software/IT
Technolodge	Piravam	2014	80	Software/IT
Technopark-BIC	Trivandrum	2006	53	Technology
KSUM Kochi	Kochi	2015	41	Software/IT
Startups Valley-AJRTBI	Kanjirappally	2017	34	Rural & Green Technology
IIMK-Live	Calicut	2016	31	Sector Agnostic
CITTIC Cusat	Kochi	2015	30	Software/IT
Agropark MSME	Ernakulam	2016	26	Agriculture/Food
BIC Kannur	Kannur	2015	25	Software/IT, Agriculture
Startup Village Virtual	Kkochi	2012	19	Software/IT
KSIDC Incubation	Calicut	2014	18	Software/IT
Bionest	Kochi	2015	17	Medical
NIT- C TBI	Calicut	2003	17	Software/IT, electronics
Cyberpark BIC	Calicut	2009	16	Software/IT
NRI-TBI	Kochi	2013	16	Framing Technology/ Turism
NASSCOM	Kochi	2013	12	Software/IT
CET TBI	Trivandrum	2012	11	Software/IT, clean
SCTIMST-TIMed	Trivandrum	2015	10	Healthcare/Biomedical
TBI-GECBH	Trivandrum	2014	6	Software/IT
KEY Accelerator	Kollam	2015	4	Software/IT

Source: Kerala start-up ecosystem report 2016, 2017 & 2018 & NSTEDB 2019

Incubators are associated with various activities to nurture start-ups in India such as developing research projects in universities and technology institutes, helps start-ups to take Intellectual Property, establishing tinkering lab in engineering colleges, helping start-ups in prototyping, developing a proof of concept, validating and launching their product. Incubators can help start-ups in multiple ways by way of mentor, technical expert or services provider etc.

Figure 4.7

Supports and facilities offered by incubators to start-ups



Source: Handbook for non-profit incubator managers - meity startup hub (Ghosh, S, & Joshi, A., 2020).

4.25 Elements of Supports and Facilities Offered by Incubators

4.25.1 Office space and infrastructure

The start-ups should get adequate space to work. It may include offices, meeting rooms, and recreational facilities. Start-up needs to access telecommunication facilities such as WIFI connection, front desk services, printers, coffee machine etc.

In order to build or prototype the products or services, the space will be equipped with hardware and software facilities, lab space, technical equipment such as 3 printers, lasers, tinkering lab etc. To strengthen these facilities, government introduced more investment in incubators where a start-up is running in exchange of small rent. For this both publicly and privately owned incubators support the start-up in a significant manner by providing shared work environment including co-working space and verbal incubators to access from remote location.

4.25.2 Business support and mediation

Start-up entrepreneurs get internal as well as external support from incubators and accelerators, it will reduce the lack of knowledge and connection and equipped with practical issues. They get the opportunity to interact with each other, shared experience, to attend various seminar and workshops, peer to peer learning, collaborative environment in the form of structured programme for a specified period.

4.25.3 Mentoring support and network connections

If internal support and assist is not sufficient, external support is also provided by incubators in the form of advice of experienced entrepreneurs, industry expert, match making with mentors, make connection with possible customers and partners, advice in functional areas such as marketing, HR, Accounting and legal matters, production etc. and conducting various national and international events. Along with these, connection with angel and venture capital is also made possible and assist start-ups in their in depth market knowledge. So these types of business supports and mediation of incubators strengthen the start-up culture in the state.

4.25.4 Funding and assistance with fund raising

Start-ups need money to finance their business operations which may include internal and external financing. Incubators and accelerators are not directly provide funds to start-ups, even a small amount of money, they assist start-up by arranging a plat form to meet or interact with investors like angel investors or venture capitalist who have specialised knowledge and experience in a particular area of start by

conducting demo day. The investors can find the potential of start-ups and they ready to advice and strategic partnership with them and enter into revenue sharing model.

Table 4.5

Activities and programmes offered by Incubators in Kerala

Sl. No.	Activities and programmes	Objectives	Duration
1	Ecosystem Report	To understand the existing ecosystem stakeholders, analyse the trends of the existing and emerging start-ups in the region	3-6 months
2	Sectoral Report	To understand the existing and emerging innovations in the particular sector and the problems or gaps addressed	3-6 months
3	Open Houses	To provide an idea about the incubator and its different activities towards start-up support	2-3 days
4	Start-up Fests	To bring together the different ecosystem stakeholders for discussion and work to support start-ups	2-3 days
5	Panel Discussions	To highlight the various issues, problems, solutions, events, or updates relating to any aspect of entrepreneurship	1 - 3 hours
6	Network Expansion Workshops	To bring together different ecosystem stakeholders and brainstorm ways to nurture and support the start-ups	1 day
7	Seminars	To bring together ecosystem stakeholders to brainstorm, discuss or train on any aspects related or specific to entrepreneurship or sector	1 day
8	Investor Meets	To assemble existing & potential investors and deliberate upon different ways to support start-ups and related issues	½ day
9	Road Shows	To create awareness about a	1 day

Sl. No.	Activities and programmes	Objectives	Duration
		programme amongst the start-up enthusiasts of a region	
10	Conclaves/Conferences/ Summit	To bring together ecosystem stakeholders to discuss any aspects related to or specific to entrepreneurship or any sector	1-2 days
11	Business Plan Competitions	To scout innovative start-ups or ideas in any specific sector or region with some award as the final outcome	1 day
12	Ideathon	To provide innovative ideas. To serve as a platform to emerge and guide start-ups to transform ideas into reality and scale up	2 - 5 days
13	Startathon	To help innovative start-ups to showcase their business models and pitches in front of the ecosystem stakeholders including investors	1 - 2 days
14	Hackathon	To help the start-ups respond to a particular problem where innovative solutions can be brought about through intense brainstorming	2 - 3 days
15	Boot Camps	To help start-ups with mentoring sessions followed by a demo by them to experts for crucial feedback	3 - 4 days
16	Capacity Building Workshops	To provide start-ups with various knowledge sessions, practical hands-on sessions and on imparting knowledge through practical approach	1 - 2 days
17	Accelerator	To identify, nurture and support start-ups with the objective of making them investable	3 - 6 months
18	Growth Camps	To scout start-ups or ideas in a specific sector and to mentor	1-2 days
19	Demo Day/ Pitching Sessions	To provide start-ups with a platform to showcase their businesses to the investors and other stakeholders	½ days
20	Advisory & Mentoring	To provide insights into any specific	2-4 hours

Sl. No.	Activities and programmes	Objectives	Duration
	Sessions	topic or issue through mentoring or advisory help	
21	Incubation/Co-working space	To provide the benefit of working in an incubation space with facilities of various common services	1-2 years
22	Portfolio Support	To provide network connections, advisory and mentoring support, monitor and track the progress of the start-up	Continuous support
23	Investments	To provide financial assistance to start-ups in various forms such as grants, debts and equity	3-4 months

Source: (Handbook for non-profit incubator managers - Meity startup hub (Ghosh, S, & Joshi, A., 2020).

4.26 Accelerators

These are the fixed duration programme activities or programmes conducted by most incubators called it as seed accelerators and start-up accelerators. Duration of accelerator programmes is normally between three and six months. It is mainly provide start-ups to quick validation of the project or upgrade the product or better chance of taking the business forward. The following components are provided through Accelerators:

Table 4.6

Activities and programmes offered by Accelerator in Kerala

Sl. No	Programmes	Objectives
1	Cohort	The programme focuses on the fixed cohort of teams instead of individuals of start-ups
2	Selection process	The selection of cohort is through open application process in a transparent and competent manner.
3	Design	Accelerator is designed to build the capacity of the cohort teams through various activities such as workshops, talks and sessions by domain experts and successful entrepreneurs.
4	Network Access	It provides Cohort with network access to mentors and experts who help validate the hypothesis of the start-ups.
5	Investor Access	Accelerator provides a direct access to the cohort to connect with the investors conducting Demo Day.
6	Funding	Accelerators provide seed funding to start-ups in the form of equity investment, and grants.
7	Other facilities	Accelerator provides others facilities such as office space, cloud credits, discounted or free service providers, etc.

Source: Handbook for non-profit incubator managers - Meity Start-up hub (Ghosh, S, & Joshi, A., 2020).

4.27 Reasons to start a business

Each entrepreneur has his own reasons behind the starting of a business. For these reasons, there are mainly two motivational factors to start new venture, which are pull and push factors (Godany et al., 2021).

4.28 Motivation

The term motivation is derived from the word “motive”. Motives are related with indications that inspire a person’s inner state of mind that activates and directs his behaviour towards a particular goal.

Motivation refers to the inner drive that causes a person to act towards the attainment of a particular goal. Motivation is a goal directed behaviour which may be caused due to inspirational process. This inspiration process steers an individual's drive and action that may lead to attainment of some goals, the motivation may be positive or negative. Positive occurs when a person is inspired to do something for earning some rewards and benefits. But negative motivation occurs when a person is induced to do something for their protection. It is raised from fear of failure or frustration.

Thus motivates consists of three elements: i) motive, ii) behaviour and iii) goal.

(Desai, Vasant, 1997). They are as follows:

i) Motive: The human behaviours are influenced by urges, drives, aspirations, striving or needs.

ii) Behaviour: the human behaviour also influenced by factors such as psychological, sociological, economic or managerial.

iii) Goal: the resultant action which may be attained through directing, controlling or implementing the behaviour of a person in directed manner.

4.29 Definition of Motivation

Motivation can be defined as "the willingness to exert high levels of effort to reach organisational goals conditioned by the effort's ability to satisfy individual need (Robbins, S. P. & Coulter. M. K., 1998).

4.30 Entrepreneurial motivation

Motivation is an important part in the development of entrepreneurial culture. It helps to inspire a person to initiates, directs and sustains entrepreneurial behaviour. It stimulates and motivates individuals to undertake entrepreneurial activities through identification of various business opportunities.

According to Solesvik (2013), Entrepreneurial motivation as the "desire or tendency to organise, manipulate and master organisations, human being or ideas as quickly

and independently as possible". So the individual is driven by motivation that is happened by doing certain action through psychological reason (Schacter et al., 2011).

4.31 Motivation theories

There are different motivations theories which applied in the area of employee's behaviours in general but it seem few theories are applied as far as entrepreneurs are concerned (Canabal, A., & O'Donnell, E., 2009). Important among these are:

4.31.1 Maslow's Hierarchy of needs theory.

This theory is most popular theory and was developed by Abraham H. Maslow and he says that an individual's behaviour is shaped by several needs. This theory states that people are universally motivated to satisfy a sequence of five types of needs on priority basis. First of all, an individual tries to satisfy his low level needs and then strives to achieve satisfaction of his higher level needs. The hierarchical level of human needs consists of:

4.31.1.1 Physiological needs:

Physiological needs relate to an individual's basic survival elements such as air, water, food, rest and sleep. In an entrepreneur's point of view, he needs money to meet his and family's physiological needs. So, economical reward is the motivation element in the mind of entrepreneur.

4.31.1.2 Safety and security needs:

Safety needs ensure a safer and secure life to individual. It protects individuals from harmful effects. It ensures entrepreneurs job security, medical facilities and other safety measures from different harmful effects.

4.31.1.3 Social needs:

Social needs are occurred for a sense of belonging and for social interaction. It includes the need for love, affection and attention from others. An entrepreneur can

fulfill their needs with the help of family, relatives and friends by building friendly relationship with others.

4.31.1.4 Esteem or ego needs:

Esteem needs consist of self-respect and personal recognition. It includes desire to be independent. An entrepreneur is mostly motivated by esteem needs. To be an owner and get successful enterprise provide an individual status, personal reputation and sense of independence.

4.31.1.5 Self-actualisation needs:

Self actualisation needs include the desire for expressing and providing one's full potential. These are the strongest motivating factor for an entrepreneur to develop their personal capabilities to establish successful enterprise.

4.31.2 McClelland's Acquired Needs theory:

This theory was developed by David C. McClelland and he says that needs are occurred on the basis of life experience. This theory is closely related with entrepreneurial behaviour. In many researches, need for achievement is the high motivating factor of an entrepreneur and have a high impact on the success of the company. This theory includes need for affiliation, need for power and need for achievement.

4.31.2.1 Need for affiliation

Need for affiliation arises when an individual is desired to establish and maintain friendly and warm relations with others. The needs for individuals are more concerned about need for friendship, personal relations and for affiliation.

4.31.2.2 Need for power

Need for power is related with the desire to dominate and influence others by controlling their actions. It includes two need of power; personal power and institutional power. Need for personal power is occurred when an individual seek power to its own sake. But need for institutional power is concerned with

influencing others to achieve group or institution objectives. Here, an individual believes in discipline to achieve group goals by reducing problems of enterprise.

4.31.2.3 Need for achievement

Need for achievement is concerned to an individual desire to reach goals and is considered as competitive one. This need occurred when an individual eagers to accomplish something with one's own effort. So it can be seen that motivation is a crucial factor in entrepreneurship development. Entrepreneurial motivation can be developed with the need of achievement, moderate need for power and low affiliation motive which induce people to start and run new ventures.

4.31.2.4 Education

Lack of education facilities is a serious threat to youngsters to express youth opinion and it restricts to identify opportunities and limit their abilities (Bushell, B., 2008). If a person received proper education and training, such environment creates influencing individual's attitude towards the starting of new ventures (Pillania, R. K., 2009). Hery Ford opines that "A country's competitiveness starts not on the factory floor or in the engineering lab, but in the class room".

4.31.2.5 Family role

Family role may influence a person to start new venture creation. The people whose parents have their own business venture may influence them to take part in the entrepreneurial activities (Nieman, G., & Nieuwenhuizen, C., 2009). Family entrepreneurial environment may motivate individuals to start new venture.

4.31.2.6 Financial condition

A person who has sound financial condition, influence him to start-up a new venture for a variety of reasons (Pillania, R. K., 2009). Access to finance is a crucial part to start and run a new venture and its access (Osano, H. M., & Languitone, H., 2016)).

4.31.2.7 Need for achievement

The concept of need for achievement has much attention in the entrepreneurial development. It is important motivational factor, which motivate individual to start

new venture. McCllelland (1961) says that the people with high in need for achievement are likely to pursue entrepreneurial activities than other types of roles. The need for achievement helps entrepreneur to fulfill his personal goal by using available resources optimally and explore his creativity and innovativeness by using more skills and effort to produce better products and services for the market (Pillania, R. K., 2009).

4.31.2.8 Locus of control

It means individuals believe in their actions or characteristics that affect outcome of an event. Here, internal locus of control is related to entrepreneurial action because it believes that an individual personal action directly affect the outcome and can limit it in his control (Rotter, J. B., 1966; Scheiner, C. W., 2009). The person with internal locus of control will take more initiative in his activities with efficient utilisation of available information and it helps in enhancing achievement motivation in entrepreneurial activities.

4.31.2.9 Need for independence

Many researchers argued that independence is an important motivating factor behind the development of new venture creation and found that entrepreneurs like higher independence than other individuals (Shane et al., 2003). In order to utilise the opportunity, entrepreneurs take the responsibility self and do independently. Through independence, one may use his own judgement than blindly following the suggestion of others (Shane et al., 2003).

4.31.2.10 Risk taking

Risk taking is another motivating factor that leads to emergence of new venture creation. Entrepreneurial activities always involve risk and uncertainty and study reported that individuals who have high achievement would have capacity to take risk moderately (McClelland, D., 1965).

Economic factors

4.31.2.11 Government policies

It is considered primarily important factor in developing entrepreneurial culture in any country. In order to promote entrepreneurial ventures in different sectors, various policies and programmes are to be formulated in the country from time to time.

4.31.2.12 Business environment

A good business environment is very helpful to developing entrepreneurial culture among people. For various elements viz., efficient business regulatory mechanism, viable bureaucracy, business counselling, mentoring, availability of adequate financing system, existence of adequate infrastructure, training and development facility are necessary to emergence of entrepreneurship (Gwija, S. A., 2014).

4.31.2.13 Availability of financial assistance

For the emergence of entrepreneurship development, adequate start-up capital and working capital are crucial (Bushell, B, 2008).

4.32 Government Policies to foster IT Start-ups in India

In the last few years, the term IT comes everywhere. It is an organisation that just started to develop with technology. This lead to introduction of new technology based entrepreneurial venture or a new business firm designed to reach for good business model. In order to nurture new emerging business and ideas, maximum supports and helps are provided by the government.

The Government of India has introduced various schemes to promote tech start-ups business such as setup of software technology parks, introduction of special economic zones, development of industrial corridors, creation of the task force for e-Governance, and introducing of cyber-security policies for Information Technology (IT) industry etc. Several other schemes are also being implemented by the government to promote tech start-ups such as Development of Software Technology Park (STP), Atal Incubation Centers (AIC), Atal Tinkering Laboratories (ATL),

Electronic Development Fund (EDF) Policy, and Support Center for International Patent Protection in Electronics and Information Technology (SIP-EIT) etc. These schemes are greatly benefited to promote different sectors of technology start-ups such as IT services, technology hardware, enterprise software, fintech, business analytics, internet of things, telecommunication, networking, and clean energy, nanotechnology, artificial intelligence, green technology, automotive technology (MeitY, 2019).

Government policy is the "extent to which public policies give support to entrepreneurship" (Amoros.J., & Bosma, N.(2014). Developing entrepreneurial culture in a country is a crucial part of every country. To develop and inculcate entrepreneurial culture among youth, various initiatives should be introduced by the concerned government and private sectors. Entrepreneurship "is a regional event that can only be understood if regional framework conditions, including networks and regional policies are taken into considerations" (Sternberg, R., & Wennekers, S., 2005).

Department of science and Technology is a major government body to foster and support entrepreneurship and start-ups in India. It involves;-

4.32.1 NSTEDB(National Science and Technology Entrepreneurship Development Board)

It was established in the year 1980 to promote and foster knowledge and technical driven companies in India. Their main initiatives are:

a) STEP (Science and Technology Entrepreneurship Park)

This programme was introduced in 1984 under NSTEDB in collaboration with financial institutions such as IDBI, IFCI, and ICICI. Now about 18 institutes established STEP in their places.

b) TBI (Technology Business Incubators)

It was introduced in 2000-13 under the NSTEDB. It is also established to accelerate high technology ventures in India.

c) IEDC

It was introduced to promote science and technology in educational institutions to foster entrepreneurship.

d) EDC

To promote entrepreneurship, entrepreneurship development centre was introduced.

4.32.2 EDII (Entrepreneurship Development Institute of India)

It is autonomous body and a not for profit organisation set up in 1983. It is working in entrepreneurship research, education, training and internal building. It is sponsored by financial institutions namely the IDBI, IFCI, ICICI and SBI.

4.33 India government scheme

4.33.1 Support for International Patent Protection in Electronics and Information Technology (SIP –EIT).

This scheme runs under the head of Ministry of Electronic and Information Technology (MeitY) for supporting International Patent Protection in E&IT to provide financial support to Technology Start-up units for international patent filing to encourage innovation. It also include a scheme to provide financial support to education institutes to Support IPR Awareness by organising Seminars/Workshops in E&IT Sector various stakeholders

4.33.2 Multiplier Grants Scheme(MGS)

This scheme was headed by DeitY and launched in 2013. The main aim of this scheme is to encourage collaborative research and development between industry and academics/ Research development institutions for the development of products and packages. The time period of this scheme is for 2-3years. Under this scheme, an individual industry will get a maximum of Rs. 2 crore per project and duration of each project should be less than two years. Under this scheme, industry consortium, the amount would be Rs.4 cr and 3 years.

4.33.3 Scheme to IPR awareness/ Seminars/ Workshops in Electronic and IT sector:

It is headed by DeitY and provides Intellectual Property awareness, workshops, seminars and funding grants. Under this scheme, a grant of INR 2 Lakhs to INR 5 Lakhs is provided to organisations as fiscal incentives. It includes INR 2 Lakhs to educational institutes, INR 3 Lakhs to industry bodies and INR 5 Lakhs to DeitY Autonomous or DeitY Societies.

4.33.4 Atal Incubation Centres ((AIC)

It is established to support and encourage start-ups to become successful companies. They provide adequate infrastructure along with high-quality assistance or services to start-ups in their early stages of growth. In order to cover the capital and operational expenditure, AIM provides a grant of INR 10 Cr to each AIC for a maximum of five years in running the centre. The applicant should have a space of at least 10,000 sq. ft to qualify for the financial support.

4.33.5 Stree Shakti Package for Women Entrepreneurs

It is a unique SBI-run scheme to support entrepreneurship among women by providing certain concessions. Women should have majority ownership (over 50%) in a small business and these entrepreneurs have to be enrolled in the Entrepreneurship Development Programmes (EDP) organised by their respective state agency to get eligibility under the scheme. This scheme allows women to avail an interest concession of 0.05% on loans exceeding 2 lakh and no security is required for loans up to Rs.5 lakh in case of tiny sector units.

4.33.6 Promoting Innovations in Individuals, Start-ups and MSMEs (PRISM)

This scheme aims to support IPR awareness workshops/seminars for disseminating awareness about Intellectual Property Rights among various stakeholders especially in the E&IT sector. It also aims to provide financial support to MSMEs and technology start-up units for international patent filing to encourage innovation. The parties can reimburse the amount limited to a total of INR 15 Lakhs per invention or

50% of the total expenses incurred in filing and processing of the patent application up to grant, whichever is lesser.

4.33.7 Pradhan Mantri Mudra Yojana (PMMY)

It is headed by Micro Units Development and Refinance Agency Ltd. (MUDRA) and launched in February 2016. Several new entrepreneurs especially from MSME have huge problem in getting loan from banks and other financial institutions. MUDRA loan ensures to meet the financial requirements of all kinds of manufacturing, trading and service sectors or segments. No collateral security is needed for the loans upto INR 10 Lakhs issued by banks under Micro Small Enterprises. MUDRA provides refinance support to banks / MFIs for lending to micro units having loan requirement upto INR 10 Lakhs.

MUDRA offers various fiscal incentives through these interventions:

Shishu: It covers loans upto INR 50,000/-

Kishor: It covers loans above INR 50,000/- and upto INR 5 Lakhs

Tarun: It covers loans above INR 5 Lakhs and up to INR 10 Lakhs

4.33.8 Credit Guarantee

This scheme is headed by Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE). This scheme helps to facilitate the flow of credit to the MSME sector and strengthen the credit delivery system through various lending institutions namely public, private, foreign banks, and SBI and its associate banks. Under this scheme, Companies are provided up to INR 100 Lakhs per borrowing unit in the way of both term loans and/or working capital as fiscal incentives. This scheme provides up to 75% of the credit facility of the guarantee cover up to INR 50 Lakhs and a uniform guarantee at 50% for the entire amount is charged if the credit exposure is above INR 50 Lakhs and up to INR 100 Lakhs.

4.33.9 Performance & Credit Rating Scheme

It was launched in August 2016 and headed by National Small Industries Corporation (NSIC). The main objective of this scheme is to create awareness about the strengths and weaknesses of small-scale industries. This scheme is eligible for

all MSMEs registered in Indi and the revised guidelines states that a unit should have a turnover of INR 1 Cr or above. Rating by Bank or NBFC is also required to get this scheme.

Fiscal Incentives: MSMEs are provided with incentives on the basis of proportion of turnover of the MSMEs. 75% of the rating fee or INR 25,000 (whichever is less) will be contributed under the scheme up to INR 50 Lakhs, 75% of the fee or INR 30,000 (whichever is less) For turnover above INR 50 Lakhs to INR 200 Lakhs, 75% of the fee or INR 40,000 (whichever is less)**,** if turnover more than INR 200 Lakhs.

4.33.10 SETU (Self-Employment and Talent Utilization) Fund

In order to create job opportunities and self-employment in technology start-up businesses and sectors, the government has allotted Rs.1000 Cr.

4.33.11 E-Biz Portal

To improve the ease of doing business in India and enabling faster clearance to start a new venture, the government launched e-biz portal that integrates 14 regulatory permissions and licenses at one source.

4.33.12 Royalty Tax

The royalty tax paid by businesses and start-up firms has reduced by the government from 25per cent to 10 per cent.

Table 4.7

Other start-up scheme of Govt. of India

Sl. No.	Scheme	Agency	Purpose
1	Technology Incubation and Development of Entrepreneurs (TIDE).	DeitY	It aims to assist Institutions of Higher learning to strengthen their Technology Incubation Centres and enabling young entrepreneurs to initiate technology start-up companies for commercial exploitation of technologies developed by them.

Sl. No.	Scheme	Agency	Purpose
2	Aspire – Scheme for promotion of Innovation, Entrepreneurship, & Agro-industry	Steering Committee, Ministry of MSME	It is introduced to set up a network of incubation centres and technology centres to accelerate entrepreneurship and also to promote start-ups in rural and agricultural sectors for innovation and entrepreneurship.
3	4E (End to End Energy Efficiency)	India SME Technology Services Ltd. (ISTSL) in association with the World Bank	To implement energy efficiency measures on an end-to-end basis
4	Industry Innovation Programme on Medical Electronics (IIPME)	Biotechnology Industry Research Assistance Council (BIRAC)	To promote and foster cutting-edge technologies in the field of medical electronics
5	SPARSH (Social Innovation programme for Products: Affordable & Relevant to Societal Health)	BIRAC	To create a pool of social innovators in the biotech arena who will identify specific needs and gaps in health care
	Incubator Scheme		
1	Scale-up Support to Establishing Incubation Centres		To augment the capacity of the Established Incubation Centres in the country and To provide financial scale-up support to enable Established Incubation Centres.
2	Biotechnology Ignition Grant (BIG)	Biotechnology Industry Research Assistance Council (BIRAC)	To support those ideas which have an unmet need for funding and mentorship and it promotes basically the technology ideas relating to medical/health biotechnology

Sl. No.	Scheme	Agency	Purpose
	Student scheme		
1	PhD Scheme	Visvesvaraya PhD Scheme for Electronics & IT Ministry of Electronics and Information Technology, Government of India	To enhance the number of PhDs in Electronics System Design & Manufacturing and IT/IT Enabled Services sectors in the country.
2	Entrepreneurial and Managerial Development of SMEs through Incubators		To provide early stage funding to nurture innovative business ideas that could be commercialised in a year. The scheme also provides financial assistance for setting up business incubators
3	Enabling Manufacturing Sector to be Competitive through QMS&QTT		To sensitize and encourage MSEs to understand and adopt latest Quality Management Standards and Quality Technology Tools.
4	Atal Tinkering Laboratories (ATL)	NITI Aayog	To foster curiosity, creativity, and imagination in young minds; and inculcate skills such as designing mindset, computational thinking, adaptive learning, physical computing etc
5	Assistance to Professional Bodies & Seminars/Symposia	Science and Engineering Research Board (SERB)	To support events having a strong orientation towards scientific research in the areas of basic sciences, engineering, technology, agriculture & medicines.
6	Ayurvedic Biology Program	Science and Engineering Research Board (SERB)	To supports basic research employing modern biology, immunology, and chemistry to investigate the concepts, procedures, and products of Ayurveda.
7	Industry Relevant	Science and	To support ideas that address a

Sl. No.	Scheme	Agency	Purpose
	R&D	Engineering Research Board (SERB)	well-defined problem of industrial relevance through this scheme
8	High Risk-High Reward Research	Science and Engineering Research Board (SERB)	Supporting proposals that are conceptually new and Risky.
9	Technology Development Programme (TDP)	Science and Engineering Research Board (SERB)	To convert proof-of-concepts for the development of pre-competitive/commercial Technologies/ techniques/ processes.
10	National Science & Technology Management Information System (NSTMIS)	Department of Science and Technology (DST)	Provide sponsors research projects/studies to interested investigators/organisations where studies could be taken up in the areas of S&T investment, S&T infrastructure, S&T output, S&T databases, S&T manpower, R&D productivity/efficiency etc.
11	Extra Mural Research Funding	Science and Engineering Research Board (SERB)	The Board giving funds to all the areas of science and engineering.
12	Science and Technology of Yoga and Meditation (SATYAM)	Department of Science and Technology (DST)	It aims at investigations on the effect of Yoga and Meditation on – physical and mental health and wellbeing, body, brain, and mind in terms of basic processes and mechanisms
13	Rapid Grant for Young Investigator (RGYI)	Agency: Department of Biotechnology (DBT)	The scheme fosters creative research in various fields of biotechnology (medical, agriculture, animal biotech, environment and industry, etc.) to enhance the early career development of young investigators.
14	NewGen Innovation and Entrepreneurship	NewGen IEDC	To create an entrepreneurial culture in S&T academic

Sl. No.	Scheme	Agency	Purpose
	Development Centre (NewGen IEDC)		institutions and to develop techno-entrepreneurship for generation of employment and wealth of its persons through creating institutional mechanism.
15	Support for International Patent Protection in Electronics	Ministry of Electronics and Information Technology	To grant financial support to MSMEs and Technology Start-up companies for filing international patent to encourage innovation and understand the value and capabilities of global IP along with capturing growth opportunities
16	Credit Guarantee	Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)	To strengthen the credit delivery system and facilitate the flow of credit to the MSE sector
17	Performance & Credit Rating Scheme	Ministry Of Micro, Small And Medium Enterprises (MSME).	To create awareness about the strengths and weaknesses of small-scale industries.
18	Single Point Registration Scheme (SPRS)	Ministry of Micro Small & Medium Enterprises	To increase the participation in the share of government purchase from the small scale sector.

Source : KSUM, Start-up scheme handbook, 2021

4.33.13 Start-up India action plan 2016

The central government has introduced an initiative to implement an action plan called Start-up India action plan 2016 to accelerate spreading of the start-up movement in the country. Start-up India action plan 2016 is divided into three components:

- Simplification and handholding part
- Funding supports and incentives part
- Industry - academia partnership and incubation part

Table 4.8

Start-up India action plan 2016

Sl. No.	Initiatives	Objective
I. Simplification and handholding		
1	Compliance regime based on Self-certification	To help start-ups to concentrate fully on their business by reducing workload and keeping the low cost of adherence. It includes both labour laws and environment related laws.
2	Start-up India hub	It is considered as a single contact point for the start-ups in India, which will enable them to exchange knowledge and services and access to funds.
3	Rolling out of mobile app and portal	It is an online portal in the form of a mobile app, which will help entrepreneurs to interact with the various govt. departments and other regulatory officials.
4	Legal support and fast tracking patent examination at lower costs	A continued monitoring system for patent inspection of central government at reduced cost. It will enhance the perception and acquisition of the IPRs by the entrepreneurs
5	Relaxed norms of public procurement for start-ups	It is provided to start-ups to scale up the business and allows them to compete with experienced entrepreneurs and companies
6	Easy rules	It helps to standards of communal acquisition and mandate of switching have been easier for the entrepreneurs.
7	Single online clearance system permits online.	It is a commendable development in the pipeline which brings an online approval window which will provide over 200 permits required by different industries from various government divisions. This system will be helpful to get clearance approval for new entrepreneurs would allow them to apply for and track the status of their applications/license permits online.
8	Simplification of regulatory regime	To improve the performance on the ease of doing business on the expectation of achieving India's ranking to 50 from the current ranking

Sl. No.	Initiatives	Objective
		of 142 on the World Bank's index, adequate steps are being taken to simplify business processes and regulations.
9	E-BIZ Portal	It is launched to boost young entrepreneurs and to start business easily. The portal integrates the regulatory permission at one source and helps entrepreneurs for faster clearance for setting up of business.
10	Faster exit	If an entrepreneur cannot run business ahead or is unsuccessful, the government will help him to get a particular resolution for their complication to exit the business.
II. Funding supports and incentives		
11	Rs 10,000 crore fund	The government planned to develop a pool with a starting aggregation of Rs 2,500 crore and a pool of total aggregation of Rs 10,000 crore over four years, to help new entrepreneurs.
12	National Credit Guarantee Trust Company	To help entrepreneurs, a NCGTC was created with a budget of Rs 500 crore per year for the next four years.
13	Tax exemption on capital gains	To help investors investments through venture capital funds are exempted from the Capital Gains Tax.
14	Tax exemption to start-ups for 3 years	To attract new entrepreneurs, Start-ups would not pay Income Tax for the first three years.
15	Tax exemption on investments above fair market value	In case of ventures of higher amount than the market price, they are exempted from paying tax to survive the business.
16	Rebate	An exemption value of 80% of the total value is giving to the start-ups on filing the patent applications.
III. Industry - academia partnership and incubation		
17	Building entrepreneurs	Creative study plans for students is implemented in over 5 lakh schools. Also there is an annual businessman grand provocation to develop high class businessmen.

Sl. No.	Initiatives	Objective
18	Atal Innovation Mission	This Mission is expected to revitalize ideas and motivate creative youngsters.
19	Setting up incubators	A private-public partnership model is set up for 35 new incubators and 31 innovation centers at national institutes.
20	Research parks	The government planned to implement seven innovative research parks, including six in the Indian Institute of Technology campuses and one in the Indian Institute of Science campus.
21	Entrepreneurship in biotechnology	To improve biotechnology sector, the government planned to construct 5 advanced biotech nests, 50 advanced bio incubators, 150 technology transplant offices and 20 bio-connect offices in the country.
22	Dedicated programs in schools	The government planned to inculcate transformational programs for scholars in over 5 lakh schools.
23	Mudra Bank	This bank is set up to provide finance for Micro finance to the required individuals who have complained about lack of difficulty in getting finances to run their business.
24	Atal Innovation Mission	Atal Innovation mission is a platform of innovators promotion which involves academics, entrepreneurs, and researches.

Source: Start-up India action plan (2016)

4.34 Funding support of Govt. of Kerala

4.34.1 Grants for innovative ideas

The government shall give Rs.2 lakh per innovative idea brought by start-up entrepreneurs registered with in the state. The funds are disbursed only through Kerala Start-up Mission.

4.34.2 Early stage seed funding (Pre commercialisation)

The government shall continue to provide pre commercialisation funding through Kerala start-up mission. KSUM arranges seed support system program to foster the formation and development of innovative technology based business enterprises from 2006. Seed funding is granted to the start-ups up to Rs.10 lakh by a review mechanism and collateral support is asked. Now this procedure is running through online portal.

These funds are disbursed to all start-ups within the state. Seed funding may be provided in the form of soft loan to promoter or director of Start-up firm for a period of one year. Total 35 companies have applied for such fund. Already 27 companies have been granted the fund. Direct equity subscription by KSIDC in the company is the another mode of seed funding, it is provided wherever the project implementation has been advanced. The KSIDC shall take necessary steps to convert the soft loan into Equity capital at face value within one year from the date of disbursement subject to the condition that the shareholding of KSIDC shall not exceed 49%.

4.34.3 Early stage equity funding

In order to supporting the emerging start-ups in the state, KSUM is partnering with SEBI accredited venture capital funds for the creation of corporation fund. The fund shall be investing in early stage start-ups with a ticket size of Rs.25 lakh –Rs.200 lakh.

4.34.4 Patent support system

Government of Kerala has proposed to a new scheme patent support scheme during the budget speeches of AY 2015-16. It is said that, in order to get more patented products, the government shall provide the facility of re-imbursement of Rs.2 lakh for Indian patent and Rs.10 lakh for international patent to start-ups. It is used for supporting student entrepreneurs who are able secure a patent.

4.34.5 Standard investment subsidy

A standard investment subsidy is available for start-ups in two types. First type subsidy is available to Trivandrum and Ernakulam districts located companies in the form of 30% of fixed capital investment subject to a limit of Rs.Rs.15 lackhs.

Second type of subsidy is available to companies located outside these two districts at 40% of fixed capital invest subject to limit of Rs.25 lakh. These subsidies normally provided to software companies like IT software development, IT services, IT enable services, Hardware manufacture.

4.34.6 Entrepreneur Support Scheme

Under this scheme, assistances are available to all MSMEs and it is operational with effect from 2012. For start-up support, assistances are sanctioned by general manger of District Industries Centre. This scheme provides assistance up to 50% of the total eligible support limited to maximum Rs.3 lakh on sanctioning the term loan from the respective bank. For fixed capital investment below Rs. 200 lakh, state level committee is sanctioned.

4.34.7 Innovation grant

The main driving force for increased productivity, economic growth and social transformation are the technological changes through innovation and research and development. In order to encourage innovations, the government of Kerala introduced the scheme of innovation grant. It involves two types grant namely idea grant and productisation grant.

4.34.8 Scheme for promoting young talents in science (SPYTIS)

This scheme was launched by Kerala State Council for Science Technology and Environment (KSCSTE). It involves two types of incentives:

4.34.8.1 SPYTIS-1

Under this scheme, an award of Rs.5000 will be given to a selected group consisting of 2 or more students of class of VIII-XII from a school for doing a science research. The project duration is 1year.

4.34.8.2 SPYTIS-II

Under this scheme, the students who have innovative ideas in science and technology from Polytechnic colleges and UG courses in colleges will be selected

and provide a financial assistance of Rs.10000/- for conducting research. The project period is 1 year.

Under both scheme, grant will be distributed only to the host institution and the student has to work under the guidance of a teacher.

4.34.9 Rural Technology Programme

It is envisaged under the KSCSTE to promote research and development in rural technology sector for the effective implementation of the project proposal by providing adequate financial support. The main aim of this programme is to motivate and promote grass root innovators and individuals to improve their innovative ideas in rural technology sector. Under this scheme a financial grant up to Rs.4 lakh is sanctioned based on the recommendation of Technical Committee for Rural Technology Programme (TC-RTP) to the Tie-up institution, where the principal investigator is responsible to carryout research of the project. The time period is 2 years.

4.34.10 Technology innovation fellowship programme

The Kerala start-up mission has introduced technology innovation fellowship programme for young graduates and student entrepreneurs who are interested in working with technology start-ups. Selected candidates will be given a fellowship of Rs.25000 per month. The duration of fellowship is one year.

4.34.11 Assistance Scheme for Handicrafts Artisans (ASHA)

Under this, financial assistance is provided for handicrafts businesses once the enterprise has been commissioned and after filing EM Part II/ Udyog Adhar. The fund sanctioning authority is District Industries Centre.

Under this scheme, a fiscal incentives of 40% of the expenditure on Fixed Capital Investments (FCI) subject to a ceiling of INR 2 lakhs is provided. Moreover 50% of the expenditure on fixed capital investment will be given to women and maximum of INR 3lakh will be given to SC/ST and young artisans as assistance.

4.34.12 PM's Employment Generation Programme

PMEGP is a credit linked scheme of the government of India. The Scheme is implemented through the agency of KVIC and State/UT Khadi & Village industries. Under this scheme, ratio of 30:30:40 between KVIC / KVIB / DIC respectively are distributed in urban and rural areas. Fiscal Incentives are provided in form of subsidy and the rate of 15% - 35% of project cost will be paid into the loan account. To avail this scheme, a margin of 5% of the project cost to be brought in by the promoter from Special category (SC/ST, OBC, Minority, Women, PH and Ex-Service men) and a margin of 10% of the project cost for General category. But the maximum project cost will be Rs.25 lakhs in manufacturing sector and Rs. 10 lakhs in Service Sector.

4.34.13 Kerala Financial Corporation (KFC)

KFC provides comprehensive services to SME sector based on the nature of the project and its credit rating. It includes:

- Term loan,
- Working capital and
- Special schemes.

4.34.14 Kerala State Industrial Development Corporation (KSIDC)

KSIDC is the premier agency of the Government of Kerala and a nodal agency for foreign and domestic investments in Kerala, KSIDC facilitates clearances and approvals, and processes various incentive schemes for starting new business ventures. KSIDC acts as a spokesperson of the state for spreading awareness about the start-up ecosystem, and also acts as a link between industry and the government. Seed Funding shall be provided to innovative ventures/potential start-ups promoted by Young Entrepreneurs, with a maximum limit of Rs. 25 lakhs per venture or 90% of the project initial cost, whichever is lower.

4.35 Schemes of Kerala Start-up Mission

In order to support start-ups in the Kerala, the following schemes are introduced by KSUM as nodal agency to the government of Kerala:

Table 4.9

Schemes of Kerala start-up mission

Sl No.	Funding schemes	Sl. No	Other schemes
1	Soft loan scheme for women entrepreneurs	8	Innovation and Entrepreneurship Development Centres
2	Fund of funds	9	Marketing Support
3	Innovation grant	10	International Exchange program
4	Seed fund for women entrepreneurs	11	Support to Rural Innovators
5	Seed fund	12	Rent Subsidy
6	Research and development grant	13	Start-up Communities Development and Partnership Programmes
7	Patent reimbursement	14	Government as a market place

Source: (KSUM report, 2021)

4.36 CRITICAL GROWTH FACTORS FOR TECH STARTUPS IN KERALA

4.36.1 Introduction

IT start-ups have been on the rise since the internet boom of the 2000s and new IT start-ups have been emerged to provide innovative product and services to the society, which are not identified so far. Many start-ups became successful in this specific industry.

Most of the start-ups fail in their operation due to various reasons such as lack of funding, leadership and intense competition (Griffith, E., 2014).

One survey reported that there are some factors that may influence start-up's failure and success. These factors are related to the venture's value proposition, product management, marketing, technology and operations, financial management, funding choices, team management, and founder/CEO attributes (Eisenmann, T. R., 2020).

Creating a new venture is not an easy task. It involves a series of actions and efforts, which include obtaining inputs, developing product, hiring employees, seeking

funds from different sources and gathering information from proposed customers: these actions are taken by different from founders, in different degrees, indifferent order, and in different points in time (Gartner, W. B., 1985).

Transition from start-up to scalable business is a difficult process in the life of an emerging firm. During the transition period relatively 18- 36 months the founding team want to lay the foundation for a rapidly growing business, establishing credibility and legitimacy, and acquire the initial resources essential for venture growth. (Picken, J. C., 2017). The experience and competence of the management team nurtures in this stage (Wasserman, N., 2003). During the transaction period, the founders must simultaneously deal with strategic direction and market positioning, building a right management team, implementing adequate discipline, structure and management processes, acquiring resources, moulding a supportive culture and mechanism, and managing risk proactively. It also found that the founding team adjust its leadership style and management behaviours in the competitive and complex business environment (Picken, J. C., 2017).

If the founding teams take a proper foundation for scaling has been established, the firm will have the opportunity to grow rapidly, riding the momentum of an expanding market and business as far and as fast as is competitively achievable. If not, hurdles lie ahead.

4.36.2 Growth

Growth can be seen as an important measurement of firm's performance. Growth is frequently associated with success (Rossi et al., 2002). An entrepreneurial venture is measured with growth aspects which can be interpreted in terms of revenue of business. So a venture is successful only if it is growing in these connotations. Growth can also be measured in the form of qualitative features such as market position, quality of product and goodwill of the customers (Kruger, M. E., 2004). So quality of firms can be measured with help of measurement of growth. Moreover firm size is also measured to find the growth trend of firms by considering the total number of workers, including employees, founders, and contract workers (Bonaccorsi, A., & Giannangeli, S., 2010). A firm's growth can be measured in

different indicators and each indicator has its own limitations. It involves Input, output and value growth in a firm. Investment and number of employees are considered to measure growth in terms of inputs, assets, market capitalisation and economic value added elements are considered to measure growth in terms of value of the firm and sales, revenue and profit are considered to measure growth in terms of outputs. Like that age of firm is also considered to measure the growth size of the firm (Stam et al., 2006).

There are many factors which affect the growth of the enterprise such as access to finance, characteristics of entrepreneurs and man power. Some variables may be more important in some context or stage, but less important in another context or stages. According to (Gilbert, B. A., 2006), growth is a function of decision that is how to grow internally by role. One of the important theories states that size of the enterprise and age on the growth (Evans, D. S., 1984). Growth of the company may depend on factors ability, willingness and opportunity to grow.

4.36.2.1 Founding team

Founding team have crucial role in the early stages of the company. Many studies found that the founder or founding team is a critical factor in the growth of a company. (Shane, S. & Venkataraman, S., 2000). In their view founders should have capacity to discover the opportunities and exploit that opportunity.

4.36.2.2 Previous Experience

Previous experience is the important learning skills of an entrepreneur. Previous experience involves work experience, industry experience and business management experience. (Gundry, L. K., & Welsch, H. P., 2001; Guzman, J., & Javier Santos, F., 2001; Ucbasaran et al. 2009). If entrepreneurs have grater previous experience, it leads to higher entrepreneurial quality and helps them to in identifying opportunities, increase their initial start-up efficiency and improving their capability to perform various business tasks (Fielden, S. L., 2000); Guzman, J., & Javier Santos, F. (2001).

4.36.2.3 Family Background

Family back ground found to be an important to entrepreneurial success (Hisrich, R. D., & Brush, C. G., (1987). Child from well-educated parents is encouraged and become independent and self-reliance and child from wealthy parents is supported with start-up capital (Rwigema, H., 2004). Moreover, person who born in a family environment with family business should have the ability to improve the success mind in business. (Sefiani, Y., 2013). Then family background will improve the confidence in entrepreneurial success of an individual.

4.36.2.4 Need for Achievement

Need for achievement is a crucial motivating factor in entrepreneurial venture developed by McClelland in 1961 and it is one of the important driving personality trait of a successful entrepreneur. He pointed out that high need for achievement lead to improve desire to do a job well to attain a feeling of accomplishment. This result also supported by the study conducted by Gurol, Y. & Atsan, N. (2006) and found that an individual having high need for achievement was crucial to become a successful entrepreneur. The need for achievement can leads to high ambition and self-drive, which are necessary for an entrepreneur to realize larger goals (Sefiani, Y., 2013).

4.36.2.5 Locus of Control

Locus of control means perception of individuals towards his outcome and believes that an individual to be control of their destiny or events are beyond his control (Morris, M. H., & Zahra, S., 2000). According to Mueller, S. L., & Thomas, A. S. (2001) and Sefiani, Y. (2013), individual with high internal locus of control is those who perceive the outcome are both within their control, highly believe in themselves to be in control of their destiny and individual with external locus of control always believe that events are beyond their control and they are under the control of people around him.

4.36.2.6 Propensity for Risk Taking

Risk taking is a crucial part of the entrepreneurs in the entrepreneurial process. Risk taking propensity is considered as an individual's ability to undertake or avoid risk in any situations (Petrakis, P. E., 2005; Sefiani, Y., 2013). Propensity for risk taking has a great impact on entrepreneurial motivation and processes and they will always vigilant in their daily task.

4.36.2.7 Need for Autonomy / Independence

Successful entrepreneurs always shown self-determined and independent who used their creativities effectively and initiate all actions without waiting for others approval. Various researchers proved that need for autonomy or independence of an entrepreneur is one of the critical success factors of venture initiation process and entrepreneurial success (Lumpkin, G. T., & Dess, G. G., 1996). If an entrepreneur with independence have no control of others and no influence on his decision making.

4.36.2.8 Ambition

An individual with ambition to become an entrepreneur have the ability to deal with unforeseen events and try to achieve the goals with high expectations. They have often ability of patient, passionate, and goal-driven which makes them persistent and calm when facing any unexpected challenges (Eriksson, J., & Li, M., 2012). Entrepreneur with ambition always have the ability to deal with unforeseen events, at the same time striving to achieve goal with exceed expectations.

4.36.2.9 Willingness to Learn

If entrepreneurs have the skill of willingness to learn, they are trying to identify the opportunities for acquiring new skills and expertise (Gifford, S., 2003). This skill helps entrepreneurs to seek advice from experts or mentors externally and collect information about various issues and business matters through feedback. This will lead to improve the company performance and attain growth of the business.

4.36.2.10 Creative Thinking

Creating thinking of entrepreneur found an important factor in the growth of a firm. They have the ability to reframe problems and identify the novel solution for it through available information (Ahmad et al., 2010). Entrepreneur with creative thinking can identify deficiency of their products or services through imagination and empathy.

4.36.2.11 Access to Networking

Network is a specific type of relation linking a defined set of people, objects or event, institutions through which entrepreneurs can obtain mutual reward, resources and critical support throughout the entire business cycle (Dodd & Patra, 2002; Harris & Wheeler, 2005). Networking skill of entrepreneur is also benefited to get personal support, professional support, or public support (Dodd & Patra, 2002, Hite 2005 & Markman, G. D., & Baron, R. A., 2003). An entrepreneur with strong networking skill has the ability to build professional relationship and partnership and take initiation to collaborate with others (Olien, J., & Wetenhall, P., 2013). If an individual have strong networking skill with parties like suppliers, competitors, consumer through their trustworthy and social mind, the company will definitely get business opportunities, innovation, referrals, shared costs, partners, professionals, technicians, specialists, supply chain, chamber of commerce and others and improve the growth performance of the business concern (Batjargal, B., 2006).

4.36.2.12 Business planning and organizing

Planning work to be done is essential to run business efficiently and it supports firm's growth. Successful entrepreneurs plan their business activities by using resources and time effectively. These companies do their work methodically allocating the time and resources (Olien, J., & Wetenhall, P., 2013). If the expected goals are not met, necessary steps will be taken to ensure project back on-track. To develop a proper business planning is a positive effect for start-up business (Davidsson, P., & Gordon, S. R., 2012). To ensure the business success, entrepreneur need to specify their company direction and decide the business

strategy in use to achieve business goal by carefully assessing risks, estimated costs and determine the potential profit and loss before start a business concern.

4.36.2.13 Problem Solving and Decision Making

Founders should have problem solving and decision making skills to improve and sustain their company in the long run. These peoples are then critical thinker (Olien, J., & Wetenhall, P., 2013). They have the ability to generate, evaluate, and implement solution of different problems in any circumstances. They have enough knowledge and information to tackle the problems they encountered and can find alternative problems if the problems have less risk.

4.36.2.14 Innovation and Invention

Entrepreneur with innovative mind is crucial factor of the growth of the start-ups. As an entrepreneur is a creative thinker, they have skills to introduce innovative product or service through their business firm (Olien, J., & Wetenhall, P., 2013). Most successful entrepreneurs having creativity have the ability to forecast and evaluate the changes in advance and identifying the opportunities to improve the features of existing products or services and their niche markets.

4.36.2.15 Marketing

Marketing strategy is core factor of a successful company. It needs the entrepreneur need to be competent in identify customer needs and satisfaction level and choose the executing adequate strategies to promote products and services as well as how to maintain a strong customer relationship (Olien, J., & Wetenhall, P., 2013). The entrepreneur should be competent to converting customer objections into selling points by conducting market analysis

4.36.2.16 Financial Management

Management of finance is a crucial part of business concern and a start-up entrepreneur with good financial management capacity manage the business effectively. It leads to success of the business. They have good knowledge in

accounting, management of money or cash flows, assessing financial requirements by considering financial risk and identify sources of capital (Mallya, L. S., 2011).

4.36.2.17 Financial Resources

Many researchers agreed that availability of financial resources is the fundamental aspect for entrepreneurial success. Availability of adequate capital or financial resources as and when it is needed during different stages of start-up is a crucial factor in determining start-ups growth and it leads to company's success. Unavailability of financial resources affects business operation which might lead to entrepreneurial failure.

4.36.2.18 Tax incentives

Taxation or tax incentive is the key factor that influences start-ups or SMEs development (Robertson et al., 2003). Tax compliance is the serious cause to business failure because if tax rate is higher, profit incentives will be reduced. In the initial stages of start-ups where revenues of companies are lower, then tax incentives help and support them to move their business move ahead (Ahwireng-Obeng, F. & Piaray, D., 1999).

4.36.2.19 Creative and up to date technology utilisation

Technological factors affect the business operations well (Boddy, D., 2002). Many researchers viewed that up to date technology utilisation playing a vital role in any types of industry or company sectors to create competitive advantage (Capon, N., & Glazer, R., 1987); Thomas et al., 2004). Accessing technology is required to utilise the latest business opportunities available in the industry (Fatoki, O., & David, G., 2010). If a start-up has no access to suitable technology, it directly affects its entire business processes (Clover, T. A., & Darroch, M. A., 2005).

4.36.2.20 Access to Information

Availability of new information on time is indispensible element for the growth of entrepreneurial venture. (Duh, M., 2003 and Sefiani, Y., 2013). The information availability may be depended on founder's level of education and level of

infrastructure availability such as telecommunication systems and network availability (Indarti, N. & Kristiansen, S., 2003).

4.36.2.21 Access to Infrastructure

Infrastructure is the fundamental aspect of start-up ecosystem and it is an umbrella term for many business activities (Salamzadeh, A., 2018); The World Bank (1994). Good quality and accessibility of infrastructure improve the performance of productivity, business continuity and encourage investment. If lack of availability of infrastructure affect the business in negative manner and it reduces productivity and growth (Nabli, M. K., 2007; The World Bank, 1994).

4.36.2.22 Political-Legal Factors

Political and legal system of a country is the critical factor in determining growth of a company and it may vary from country to country. Political and legal system is a system that affects the process of business and a standard to create ethical line in business conduct (Boddy, D., 2002).

4.36.2.23 Government Support

Many researchers found that government support is essential to improve the performance and continuity of business (Hansen, H., et al., 2009). It is found that different government support programs have to be designed to encounter challenges and competencies fit for the fields of entrepreneurs, from preparation before starting a business start-up to the early stages of business. (Lee, W., & Kim, B., 2019).

4.36.2.24 Regulatory Environment

The regulatory environment is an important factor in the growth of small sector. In developing countries the regulatory environment is a complex one compared to the developed countries as it directly affects the performance of small businesses (Edwards et al., 2004).

4.36.2.25 Socio-Cultural Factors

The company is operating their business in a society where different people having different characteristics. Several researchers in the field of entrepreneurship have agreed that these factors such as socio-economic environment and back ground of people directly affect the operations of the company and its development (Fernandez, R., & Fogli, A., 2009; Sefiani, Y., 2013). Socio-cultural environment consists of various factors including customs, values, and lifestyle of people in a society in which firms operate.

4.36.2.26 Customer Relationships

Customer relationship management has a significant role in the growth and sustainability of a company concern. Many researchers viewed that companies can achieve their target through long term benefit of current and potential customers by giving much importance on customer relationship management (Berry, L.L., 1995; Sheth, J. N. & Parvatlyar, A., 1995).

4.36.2.27 Competitive Advantage

Nowadays small business concerns have characterized by intensified competition and unknown competitive rivals in business environment. An entrepreneur should analyse the competitors role and create tactics and actions against competitors is critical factor for the success of entrepreneurs and company (Ligthelm, A. A. & Cant, M. C., 2002; Sefiani, Y., 2013).

4.36.2.28 Supplier Relationships

Many researchers have found that supplier relationship is critical growth factor of a company and it directly influences operation cost, quality and timeliness of delivering goods and services. To gain this company should establish various supplier relationship strategies such as mutual relationship with suppliers, reducing number of suppliers, make timely payment, create technology transparency (Kraybill et al., 2011),

4.36.2.29 Industry experience

It is found that extensive industry experience among the founders has positive impact on starting a new venture successfully (Song et al., 2008).

4.36.2.30 Innovation and research and development

It is an indispensible part of growth of IT services start-ups. Innovation is essential to venture survival and it lead to bringing innovative products or services through effective research and development within the venture. New ventures get immense benefit from innovativeness that lead opportunities which is less rigid routine and greater flexibility (Hyytinen et al., 2015).

4.36.2.31 IT work force

It is essential to an organisation and skilled employees are major growth factors of technological venture (Jennex et al., 2004).

4.36.2.32 Finding marketing gaps in the business environment

IT services start-up entrepreneurs should have passion and trust in their ideas. These ideas will offer endless gaps in the business environment. These entrepreneurs are being attracted by good investors and interested to invest huge amount of money in the better idea of start-ups. It helps to create confidence in their stockholders on new technologies and offers them better business opportunities. The entrepreneurs should have strong determination and knowledge to establish, run and control the business of a tech-based enterprise, even though he does not need any academic degree or technical educational qualification, that enterprise may achieve the success.

4.36.2.33 Technological surveillance

During this digitalised world, technological aspect of a company is crucial for their sustainable growth. It includes the systematic identification of information, its analysis, dissemination, and exploration of technical information that is required for business survival and growth (Ko, C. R., & An, J.I., 2019). This helps the new started companies to update the existing and emerging technologies to cope up with

the disrupting technologies in the environment. This may lead achieving the sustainable growth of the company.

4.36.2.34 Building of minimum viable products (MVP)

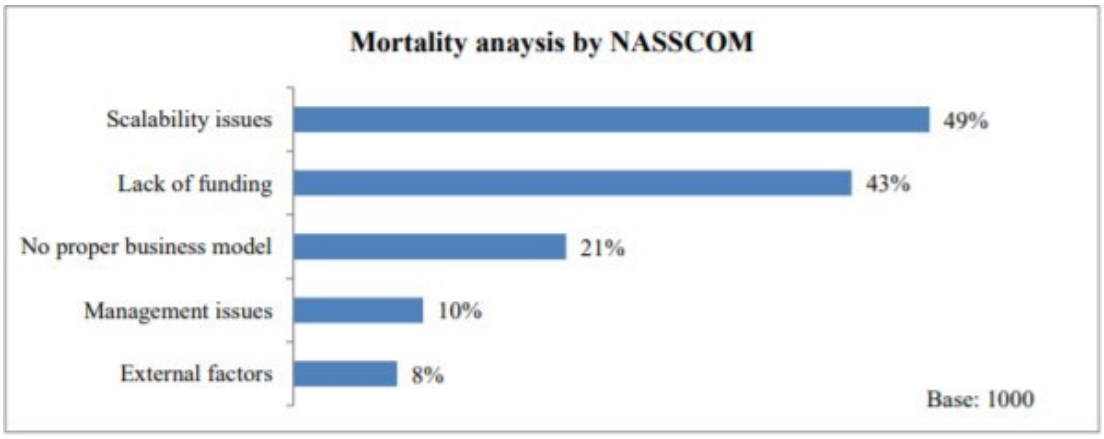
Building of MVP is testing of the product's or service's technical ability to meet the customers expectation. Before launching of the product or services in the market, the entrepreneurs required to conduct customer surveys to test the marketability of their products or services. After collecting feedback of the survey, then entrepreneurs will get idea about the public pulse of their product or services feature. If the feedback is positive, they indented to go with commercial version of products or services and go for scaling of the start-ups. If the feedback provides negative outcome to the entrepreneur, then entrepreneurs need to work hard to revise the technical features of the products or services. The feedback can be collected by using social media advertisement, customer blog, business blog etc.

4.37 Problems Faced by Start-up Entrepreneurs

IT service start-up entrepreneurs have to face multiple challenges in different stages of development of the company especially in starting, growing and sustaining their business. In developing countries, these challenges may range from finding the right markets for products, labour and market regulations, finding appropriate sources of funding, education and training of entrepreneurs and a lack of research and development infrastructure.

Figure 4.8

Start-up death analysis



Source: NASSCOM report (2017)

It is reported that about 25% of Indian start-ups established and operationalized from 2012 to 2017 closed mainly by scalability issues, lack of funding, no proper business model, management issues and external factors.

IT services start-ups have a low probability of success. Many IT start-ups fail in the initial stages as the owners are not deal with problems they face and cannot identify solutions to these multifarious challenges. IT service start-ups need to move and react fast in response to the continuous feedback loops. IT services start-ups dynamic and chaotic environment and it includes the problems of time pressure, technology uncertainty, customer acquisition etc. It is reported that wrong product-market fit, founder's interest for the idea and ignoring the customers, spending major time to develop the product, wrong marketing, absence of learning process and wrong and lack of business strategies are the key problems faced by the IT start-ups which may lead to failure of business (Nobel, C., 2011). List of companies and the reasons for closing in the year 2017 are listed in the following table 4.10.

Table 4.10

Failed start-up cases in India

Failed start-up cases

Company	Inception	Idea	Shutdown Reason
GoZoomo	2014	Mobile-based peer-to-peer platform for user car transactions that helps the patrons to buy verified, pre-inspected cars directly from owners without paying any brokerage	Difficulties in achieving unit economics with market difficulties in sales
PepperTap	2014	Online local grocery delivery service	Lack of demand and poor unit economics
askme.com	2010	Consumer internet search platform	Lack of funds
Bonafide softwares pvt ltd	2013	School ERP solution provider	Lack of coordination between top management executives
Muziboo	2007	Online community for music creators	Received a number of Digital millennium copyright act notices from different labels
TaskBob	2014	Facilitates instant, high-quality home services for customers while driving higher productivity for servicemen	Unable to reach desired scale and profit
Rooms Tonight	2014	Hotel booking start-up	Unable to raise funds
Cardback	2012	Payment recommendation platform that helps credit, debit, prepaid cardholders save decent bucks every time they pay	Inability to raise funds and lack of demand
Turant delivery	2015	Platform to help customers book and monitor their deliveries on a daily basis	High cash crunch and unable to raise funds
Parcelled.in	2014	On-demand logistic service provider	Poor margin and high cash crunch
Tolexo	2015	Online marketplace for business goods and supplies	Dip in sales
Stayzilla	2005	Hotel aggregator	Lack of local network, inability to expand
Prophesee	2014	SaaS platform to compare and analyse digital campaigns	Lack of funding
Eatonomist	2014	Food tech	Losses, competition, and Lack of funding
Shopo	2015	Online marketplace	Losses and lack of funding
Fashionara	2012	E-commerce platform for apparel, footwear etc.	Investor exit, lack of funding
AutoRaja	2013	auto rickshaw aggregator	lack of funding
FranklyMe	2014	platform for micro-blogging using videos	No sustainable product-market fit
Tooler	2015	On-demand laundry	Lack of funds
Zippon	2015	packing and moving service	Lack of funds
Purple	2013	Ed-tech	Cash burn and dip in sales

Source: NASSCOM (2017)

Even though the business idea is more brilliant and competent, the statistics shows that only about half survive more than 5 years (Bureau of Labor Statistics, 2016). The factors such as Management inexperience or incompetence (Gorman, M., & Sahlman, W.A., 1989), the failure to manage the business venture properly (Drucker, P.F., 1985), the inability of the founders to continually meet new challenges in the emerging period (Boeker, W. & Wiltbank, R., 2005) are often cited as the other factors contributing to venture failure.

Major problems faced by IT start-ups are listed below:

4.37.1 Liability of newness

It explains the relationship between risk of mortality of organisation and its novelty and smallness. It deals with the liability of start-up entrepreneurs because of the liability of newness and the information asymmetry problem (Patton, D. & Marlow, S. 2011; Zhang, J. & Wong, P.K., 2008). It is also found that new and younger ventures lead to higher percentage of failed firms (Watson, J. & Everett, J.E., 1996).

4.37.2 Liability of smallness:

New venture is also encountered a problem of liability of smallness in terms of limited financed, physical and human resources. So liability of smallness of early stage start-up is a serious problem comparing to well established companies (Witt, P., 2004).

4.37.3 Failure of management team

The management team consists of different types of persons having different characteristics and it leads to success of companies. But if they no proper business plan and not getting proper business advice and mentorship, it leads to failure of the companies. The IT services start-ups mainly perform on the basis of technology skill and marketing skill. Hence the management team should be well versed with mix of both technology and market skill.

4.37.4 Financial Resources

Capital is lifeblood business, which is critical for the start-ups and mobilisation of sufficient fund is always problem to the founders (Mittal, S. K., & Kumar, R., 2014).

To expand and scale –up business, capital should be collected from available sources such as fund from family and friends, bootstrapping, loans form banking institutions, angel investors, venture capital, crowd funding etc. In order to mobilise funds from different sources, the founders have clear understanding about various investors and their expectations. So in the initial stage, they may collect fund from friends and relatives or using bootstrapping. In the subsequent stages, to expand and scale up the market, huge money is required.

4.37.5 Lack of Mentorship

Majority of the start-ups start their business with brilliant ideas, products or services, but they are confused with implementing these ideas and products in the marketing environment as they expected. This is only because of lack of proper guidance and supports. It is reported that one of the important problem faced by start-up founders in Indian start-up ecosystem is the lack of mentorship and guidance (Sharma et al., 2014). Non-availability of expert advices related to finance, market, technology, strategy, legal etc. is a serious threat faced by start-up entrepreneurs.

4.37.6 Scaling up of start-up

Indian founders have a good technical background but lack of business knowledge and training. They faced many challenges such as hiring and managing high quality talent, customer dealing problems, developing business and marketing strategies etc. now Indian start-up ventures faces severe problems to access finance in their ventures. Majority of the start-up founders are using bootstrapping or identifying funds from own resources and lack of access fund from external sources to plan to scale their business.

4.37.7 Diversity and the digital divide

In India, nearly 70% of population living in rural area (70% Indians Live in Rural Areas: Census", Business Standard, January 20, 2013) having different culture, languages, religions and ethnicities has low income backgrounds. These diversities may have problems to the start-ups in India to understand the customer needs of wide spread diversity of people. Many start-ups with innovative ideas and solutions are brought to market on a specific region and majority of the entrepreneurs from

urban cities.in these plat form, even though, the founders have well educated and trained, they cannot build up a plan to cover wide region in India.

4.37.8 Taking products to market and low willingness to pay

Indian market witnessed a competitive market environment and it is difficult to penetrate. Many firms are entering the market including copycats compared to established or large companies. Start-ups have certain constraints in Indian marketing environment such as bureaucratic regulations, lack of public procurement of start-ups, retaining customers, difficult to convincing Indian customer about innovative product.

Apart from these, increasing income of Indian people, they tend to continue price-sensitive and they have low willingness to pay. So large companies can only sustain by volume driven with an average marginal return.

4.37.9 Hiring qualified employees

Only limited numbers of people are interested to start new ventures because of inherent risk and uncertainty. To hire, retain and manpower development are the major problems faced by IT services start-ups. It is reported that to achieve more productivity and growth, human capital should be conceptualised with education, experience and skills (Rauch et al., 2005). Many are attracted with high salary which is normally offered by large companies. Then the individual prefer to join highly established companies than start-ups. Even though some person starts with a new venture, after 2or 3 years, they switch to established companies. The report found that the employment stability of individuals in established companies is higher than in newly founded firms where risk of unemployed is more. Another problem is that job seekers are not sufficiently skilled and they did not get industrial needs of practical skills. The new venture needs huge cost to train them in today's technology disruption environment compared to foreign countries. Highly qualified employees move for abroad job to new venture and consider Indian start-ups are talented among the start-up hub globally.

4.37.10 Complex regulatory environment

The government of India has introduced a series of policies to strengthen the business ecosystem for start-ups. Unfortunately present regulatory mechanism is not at all efficient and unpredictable. It is reported that index of ease of doing business of India 77th out of 190 countries and starting a business is 137th out of 190 (Global Entrepreneurship Monitor, 2019). Bureaucratic process seems major challenges to new start-ups to entry such as delay in approval, process time, to quality for tax exemption and other benefits. Many start-ups fail with in one or 2 years from their inception due to various reasons and process of closing down a business is more difficult than setting up. Every start-up is required to file their taxes regularly even though they do not gain revenue. If they fail to do so, huge penalty is imposed.

4.37.11 Revenue generation

It is reported that majority of the start-ups fail due to the poor generation of revenue in the initial years and compel them to slow their business operations because of lack of adequate fund. Then they focus on identifying the sources of funds and the fundamentals of business operations will remain stuck. In order to sustain and expand business growth, generation of revenue in the initial years is crucial and offer confidence to founders to perform business operations efficiently.

4.37.12 No clarity in company's Identity:

The type of business carried out by an IT company is not always clear to its network in the business environment. IT Company should have a series of names based on what others perceived of it such as software house, technology solutions consultancy, digital business; IT start-up etc. (Ferratti et al., 2021). These issues generated a controversy about the company's status and existence.

4.37.13 Lack of supporting Infrastructure or mechanism

As far as IT services start-ups are concerned, solid physical and IT infrastructure are crucial for their development. IT infrastructure comprises of software, hardware, and networking. But majority of the entrepreneurs encountered lack of proper infrastructure facilities and it affects growth performance of the start-ups (David et al., 2021).

Picken, J.C. (2017) identified eight hurdles a new venture company need to encounter during the transition period from start-ups to scalable business. They are given below:

Table 4.11

The eight hurdles of the transition period

Sl. No.	Hurdles	Explanation
1	Setting a direction and maintaining focus	The founding teams should have a clear objective and establish and communicate a clear direction focusing on target customer, offering, value proposition, business model and key milestones
2	Positioning products/services in an expanded market	The product/service offering should be expanded, refined, and repositioned to meet the needs of an expanded market through good customer relationship and distribution channel
3	Maintaining customer/market responsiveness	New internal processes must be developed and implemented to solve the customer issues, maintain customer responsiveness and take quick decision.
4	Building an organization and management team	The management team should have required skills and flexibility to ensure alignment with strategy and business requirements.
5	Developing effective processes and infrastructures	There should be efficient operational and management process and infrastructure to grow the business under the changing environment to deliver the value to customers.
6	Building financial capability	Raising money, effective financial management, clear cut communication between stakeholders and investor's interest in the project are essential for the growth of business
7	Developing an appropriate culture	A good culture should be developed in the business focusing the values, beliefs and norms that supports the firm's business strategy and objectives.
8	Managing risks and vulnerabilities	Different risks normally occurring in the business such as focusing of rapid growth, a narrow revenue base, inexperienced employees, key employee defections, inadequate infrastructures, lack of proper information and management systems, bias toward entrepreneurial risk-taking etc are to be properly managed.

Source: Picken, J. C. (2017)

4.38 Prospects of IT services start-ups in Kerala

Kerala state is considered as consumption state in India. So that Indian and state market provide a plethora of opportunities and prospects to start start-ups in the state that will solve various problems encountered by the start-ups especially IT services start-ups. Some of them are:

4.38.1 Countries' large population

The population of India provides a unique demographic advantage to the companies which provide huge market to the enterprises. About 600 million citizens are still under the age of 25 in India along with the rising of internet technologies, smartphone, and increasing financial penetration. It is expected that the working population would surpass the non-working population by the end of 2020.

4.38.2 Change of mind set

Innovating and changing mind of students and talented people are attracted in the IT services start-ups which provide a better compensation and assignment packages to them that is the core of the business enterprises in the competitive environment. Moreover it is seen that well and high profile experienced executives also quitting their job to start their own start-ups in their field.

4.38.3 Investment opportunity in start-ups:

Recent years seem that huge amount of capitals are invested by the foreign and Indian investors in different sectors under technology start-ups based on their scalability.

4.38.4 Indian market features

In India, with introduction of economic reforms, India market became more market based economic system. This system become in India because of the population of nearly 1.3 billion people. Moreover, India is the emerging fastest growing large economies in the world having growing middle class with increasing disposable income and social media adoption. This led to changing consumer demographics

that were previously inaccessible, with mobile and data tariffs among the lowest in the world. These features of Indian economy are offering abundance of opportunities for start-ups. Along with this, steady increasing of income, purchasing power and growth of Indian economy leads to increasing trend of consumption. This will be multifold due to demographic advantage that half of the population are below the age of 25 years (Mishra et al., 2018). More over diversity in language, culture, ethnicity and religion have good opportunity to start-up. But region wise start-ups are unbalanced because certain start-ups restricted to certain region where the scope of start-ups are limited to grow.

4.38.5 Technological change

India as a developing country needs to solve different problems in the country such as poverty alleviation, education department, economic development etc. these problems can be solved by introducing innovative, low cost solutions. For this technology start-ups have crucial role because of their potential for scalability and growth exponential.

Now India became more digital connectivity environment with increased broad band penetration and wire line in 2018and expect to increase by 44% over the next four years (Sengupta, D., 2018). In 2018, the number of internet users was 483 million and is expected to reach 666.4 million in 2025 (Statista, 2019). A long with these, the government both central and state, introduces various initiatives to promote digital literacy among people through the initiatives such as Digital India, digital saksharata (Pradhan Mantri Gramin Digital Saksharta Abhiyaan", 2019.)

These overall developments makes the business more attractive and economical and helps to reduce customer acquisition cost, cost of building digital products, reduce market barriers etc. different opportunities are arising to technology start-ups such as increased digital payment, introduction of Aadhaar biometric ID system, Unique identity number, demonetisation etc.

4.38.6 Digital economy

Now India is becoming a digital economy and expects $4 trillion by 2022 through the performance of Indian Tech based companies. Also in India, government

estimate that digital payments will cross $1 trillion by 2023. (*The Economic Times, 2017)*. This provides a good picture of development of IT companies and technology start-ups to the Indian economy. It is also reported that 53% of total exports comprises of IT industry covering different sectors.

4.38.7 Increased political will and government support

Start-up is a crucial weapon or engine in the economic development of a country. It also generates job and reduce unemployment rate. It is reported that 2.64% of the total jobs come from start-ups (Inc42, 2018). In order to strengthen start-up ecosystem in the country, the government introduced start-up India programme in 2016 (Start-up India, 2019). Conducive innovation ecosystem will support IT services start-ups in a better way through adoption of digital technologies and government intervention in establishing regulatory infrastructure and their initiatives like start-up India and Digital India (David et al., 2020).

4.38.8 Development in Higher education and Industry-academic-government linkages

India has a huge pool of engineering and technical graduates. Along with these, many students coming out from reputed management institutions like IIMs, IITs, and B School. If they are getting adequate training and supports before they can be employed, tremendous opportunities are arised in the start-up or new venture creation. Moreover, the governments are trying to establish Industry-academic-government linkages to nurture early start-ups among students by utilising growth in the number of university and industry-led incubators and accelerators, and setting up of government patent hubs.

4.38.9 Growth of the IT sector

The growth of IT services start-ups and technology start-ups mainly with development of IT industry in India. It is reported that the IT industry would achieve of $350 billion by 2025 (NASSCOM, 2018a). Moreover, it is found that the IT sector is contributing nearly 8.5% of country's gross domestic product (GDP) in the financial year 2017. Also, 65.78% share in the total IT exports from

IT service sectors (Statista, 2019). So, this trend of considerable growth of the IT sector will increase the potential for the growth of tech start-up and IT services start-up business in India.

4.38.10 Increased scope of innovation

There is an increasing trend in the innovations in India and reported that a total of 45,444 applications have filed by Indian establishments in the financial year including technology start-ups under different sectors. Out of which 25% of patents were granted by the government (Intellectual Property India, 2017).

Now large or established companies are increasingly reaching out to start-up to access their own innovative because of internally generated knowledge or closed innovation loses its reliance to compete with the other companies (Chesbrough, H. 2003). Many established company today acknowledge the competitive advantage of start-ups and enter into exchange and strategic partnerships with them. It can be mutually beneficial to start-ups and established companies (NASSCOM, 2019).

Moreover, networking and linking of innovations in the established companies to the increasing number of technology based start-ups competitors in the economy has brought new opportunity to the tech start-ups ecosystem in India (Shahzad, M. F., 2021).

4.38.11 Changing societal perception towards entrepreneurship

In Indian scenario, people perception towards entrepreneurship has changed a lot. Many success stories of entrepreneurs have a good impact in the minds of people towards entrepreneurship (Agarwal, S., 2020). People is more focused on their creativity even though they are getting high salary and perks and try to create or start a new his own venture.

4.38.12 E-commerce boom:

In India, E-commerce sector has had a phenomenal growth in the last few years. This is because of rising internet penetration, brand penetration, improved visibility, increased awareness of online shopping and customised services of well established

companies and start-ups. These digital platform support IT services start-ups in an unprecedented manner and companies can penetrate deeper into Tier II cities and beyond. With proper regulatory mechanism and policy changes, will boost the introduction of more IT services start-ups and increase the geographical reach and customer base on online market places.

4.39 Conclusion

This chapter covered theoretical concepts of the research topic in brief and it provides basic and fundamental foundation to the research problems and solutions. The theoretical concepts included the entrepreneur, entrepreneurship, start-ups; IT services start-ups, sources of financing, stages and processes, ecosystem, incubators, motivating factors, government interventions in start-ups, growth factors, problems and prospects of IT start-ups.

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CHAPTER 5

PERCEPTION OF FOUNDERS REGARDING MOTIVATING FACTORS AND GOVERNMENTS INTERVENTIONS IN BOOSTING IT SERVICES START-UPS IN KERALA

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5.1 Introduction

The research on entrepreneurial motivation is the basic and core part of the entrepreneurial process and need to explore more on the motivating factors to attract the persons into entrepreneurial reality (Carsrud, A., & Brannback, M., 2011). It facilitates in the entrepreneurial success and sustainability of entrepreneurial venture to a great extent. Motivation is considered as a link between the internal drives of a person and its channelization towards business creation. Along with study on motivating factors of founders, it is also necessary to study the interventions of governments and other supporting mechanisms to boost and strengthen the entrepreneurial ecosystem in the country especially start-up culture in the state.

In this chapter the researcher tried to analyze the collected data from respondents and present the result in the following sections:

5.2 Demographic profile of IT services start-up founders.

5.3 Profile of IT services start-ups business in Kerala.

5.4 The present status of IT service start-ups in Kerala in terms of number, focused business areas, business models and development stages.

5.5 Comparison of demographic profile of founders and start-up profile

5.6 Opinion of founders regarding motivating factors to start IT services start-ups in Kerala.

5.7 Founders perceptions on supports and facilities offered by KSUM to IT services start-ups

5.8 Founders perception on policies and schemes extended by Governments to boost IT services start-ups in Kerala

5.9 Conclusion

5.2 Analysis of data

The collected data are to be analyzed in a systematic manner in the research process. Then only we get fruitful result to the research problem. The main objective of the analysis is to organize, classify and summarize the data collected. Based on this analysis, adequate interpretation, findings and comprehension can be possible and give correct solutions to the research problems under the research. The researcher used IBM SPSS Statistics 21.0 version to analyse data.

The following tools were used for data analysis to study the research objectives:

- Mean
- Percentage analysis
- Standard Deviation
- Chi square test
- Exploratory Factor analysis
- Independent Sample t Test
- One Way ANOVA
- Tukey Post Hoc Test for Multiple Comparisons
- Correlation Analysis
- Multiple Regression

5.3 Demographic profile of IT services start-up founders

To study the demographic profile of the founders, age (Song et al., 2008; Haltiwanger et al., 2013), gender (Friar et al., 2003; Nooh et al., 2018), educational qualification of founders (Kalabeke, 2018; Kofanov et al., 2018), entrepreneurial family (Barba-Sanchez et al., 2012), and previous experience (Watson et al., 1998) are taken. By reviewing literatures, it is found that these variables are directly

related to IT services start-ups business. The demographic profile of IT services start-up entrepreneurs in Kerala are presented in the following table.

Table 5.1

Demographic variables of respondents

Demographic Variables	Attributes	Frequency	Percent
Age category	<25	18	6.3
	25-35	124	43.5
	35-45	87	30.5
	45-55	43	15.1
	>55	13	4.6
	Total	**285**	**100**
Gender	Male	263	92.3
	Female	22	7.7
	Total	**285**	**100**
Educational level	Below Plus two	5	1.8
	Diploma	13	4.6
	Graduation	151	53
	Post-graduation	110	38.6
	Others	6	2.1
	Total	**285**	**100**
Entrepreneurial family background	Yes	79	27.7
	No	206	72.3
	Total	**285**	**100**
Previous experience	Yes	118	41.4
	No	167	58.6
	Total	**285**	**100**

Source: Survey data

The table 5.1 describes the demographic variables of respondents. In the case of age category majority of the IT services start-up founders (43.5%) come in the category of 25- 35 age group followed by 30.5% founders belonging to the age group of 35-45(30.5%), 15.1% (43) belongs to age group of 45- 55, 6.3% (18) of the start-up founders come under the age group of less than 25 and finally 13 founders constituting 4.6% belonging to the age group of above 55. While taking gender classification, majority of the IT services founders are male (92.3%) and only 22 (7.7%) founders are female. As far as educational qualification is concerned, majority of the IT services start-up founders completed their graduation (53%), followed by 38.6% (110) founders completed their post-graduation. 4.6% (13) of founders having diploma, only 1.8% (5) founders come under the qualification of less than plus two level and 2.1% (6) of start-up founders belonging to the other group of educational qualification. The table shows that 72.3% (206) IT services start-ups founders have no family background in the entrepreneurial activity and only 27.7% (79) founders have entrepreneurial family background. In the case of previous experience, only 41.4% of founders have previous experience.

5.4 Profile of IT services start-ups in Kerala.

In order to study the profile of IT services start-ups business in Kerala, the respondents were asked about structure of start-ups in terms of partnership firm, LLP and Private limited company (Niţu, C. R., 2013), whether their start-ups are incubated or not in any incubation centre in Kerala (Kofanov et al., (2018) and the nature of start-ups with regard to their product, service or mixed (Muramalla et al (2019). The table 5.2 presents the start-up profile of IT services start-ups in Kerala.

Table 5.2

Information Technology Start-up Profile

Variables	Sub variables	Frequency	Percent
Structure of start-ups	Partnership firm	3	1.1
	Limited Liability Partnership	34	11.9
	Private Limited Company	248	87
	Total	**285**	**100**
Incubation status of start-ups	Yes	92	32.3
	No	193	67.7
	Total	**285**	**100**
Nature of stat-ups	Product	65	22.8
	Service	88	30.9
	Mixed	132	46.3
	Total	**285**	**100**

Source: Survey data

The table 5.2 clearly shows the structure of IT services start-ups. Out of total 87% (248) of start-ups incorporated as private limited company, 11.9% (34) of start-ups registered as Limited Liability Partnership and only 3% (1.1) start-ups registered as partnership firm. In the case of incubation status of the IT services start-ups, 67.7% (193) of the start-ups have not incubated in any incubation centre in Kerala and 92 start-ups (32.3%) have incubated in the incubation centres. The table is also mentioned the nature of start-ups and say 46.3% (132) of the start-ups focus on mixed (both product and service), 30.9% (88) are running under service category and remain 65 start-ups (25.8%) focus on product category.

5.4.1. Focused sectors or business area of IT services start-ups

As per start-up India statistics, IT services start-ups are classified in to different sectors such as application development, IT consulting, IT management, Product development, Web development, BPO, project development, testing, machine learning, KPO and others. But only few sectors of IT services start-ups are predominantly selected in India. To know the present status of different sectors of IT services start-ups in Kerala, the respondents were asked about which sector of start-

ups they were using. The sector wise IT services start-ups are depicted in the following table 5.3.

Table 5.3

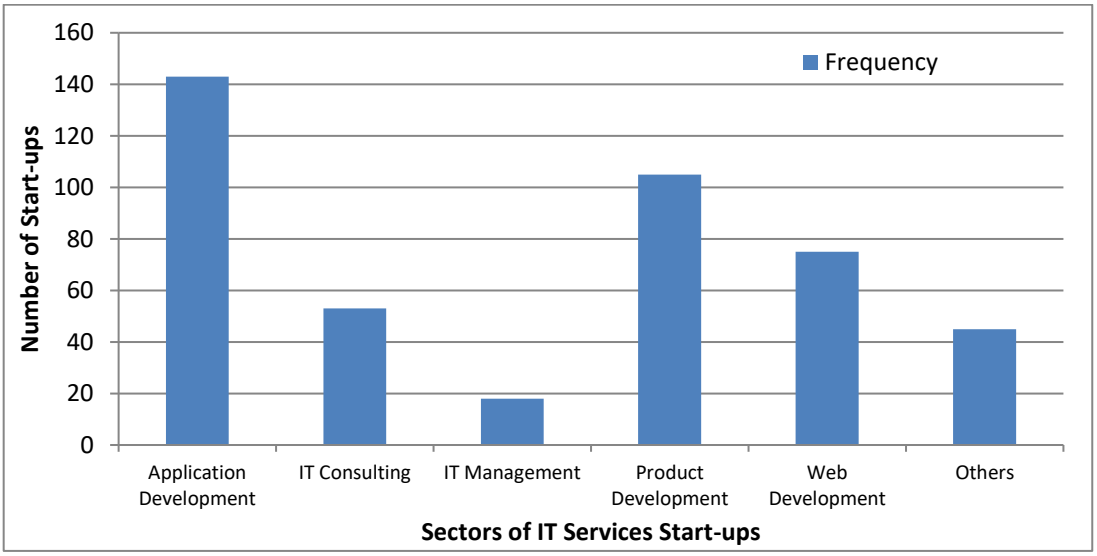
Sectors of IT services start-ups

Sectors	Frequency	Percent
Application development	143	50.2
IT consulting	53	18.6
IT Management	18	6.3
Product development	105	36.8
Web development	75	26.3
Others	45	15.8

Source: Survey data

Figure 5.1

Sectors of IT services start-ups



The table 5.3 and figure 5.1 presents various sectors come under the IT services start-ups. Majority of the start-ups are using two or more sectors in their business. Among the total IT services start-ups, majority of the start-ups have adopted application development (50.2%) followed by Product development (36.8%). Web development (26.3%), IT consulting (18.6%) and others category (15.8%) are the next IT services sectors used by the IT services in Kerala. IT management (6.3%) is the least sector used by the IT services start-up.

5.4.2 Business models of IT services start-ups

Business models are one of the important factors of successful business especially in internet based business in a short period of time where unprecedented growth is shown (Mahadevan, B., 2000). Here the researcher tried to study which types of business models are designed for IT services start-ups. For this, respondents were asked which business models they used for their business operations such as B2B, B2C, B2B2C, B2G and others. The following table presents the models of business adopted by IT services start-ups in Kerala.

Table 5.4

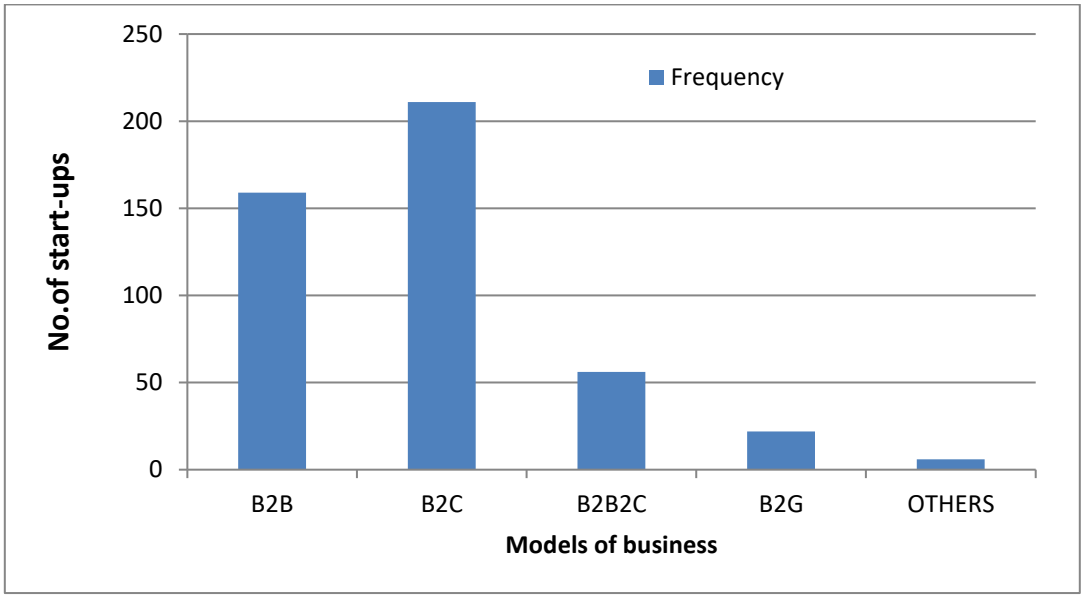
Business models of IT Services Start-ups

Business Models	Frequency	Percent
B2B	159	55.8
B2C	211	74
B2B2C	56	19.6
B2G	22	7.7
Others	6	2.1

Source: Survey data

Figure 5.2

Business models of IT services Start-ups



The table 5.4 and graph 5.2 depicts the business models of IT services start-ups. Most of the IT services start-ups are using B2C model of business (74%), followed by 55.8% (159) start-ups focus on B2B model of business. 19.6% (56) of start-ups are adopting B2B2C model of business and finally 2.1% (6) are belonging to other category of business models.

5.4.3 Sources of fund to IT services start-ups

Every start-up often faces pressure in commercializing their products or services successfully. This is mainly because of unavailability adequate finance from different sources. Considering the limited capital, no previous history and no previous experience of founders, many start-ups especially IT services start-ups do not qualify for external or institutional finance (Janaji et al., 2021). Here, researcher made an attempt to identify which sources of funds IT services start-ups are getting. The following table depicts the sources of funds to IT services start-ups in Kerala.

Table 5.5

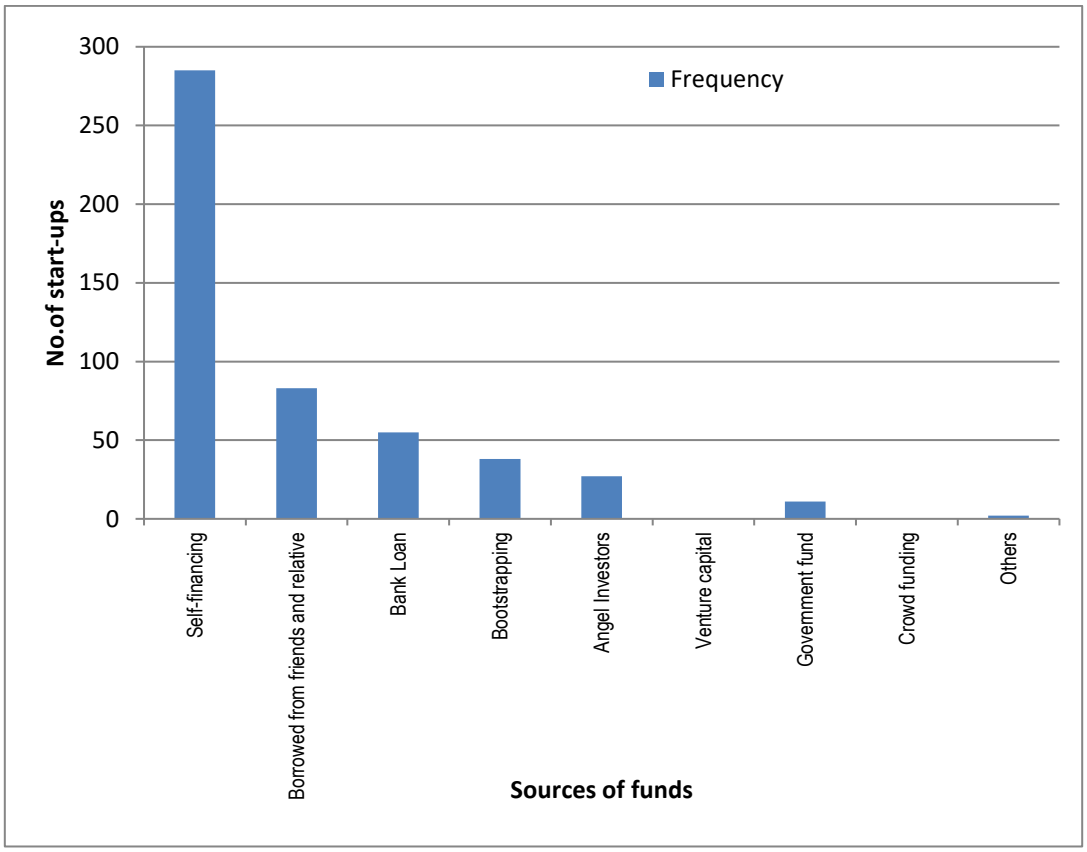
Sources of funds of IT services start-ups

Sources of funds	Frequency	Percent
Self-financing	285	100
Borrowed from friends and relative	83	29.1
Bank Loan	55	19.3
Bootstrapping	38	13.3
Angel Investors	27	9.5
Venture capital	0	0
Government fund	11	3.9
Crowd funding	0	0
Others	2	0.7

Source: Survey data

Figure 5.3

Sources of funds to IT services start-ups



The above table 5.5 reveals that the sources of capital used by IT services start-ups in Kerala. Self-financing capital is the common source and 100% of the start-ups are using self-financing capital followed by borrowed capital (29.1%) from friends and relatives. After this, majority of the start-ups collected capital from banking institutions as loan(19.3%) and 13.3% of the total IT services start-ups mobilized capital from bootstrapping process. Then, 9.5% of the IT services start-ups used capital from angel investors, 3.9% of them used fund from government and .7% of IT services start-ups used other categories of capital. But no IT services start-ups used capital from the sources of venture capital and crowd sourcing.

5.5 The present status of IT service start-ups in Kerala

This analysis includes Stage wise IT services start-ups, Stage wise performance of IT services start-ups and Sector wise performance of IT Services in India and Kerala

5.5.1 Stages wise IT services start-ups in India and Kerala

Start-up India statistics shows that stages of IT services start-ups in India are classified into four stages such as ideation stage, validation stage, early traction stage and scaling stage. The present status of stage wise IT services start-ups in Kerala are presented in the following table.

Table 5.6

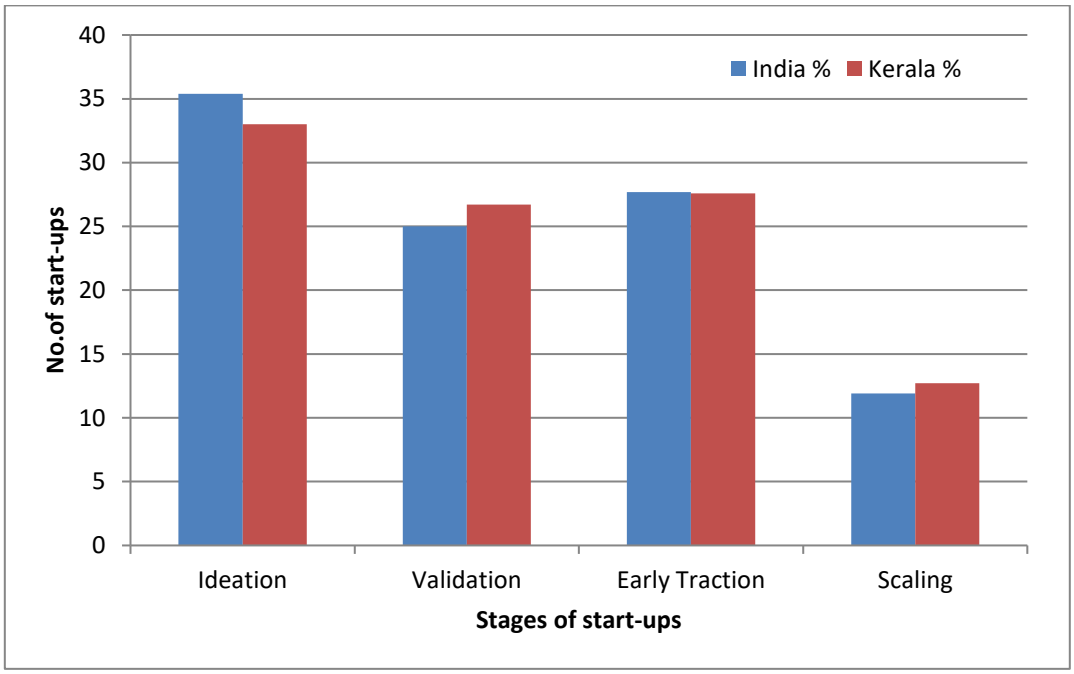
Total Stage wise IT services start-ups in India and Kerala

Stage	India		Kerala	
	2022	**%**	**2022**	**%**
Ideation	8411	35.4	458	33
Validation	5928	25	371	26.7
Early Traction	6561	27.7	384	27.6
Scaling	2828	11.9	176	12.7
Total	**23728**	**100**	**1389**	**100**

Source: Data from Start-up India as on 31/08/2022

Figure 5.4

Total Stage wise IT services start-ups in India and Kerala



The table 5.6 explains that in Kerala, 33% of IT services start-ups coming under the Ideation stage, 26.7% of start-ups coming under the Validation stage, 27.6% of start-ups coming under the early traction stage and only 12.7% of start-ups belongs to the stage of scaling. The table also reveals that the percentage level of stage wise IT services start-ups in India is seen as the same percentage level of IT services start-ups in Kerala.

5.5.2 Stage wise performances of IT services start-ups in India and Kerala

As per start-up India statistics, the stage wise comparison of performance of IT services start-ups in the year 2021 and 2022 are listed in the following table:

Table 5.7

Stage wise performances of IT services start-ups in Kerala

Stage	India			Kerala		
	2021	**2022**	**% increase**	**2021**	**2022**	**% increase**
Ideation	6456	8411	30.30	334	458	37.10
Validation	4490	5928	32	291	371	27.50
Early Traction	5335	6561	23	312	384	23.10
Scaling	2148	2828	31.70	134	176	31.30
Total	**18429**	**23728**	**28.80**	**1071**	**1389**	**29.70**

Source: Data from Start-up India as on 31/08/2021 and 31/08/2022

The above table 5.7 exhibits that the increasing trend of IT service start-ups (stage wise) both in India and Kerala considering the last two years (2021 and 2022). The table reveals that there is high increasing trend in the registration of IT services start-ups in India and Kerala in the year 2022 compared to previous year 2021. It is seen that in Kerala 37.1% increase in IT services start-ups under Ideation stage, 27.5% increase in IT services start-ups under Validation stage, 23.1% increase in IT services start-ups under Early traction stage and 31.3% increase in IT services start-ups under Scaling stage. It also found that the increasing trend of IT services start-ups in Kerala is parallel to increasing trend of IT services start-ups in India.

5.5.3 Sector wise performances of IT services start-ups in India and Kerala

In India, total IT services start-ups are classified in 12 different sectors such as Application development, BPO, IT consulting, IT management, KPO, Machine Learning, Microbrewery, Product development, Project development, Testing, Web development and others (Start-up India). The sector wise performance of IT services start-ups in India and Kerala are depicted in the following table:

Table 5.8

Sector wise performances of IT Services in India and Kerala

Sectors	India		Kerala	
	Total	**%**	**Total**	**%**
Application development	**4834**	**20.4**	**443**	**29.1**
BPO	431	1.8	13	0.9
IT Consulting	**5549**	**23.4**	**222**	**14.6**
IT Management	2327	9.8	71	4.7
KPO	118	0.5	2	0.1
Machine Learning	1	0	0	0
Microbrewery	25	0.1	1	0.1
Product development	**4448**	**18.7**	**383**	**25.1**
Project Management	565	2.4	140	9.2
Testing	98	0.4	2	0.1
Web development	**3406**	**14.3**	**162**	**10.6**
Others	1948	8.2	84	5.5
Total	**23750**	**100**	**1523**	**100**

Source: Data from Start-up India as on 31/08/2022

The table 5.8 discloses the sector wise performance of IT services start-ups in Kerala. In Kerala, Out of total sectors of IT services start-ups, Application development sector constitutes a major portion of start-ups having 443 (29.1%) start-ups followed by product development of 383 (25.1%) stat-ups. IT consulting and Web development are the next popular sectors of IT services start-ups having 222 (14.6%) and 162 (10.6%) respectively. All other sectors have minimum number

of start-ups and not popular in Kerala. The table also reveals that compared to Indian IT services start-ups, the entrepreneurs in Kerala using sectors in different manner. In India, the most popular IT services start-up is IT consulting having 5549 (23.4%) start-ups followed by Application development having 4834 start-ups (20.4%). The next large number of IT services start-ups coming under the sector of product development having 4448 start-ups (18.7%) followed by web development having 3406 start-ups (14.3%). All other sectors have only minimum number of start-ups in India.

5.6 Association between demographic profile of founders and start-ups profile

5.6.1 Association between previous experience of founders and Incubation status of start-ups.

To study whether the previous experiences of founders are associated with incubation status of start-ups, the following hypothesis was set. To know the incubation status of start-ups, respondents were asked about whether their start-ups have incubated or not.

$H_{5.1}$: There is significant association between previous experience of founders and incubation status of start-ups.

Table 5.9

Chi-square test for association between previous experience of founders and incubation status of start-ups

Previous experience	Incubation status of start-ups		Total	Chi-square value	P value
	Incubated	Not incubated			
Yes	44 (37.3%)	74 (62.7%)	118 (100%)	2.31	.082
No	48 (28.7%)	119 (79.3)	167 (100%)		
Total	92 (32.3%)	193 (67.7%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The table 5.9 clearly depicts that based on row percentage, 37.3% of respondents having previous experience have incubated their start-ups and remaining 62.7% have not incubated their start-ups. In the case of no previous experience founders, 28.7% have incubated their start-ups and 79.3% have not incubated their start-ups. Hence it is inferred that the incubation status of the start-ups is irrespective of the previous experience of founders (Chi square value is 2.31, p value is more than 0.05 at 5% significance).

5.6.2 Association between previous experience of founders and adoption of B2C model of business of start-ups.

Many IT services start-ups incubated their start-ups in various incubation centres in Kerala and adopted different business models such as B2B model, B2B model, B2G model, B2B2C model etc. Among these B2C model is the largest model adopted by majority of the IT services start-ups in Kerala. In order to study whether the Model of business is associated with previous experience, major business model (B2C Model) adopted by IT services start-ups founders were selected to compare it with previous experience of founders and the following hypothesis was used.

$H_{5.2}$: There is significant association between previous experience of founders and adoption of B2C model of business.

Table 5.10

Chi-square test for association between previous experience of founders and adoption of B2C model of business

Previous experience	Adoption of B2C model of business		Total	Chi-square value	P value
	Yes	No			
Yes	87 (73.7%)	31 (26.3%)	118 (100%)	.100	5.14
No	124 (74.3%)	43 (25.7%)	167 (100%)		
Total	211 (74%)	74 (26%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The table 5.10 clearly explains that based on row percentage, 73.7% of respondents having previous experience have adopted B2C model of business and remaining 26.3% have not adopted B2C model of business. Whereas, 74.3% of founders having no previous experience have adopted B2C model of business and remaining 25.7% have not adopted B2C model of business. Hence it is concluded that the adoption of B2C model of business is irrespective of the previous experience of founders (Chi square value is .100, p value is more than 0.05 at 5% significance).

5.6.3 Association between previous experience of founders and adoption of application development sector.

It is relevant to study whether the previous experience of founders is associated with adoption of application development sector or not, the following hypothesis was used.

$H_{5.3}$: There is significant association between previous experience of founders and adoption of application development sector.

Table 5.11

Chi-square test for association between previous experience of founders and adoption of application development sector

Previous experience	Adoption of application development sector		Total	Chi- square value	P value
	Yes	No			
Yes	57 (48.3%)	61 (51.7%)	118 (100%)	.631	.341
No	86 (51.5%)	81 (48.5%)	167 (100%)		
Total	143 (50.2%)	142 (49.8%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The table 5.11 describes that based on row percentage, 48.3% of respondents having previous experience have adopted application development and remaining 51.7% of respondents have not adopted application development. In the case of respondents

having no experience, 51.5% of founders have adopted application development sector and 48.5% of respondents have not adopted application development. Hence it is concluded that the previous experience of founders has no significant role in the adoption of Application development sector (Chi square value is .631, p value is more than 0.05 at 5% significance).

5.6.4 Association between entrepreneurial family background of founders and Incubation status of start-ups.

To study whether entrepreneurial family background of founders dependent upon incubation status of start-ups, categorical variables were measured using a nominal scale. Respondents were asked to tell whether they have incubated their start-ups or not in any incubation centre.

$H_{5.4}$: There is significant association between Entrepreneurial family background of founders and incubation status of start-ups.

Table 5.12

Chi-square test for association between entrepreneurial family background of founders and incubation status of start-ups

Entrepreneurial family	Incubation status		Total	Chi- square value	P value
	Yes	No			
Yes	12 (25.0%)	36 (75.0%)	48 (100%)	1.400	.237
No	80 (33.8%)	157 (66.2%)	237 (100%)		
Total	92 (32.3%)	193 (67.7%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The above table 5.12 presents that based on row percentage, 25% of respondents from entrepreneurial family have incubated their start-ups and remaining 75% of respondents have not incubated their start-ups. Whereas the entrepreneurs from

other than entrepreneurial family, 33.8% have incubated their start-ups and remaining 66.2% have not incubated their start-ups. Hence it is inferred that the incubation status of start-ups is irrespective of the entrepreneurial family background of the founders (Chi square value is 1.400, p value is more than 0.05 at 5% significance).

5.6.5 Association between gender of founders and incubation status of start-ups

It is seen that only 7.7% of total IT services start-up entrepreneurs is female entrepreneurs under study. In order to study whether the start-ups are incubated based on the gender of founders or not, the following hypothesis was used.

$H_{5.5}$: There is significant association between Gender of founders and incubation status of start-ups

Table 5.13

Chi-square test for association between gender of founders and incubation status of start-ups

Gender of founders	Incubation status of start-ups		Total	Chi-square value	P value
	Yes	No			
Male	87 (33.1%)	176 (66.9%)	263 (100%)	.995	.318
Female	5 (22.7%)	17 (77.3%)	22 (100%)		
Total	92 (32.3%)	193 (67.7%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The above table 5.13 clearly shows that based on row percentage, 33.1% of male founders have incubated their start-ups, 66.9% of male founders have not incubated their start-ups whereas, 22.7% of female founders have incubated their start-ups and remaining 77.3% of female founders have not incubated start-ups. Hence it is

interpreted that the incubation status of start-ups is irrespective of the gender of founders (Chi square value = .995, p > 0.05 at 5% significant level).

5.6.6 Association between gender of founders and nature of start-ups.

In this study, it is seen that majority of the IT services start-ups are mixed in nature (both product and service). In this case, the researcher tried to study gender wise using of nature of start-ups such as product wise, service wise and mixed wise start-ups, the following hypothesis was used.

$H_{5.6}$: There is significant association between Gender of founders and nature of start-ups.

Table 5.14

Chi-square test for association between gender of founders and nature of start-ups

Gender of founders	Nature of start-ups			Total	Chi- square value	P value
	Product	Service	Mixed			
Male	65 (24.7%)	74 (28.1%)	124 (47.1%	263 (100%)	14.233	.001*
Female	0 (0.0)%	14 (63.6%)	18 (36.4%	22 (100%)		
Total	65 (22.8%)	88 (30.9%)	132 (46.3%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage,
*Significant at 5% significant level.

The above table 5.14 illustrates that based on row percentage, 24.7% of male founders are using product based start-ups, 28.1% of male founders are using service based start-ups, and remaining 47.1% of male founders are using mixed based start-ups. Whereas 0% female founders are using product based start-ups, 63.6% of female founders are using service based start-ups and 36.4% of female founders are using mixed based start-ups. Hence based on this analysis, majority of the male entrepreneurs used mixed based start-up and majority of the female entrepreneurs used service based start-ups. The result shows that there is significant association between Gender of founders and nature of start-ups (Chi square value is 14.233, p <

0.05 at 5% significant level). Then it reveals the selection of product or service or mixed based is greatly affected the gender of founders in Kerala.

5.6.7 Association between gender of founders and adoption of application development sector

To study whether the adoption of application development sector is mostly adopted by male or female founders, the following hypothesis was used.

$H_{5.7}$: There is significant association between gender of founders and adoption of application development sector

Table 5.15

Chi-square test for association between gender of founders and adoption of application development sector

Gender of founders	Adoption of application development sector		Total	Chi-square value	P value
	Yes	No			
Male	134 (51%)	129 (49%)	263 (100%)	.819	.366
Female	9 (40.9%)	13 (59.1%)	22 (100%)		
Total	143 (50.2%)	142 (49.8%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The above table 5.15 clearly shows that based on row percentage, 51% of male founders have adopted application development sector and similarly 49% of male founders have not adopted application development sector. Whereas, 40.9% of female founders have adopted application development sector and 59.1% of female founders have not adopted application development sector. Based on this analysis, it is inferred that the gender of founders has no significant role in the adoption of application development sector (Chi square value is .819, $p > 0.05$ at 5% significant level).

5.6.8 Association between entrepreneurial family background of founders and nature of start-ups.

To know whether the nature of start-ups is dependent on entrepreneurial family background of founders or not, the following hypothesis was used.

$H_{5.8}$: There is significant association between entrepreneurial family background of founders and nature of the start-ups

Table 5.16

Chi-square test for association between entrepreneurial families of founders and nature of start-ups

Entrepreneurial family background of founders	Nature of start-ups			Total	Chi-square value	P value
	Product	Service	Mixed			
Yes	7 (14.6%)	30 (29.2%)	42 (56.2%)	79 (100%)	12.211	.002
No	58 (24.5)%	58 (31.2%)	90 (44.3%	206 (100%)		
Total	65 (22.8%)	88 (30.9%)	132 (46.3%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The above table 5.16 describes that based on row percentage, 14.6% of respondents from entrepreneurial family background are using product based start-ups, 29.2% are using service based start-ups and remaining 56.2% are using mixed based start-ups. Whereas respondents from other than entrepreneurial family, 24.5% using product based start-ups, 31.2% are using services based start-ups and remaining 44.3% are using mixed based start-ups. Hence based on this analysis majority of the entrepreneurs from entrepreneurial family and from other than entrepreneurial family are using mixed based start-up. As per chi square test, null hypothesis is rejected since chi square value is 12.211 and p value is less than 0.05. Hence there is

significant association between Entrepreneurial family background of founders and nature of the start-ups.

5.6.9 Association between entrepreneurial family background of founders and adoption of B2C model of business

To know whether the adoption of B2C model of business dependent on entrepreneurial family background of founders or not, the following hypothesis was used.

$H_{5.9}$: There is significant association between entrepreneurial family background of founders and adoption of B2C model of business.

Table 5.17

Chi-square test for association between Entrepreneurial family of respondents and adoptionB2C model of business

Entrepreneurial family of respondents	Adoption of B2C model of business		Total	Chi-square value	P value
	Yes	No			
Yes	30 (38%)	49 (62%)	79 (100%)	1.621	.203
No	62 (70.1%)	144 (69.9%)	206 (100%)		
Total	92 (32.3%)	193 (67.7%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The table clearly 5.17 discloses that 38% of respondents from entrepreneurial family have adopted B2C model of business, 62% have not adopted B2C model of business. Whereas the entrepreneurs from other than entrepreneurial family, 70.1% have adopted B2C model of business and 69.9% have not adopted B2C model of business. Hence it is inferred that entrepreneurial family background of founders has no significant role in the adoption of B2C model of business (Chi square value is 1.621, p value is more than 0.05 at 5% significant level).

5.6.10 Association between entrepreneurial family background of founders and adoption of application development sector

To know whether the adoption of application development sector is dependent on entrepreneurial family or not, the following hypothesis was used.

$H_{5.10}$: There is significant association between entrepreneurial family background of founders and adoption of application development sector.

Table 5.18

Chi-square test for association between entrepreneurial family background of founders and adoption of application development sector

Entrepreneurial family background of founders	Adoption of application development sector		Total	Chi-square value	P value
	Yes	No			
Yes	40 (50.6%)	39 (49.4%)	79 (100%)	.009	.515
No	103 (50%)	103 (50%)	206 (100%)		
Total	143 (50.2%)	142 (49.8%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage

The table 5.18 clearly depicts that based on row percentage, 50.6% of respondents from entrepreneurial family background have adopted application development, 49.4% have not adopted application development sector. Whereas the entrepreneurs from other than entrepreneurial family background, 50% have adopted application development sector and 50% have not adopted application development sector. Hence it is inferred that entrepreneurial family background of founders has no significant role in the adoption of application development sector (Chi square value is .009, p value is more than 0.05).

5.6.11 Association between nature of start-ups and adoption of application development sector.

In order to study whether the adoption of application development is dependent on nature of start-ups, such as product based, service based and mixed based, following hypothesis was used.

$H_{5.11}$: There is significant association between nature of start-ups and adoption of application development sector.

Table 5.19

Chi-square test for association between nature of start-ups and adoption of application development sector

Nature of start-ups	Adoption of application development sector		Total	Chi- square value	P value
	Yes	No			
Product	28 (43.1%)	37 (56.9%)	65 (100%)	7.834	.020*
Service	37 (42.0%)	51 (58.0%)	88 (100%)		
Mixed	78 (59.1%)	54 (40.9%)	132 (100%)		
Total	143 (50.2%)	142 (49.8%)	285 (100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage,
*Significant at 5% significant level.

The table 5.19 clearly presents that based on row percentage, 43.1% of product based start-ups have adopted Application development sector, 56.9% have not adopted Application development sector. In the case of services based start-ups, 42% have adopted Application development sector and remaining 58% have not adopted Application development sector. In the case of mixed based start-ups, 59.1% have adopted Application development sector and remaining 40.9% have not adopted Application development sector. Based on this analysis, it can conclude that

majority of the product and service based start-ups are not adopting application development but majority of the mixed based start-ups are adopting application development. Hence it is inferred that the nature of start-ups has significant role in the adoption of application development sector (Chi square value is 7.834, p value is less than 0.05 at 5% level of significant).

5.6.12 Association between incubation status of start-ups and nature of start-ups

In order to study whether the nature of start-ups, such as product based, service based and mixed based are dependent on incubation status of start-ups, the following hypothesis was used.

$H_{5.12}$: There is significant association between Incubation status of start-ups and nature of start-ups.

Table 5.20

Chi-square test for association between Incubation of start-ups and nature of start-ups

Incubation status of start-ups	Nature of start-ups			Total	Chi-square value	P value
	Product	Service	Mixed			
Incubated	32 (34.8%)	22 (23.9%)	38 (41.3%)	92 (100%)	11.413	.003*
Not incubated	33 (17.1)%	66 (34.2%)	94 (48.7%)	193 (100%)		
Total	65	88	132	285		
	(22.8%)	(30.9%)	(46.3%)	(100%)		

Source: Survey data, Figures in the parenthesis refer to Row Percentage,
*Significant at 5% significant level.

The table 5.20 clearly reveals that based on row percentage, 34.8% incubated start-ups are using product based start-ups, 23.9% are using service based start-ups and remaining 41.3% are using mixed based start-ups. In the case of not incubated start-

ups, 17.1% are using product based start-ups, 34.2% are using service based start-ups and remaining 48.7% are using mixed based start-ups. Hence majority of the incubated and not incubated start-ups are using mixed based start-ups. The test result shows that there is a significant interaction between Incubation status of start-ups and nature of start-ups (Chi square value is 11.413, $p < 0.05$ at 5% level of significant).

Table 5.21

Summary of Hypotheses Test Results

	Hypotheses	Result	Decision
$H_{5.1}$	There is no significant association between previous experience of founders and incubation status of start-ups	Chi square value = 2.31, p value (0.082) > .05	Fail to Reject Null
$H_{5.2}$	There is no significant association between previous experience of founders and B2C model of business.	Chi square value = .100, p value (5.14) > .05	Fail to Reject Null
$H_{5.3}$	There is no significant association between previous experience of founders and adoption of application development	Chi square value = .631, p value (0.341) > .05	Fail to Reject Null
$H_{5.4}$	There is no significant association between Entrepreneurial family background of founders and incubation status of start-ups.	Chi square value = 1.400, p value (0.237) > .05	Fail to Reject Null
$H_{5.5}$	There is no significant association between Gender of respondents and incubation status of start-ups	Chi square value = .995, p value (0.318) > .05	Fail to Reject Null
$H_{5.6}$	There is significant association between Gender of respondents and nature of start-ups.	Chi square value = 14.233, p value (0.001) < .05	Reject Null
$H_{5.7}$	There is no significant association between Gender of founders and adoption of application development	Chi square value = .819, p value (0.366) > .05	Fail to Reject Null
$H_{5.8}$	There is significant association between Entrepreneurial family background of founders and nature of the start-ups	Chi square value = 12.211, p value (0.002) < .05	Reject Null
$H_{5.9}$	There is no significant association between Entrepreneurial family background of founders and adoption of B2C model of business	Chi square value = 1.621, p value (0.203) > .05	Fail to Reject Null

	Hypotheses	Result	Decision
$H_{5.10}$	There is no significant association between Entrepreneurial family background of founders and adoption of application development.	Chi square value = .009, p value (0.515) > .05	Fail to Reject Null
$H_{5.11}$	There is significant association between nature of start-ups and adoption of application development	Chi square value = 7.834, p value (0.020) < .05	Reject Null
$H_{5.12}$	There is significant association between Incubation status of start-ups and nature of start-ups	Chi square value = 11.413, p value (0.003) < .05	Reject Null

5.7 Motivating factors experienced by IT services start-ups founders in Kerala

Motivation is a crucial part in the development of entrepreneurial culture among people. It helps them to inspire, initiates, directs and sustains entrepreneurial behaviour. Different motivating factors stimulate and motivate individuals to undertake various entrepreneurial activities by identifying various business opportunities. Entrepreneurial motivation can be defined as "desire or tendency to organize, manipulate and master organizations, human being or ideas as quickly and independently as possible" (Solesvik, M.C., 2013).

There are 21 motivating factors identified from various past literatures. To study and analyze different motivating factors, the following tools were used.

- Exploratory Factor Analysis
- Independent sample T test
- One way ANOVA
- Tukey Post hoc analysis
- Correlation analysis
- Multiple Regression analysis

5.7.1 Development of Scales for Measures of motivating factors experienced by IT services start-ups founders using EFA

Motivating factors are the basic elements to attract the people to the creation of new ventures and it will be beneficial to both countries in general and people in specific. Under this study, motivating factors were measured by using 21 items in the survey questionnaire. Respondents were asked to rate this 21 items related to the motivating factors to start IT services start-ups on a 5-point Likert scale, ranging from No influence (1) to Extremely influence (5). In order to identify the important motivating factors and its dimensions, all the items were examined with help of Exploratory Factor Analysis. The output of EFA is presented below.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of motivating factors experienced by IT services start-ups founders

Before going to use factor analysis, suitability of data was checked. To this, both KMO test and Bartlett's test were used. Value of KMO of .838 (Table 5.22) reveals that factor analysis is possible for the present data. Under Bartlett's test of Sphericity, we test whether the variables are related or not through correlation matrix. The result shows that there exist significant relationships among the variables (p value is 0.000). So the result of KMO test and Bartlett's test reports that the present data is appropriate for factor analysis.

Table 5.22

KMO and Bartlett's Test- motivating factors experienced by IT services start-ups founders

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	5002.815
	df	210
	Sig.	.000*

Source: Survey data, * denotes Significant at 5% level

Table 5.23

Communalities of motivating factors experienced by IT services start-ups founders

Variables	Initial	Extraction
Use own creative skills	1.000	.673
Ambition to become an entrepreneur	1.000	.811
Previous experience	1.000	.431
Business background	1.000	.907
Take challenges of risk	1.000	.887
Technical qualification / Knowledge	1.000	.707
Need for achievement	1.000	.828
Success stories of others	1.000	.453
Self-employment	1.000	.821
To be my own boss	1.000	.864
Desire for independence	1.000	.938
Financial success	1.000	.329
Fiscal incentives and support from Government	1.000	.346
University courses	1.000	.748
Minimum capital requirements to start IT services start-ups	1.000	.748
Availability of financial assistance	1.000	.507
Infrastructural facilities	1.000	.906
Marketing opportunities	1.000	.502
Networking skill	1.000	.650
Social recognition	1.000	.597
Contribution to the society	1.000	.403

Source: Survey data

Extraction Method: Principal Component Analysis.

The table 5.23 shows the communalities and it reveals how much proportion of the variance of each variable by the extracted factors and if the communality initial value is closer to 1, the variable is explained better by the factors. From the table it is seen that over 93.8% of the variance is accounted for desire for independence

followed by business background where variances is 90.7%, while 3.29% of the variance is accounted for financial success.

Then next step is to decide how many factors are to be derived based on the Eigen value. We can take factors whose Eigen values are greater than one as rule of thumb. Then to extract factors and rotation of these factors, Principal Component Analysis and Varimax rotation algorithm (Kaiser, 1958) were used. After that component matrix of various factors were located orthogonally. Finally, all of the statements were loaded on the extracted factors after the rotation. The results of total variance explained, Scree Plot diagram, Rotated Component Matrix as well as factor loadings, are presented separately in the tables.

Table 5.24

Total Variance Explained on motivating factors experienced by IT services start-ups founders

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.150	29.286	29.286	6.150	29.286	29.286	5.967	28.415	28.415
2	4.598	21.894	51.180	4.598	21.894	51.180	3.337	15.889	44.304
3	1.820	8.666	59.847	1.820	8.666	59.847	2.580	12.284	56.588
4	1.489	7.092	66.938	1.489	7.092	66.938	2.174	10.350	66.938
5	.957	4.557	71.495						
6	.891	4.242	75.737						
7	.749	3.568	79.305						
8	.719	3.425	82.730						
9	.606	2.887	85.617						
10	.552	2.627	88.244						
11	.502	2.390	90.634						
12	.463	2.204	92.838						
13	.376	1.789	94.627						

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
14	.333	1.585	96.212						
15	.262	1.248	97.460						
16	.159	.757	98.217						
17	.124	.592	98.809						
18	.099	.471	99.280						
19	.092	.440	99.720						
20	.034	.163	99.884						
21	.024	.116	100.000						

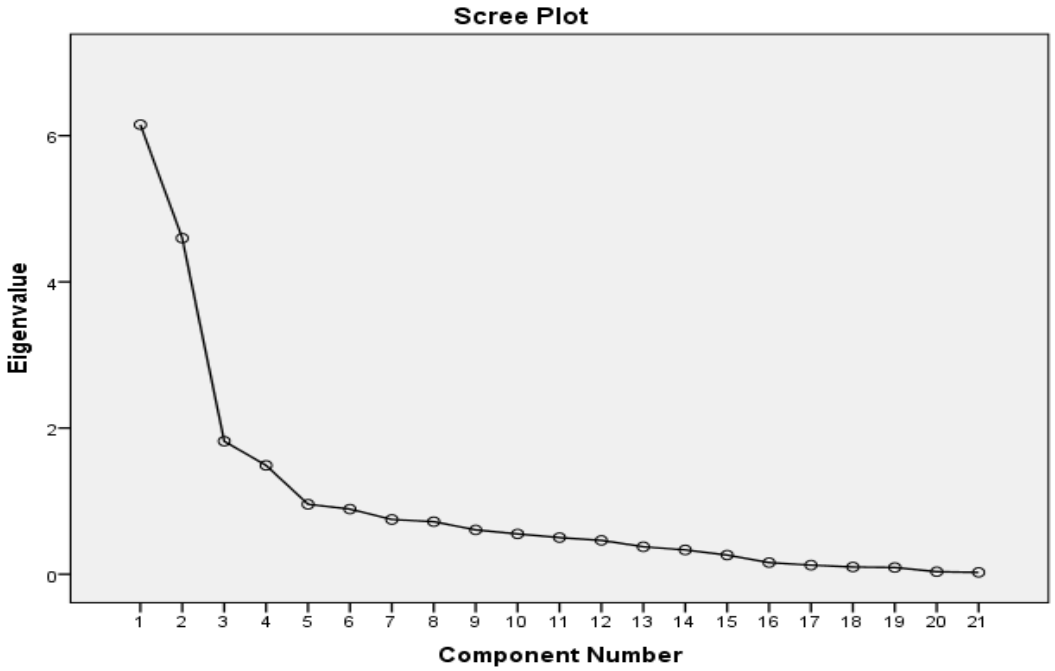
Source: Survey data

Extraction Method: Principal Component Analysis.

From the above table 5.24 it can be ascertained that from the 21 items (components), only 4 components having Eigen values more than 1 were selected. This means that these 4 components would be able to explain maximum variance in the characteristics of units. The total variance constitutes by all the four factors are 66.93% and maximum variance is explained by the four factors alone. Thus, these four variables alone are adequate for further analysis. Among the four factors, first factor accounted 28.41% of variance, second factor accounted 15.88% of variance, third factor accounted 12.28% of variance and fourth factor accounted 10.35% of variance.

Figure 5.5

Scree Plot of motivating factors experienced by IT services start-ups founders



The above figure 5.5 exhibits the scree plot that explains the eigen values. It suggests that 4 factors are adequate for extraction and these four factors have eigen values of greater than one. The scree plot diagram clearly shows that only four factors with eigen value exceeding 1 before the curve becomes approximately a straight line (or before the curve starts to flatten).

Table 5.25

Rotated Component Matrix of motivating factors experienced by IT services start-ups founders

	Component			
	1	**2**	**3**	**4**
Desire for independence	.967			
To be my own boss	.929			
Need for achievement	.907			
Self-employment	.905			
Ambition to become an entrepreneur	.896			
Technical qualification / Knowledge	.833			
Use own creative skills	.820			
Financial success	.498			
Infrastructural facilities		.939		
Minimum capital requirements to start IT services start-ups		.855		
University courses		.853		
Availability of financial assistance		.657		
Fiscal incentives and support from Government		.451		
Networking skill			.745	
Social recognition			.744	
Success stories of others			.662	
Contribution to the society			.612	
Marketing opportunities			.522	
Business background				.907
Take challenges of risk				.896
Previous experience				.655

Source: Survey data
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 5 iterations.

The above Rotated component Matrix Table 5.25 shows four factors are extracted for the study. By using factor analysis, total dependent variables (21 items) reduced to four factors. In order to identify the motivating factors to start IT services start-ups in Kerala, new labels were provided for these four factors in testing of hypotheses such as Factor 1- Individual factors, 2 – Environmental factors, 3 – Social factors and 4 – Entrepreneurial factors.

Table 5.26

Factors extracted through EFA regarding motivating factors experienced by IT services start-ups founders and reliability of factors

Motivating Factors	Number of Items	Mean	Std. Deviation	Cronbach Alpha Coefficient
Factor 1: Individual factors	8	4.21	0.93	.942
Factor : Environmental factors	5	2.8	0.81	.841
Factor : Social factors	5	3.57	0.73	.746
Factor : Entrepreneurial factors	3	2.96	1.14	.810

Source: Survey data

The above table 5.26 portrays the number of items, mean, S.D and Cronbach Alpha Coefficient of four factors coming under motivating factors. Among these, individual factors have highest mean value (4.21) and concludes that individual factors are the most important motivating factor to start IT services start-ups in Kerala. The table also clearly shows that Cronbach alpha coefficient of each four factor proved reliable and a strong internal consistency among the items: .942 (factor 1); .841 (factor 2); .746 (factor 3) and .810 (factor 4). So the scales constructed for motivating factors by using factor analysis was appropriate for testing of hypotheses.

5.7.2 Difference in the motivating factors experienced by IT services start-ups founders with respect to gender of the founders

It is also relevant to compare the motivating factors of founders among gender of founders. It is suggested that there is certain level of significance with motivating

factors by taking combination of gender and level of education (Ismail et al., 2006; Linan et al., 2011). So the following hypothesis was developed by the researcher to analyze the same.

$H_{5.18}$: There is significant difference in the motivating factors experienced by IT services start-ups founders with respect to gender of the entrepreneurs.

Table 5.27

Difference in the motivating factors experienced by IT services start-ups founders with respect to gender of the founders

Motivating factors	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Individual factors	Male	263	4.20	0.94	0.002	0.965	-0.348	0.728
	Female	22	4.28	0.84			-0.385	
Environmental factors	Male	263	2.81	0.79	2.83	0.094	0.385	0.701
	Female	22	2.74	0.98			0.322	
Social factors	Male	263	3.58	0.73	0.86	0.355	0.780	0.436
	Female	22	3.45	0.77			0.746	
Entrepreneurial factors	Male	263	3.00	1.12	0.851	0.357	1.918	0.049*
	Female	22	2.51	1.32			1.677	

Source: Survey data,
* Significant at 5% level of significance

The above table 5.27 clearly shows the mean values and standard deviations of various motivating factors. Based on this, Levene's Test for Equality of Variances and Independent T test of motivating factors are mentioned. T test is used based on the assumption of equality of variance. Equality of variance analysed with Levene's Test and its p value will be >.05. If p value <.05, we therefore take values in the row equal variances not assumed for t- test.

For individual factors, mean values of male and female are 4.20 and 4.28 and S.D are .94 and .84. Assumption of equality of variance is followed with p value .965

which is >.05. T value is -.348 and p value (.728) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to individual factors.

In the case of environmental factors, mean values of male and female are 2.81 and 2.74 and S.D are .79 and .98. Assumption of equality of variance is followed with p value .094 which is >.05. T value is .385 and p value (.701) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to environmental factors.

For social factors, mean values of male and female are 3.58 and 3.45 and S.D are .73 and .77. Assumption of equality of variance is followed with p value .355 which is >.05. T value is .780 and p value (.436) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to social factors.

As far as entrepreneurial factors are concerned, mean values of male and female are 3.00 and 2.51 and S.D are 1.12 and 1.32. Assumption of equality of variance is followed with p value .357 which is >.05. T value is 1.918 and p value (.049) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to entrepreneurial factors.

Table 5.28

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Individual factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding individual factors with respect to gender.	T = -0 .348 p value (0.728) > 0.05	Fail to Reject Null
H1b	Environmental factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding environmental factors with respect to gender.	T = 0.385 p value (0.701) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Social factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding social factors with respect to gender.	T = 0.78 p value (0.436) > 0.05	Fail to Reject Null
H1d	Entrepreneurial factors	There is significant difference in the motivating factors experienced by IT services start-ups founders regarding entrepreneurial factors with respect to gender.	T = 1.918 p value (0.049) < 0.05	Reject Null

Source: Survey data

5.7.3 Difference in the motivating factors experienced by IT services start-ups founders with respect to previous experience of founders

Prior entrepreneurial experience is considered as important independent variable that significantly affected the positive perception towards entrepreneurship and motivation to start an enterprise (Khuong, M. N., & An, N. H., 2016). To compare the motivating factors with previous experience of founders, the following hypothesis was developed.

$H_{5.19}$: There is significant difference in the motivating factors experienced by IT services start-ups founders with respect to previous experience of founders.

Table 5.29

Difference in the motivating factors experienced by IT services start-ups founders with respect to previous experience of founders

Motivating factors	Previous experience	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Individual factors	Yes	166	4.14	0.94	0.248	0.619	-1.436	0.152
	No	119	4.30	0.92			-1.440	
Environmental factors	Yes	166	2.80	0.86	2.808	0.095	-0.089	0.929
	No	119	2.81	0.73			-0.092	
Social factors	Yes	166	3.62	0.74	0.864	0.354	1.320	0.188
	No	119	3.50	0.72			1.326	
Entrepreneurial factors	Yes	166	3.52	0.95	0.952	0.33	11.821	.000*
	No	119	2.19	0.92			11.880	

Source: Survey data,
* Significant at 5% level of significance

The table 5.29 describes the descriptive statistics of various motivating factors with regard to previous experience of founders. For individual factors, mean values of founders having previous experience and not having previous experience are 4.14 and 4.30 and S.D are .94 and .92. Assumption of equality of variance is followed with p value .619 which is >.05. T value is -1.436 and p value (.152) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to individual factors.

In the case of environmental factors, mean values of founders having previous experience and not having previous experience are 2.80 and 2.81 and S.D are .86 and .73. Assumption of equality of variance is followed with p value .095 which is >.05. T value is -0.089 and p value (.929) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to environmental factors.

For social factors, mean values of founders having previous experience and not having previous experience are 3.62 and 3.50 and S.D are .74 and .72. Assumption

of equality of variance is followed with p value .354 which is >.05. T value is 1.320 and p value (.188) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to social factors.

As far as entrepreneurial factors are concerned, mean values of founders having previous experience and not having previous experience are 3.52 and 2.19 and S.D are .95 and .92. Assumption of equality of variance is followed with p value .330 which is >.05. T value is 11.821 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to entrepreneurial factors.

Table 5.30

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Individual factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding individual factors with respect to previous experience of founders.	T value = -1.436 p value (0.152) >.05	Fail to Reject Null
H1b	Environmental factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding environmental factors with respect to previous experience of founders.	T value = -.089 p value (.929) > 0.05	Fail to Reject Null
H1c	Social factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding social factors with respect to previous experience of founders.	T value = 1.320 p value (.188) > 0.05	Fail to Reject Null
H1d	Entrepreneurial factors	There is significant difference in the motivating factors experienced by IT services start-ups founders regarding entrepreneurial factors with respect to previous experience of founders.	T value = 11.821 p value (.000) < 0.05	Reject Null

Source: Survey data

5.7.4 Difference in the motivating factors experienced by IT services start-ups founders with respect to entrepreneurial family background of founders

It is also important to compare the motivating factors of founders among entrepreneurial family background of founders. It is reported that family business or family background considered as an important motivating factors to start a business (Jena, R. K., 2020; Yukongdi, V., 2018). So the following hypothesis was developed by the researcher to analyse the same.

$H_{5.20}$: There is significant difference in the motivating factors experienced by IT services start-ups founders with respect to entrepreneurial family background of founders.

Table 5.31

Difference in the motivating factors experienced by IT services start-ups founders with respect to entrepreneurial family background of founders

Motivating factors	Entrepreneurial family background	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Individual factors	Yes	79	4.34	0.89	2.049	0.153	1.543	0.124
	No	206	4.15	0.94			1.579	
Environmental factors	Yes	79	2.88	0.86	0.397	0.529	1.116	0.265
	No	206	2.76	0.78			1.069	
Social factors	Yes	79	3.83	0.66	2.931	0.088	3.841	0.000*
	No	206	3.47	0.73			4.023	
Entrepreneurial factors	Yes	79	3.20	1.17	0.052	0.82	2.215	0.028*
	No	206	2.86	1.12			2.172	

Source: Survey data,
*Significant at 5% level of significance

The table 5.31 portrays the descriptive statistics of various motivating factors with regard to entrepreneurial family background. For individual factors, mean values of

founders having entrepreneurial family background and not having entrepreneurial family background are 4.34 and 4.15 and S.D are .89 and .94. Assumption of equality of variance is followed with p value .153 which is >.05. T value is 1.543 and p value (.124) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to individual factors.

In the case of environmental factors, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 2.88 and 2.76 and S.D are .86 and .78. Assumption of equality of variance is followed with p value .529 which is >.05. T value is 1.116 and p value (.265) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to environmental factors.

For social factors, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.83 and 3.47 and S.D are .66 and .73. Assumption of equality of variance is followed with p value .088 which is >.05. T value is 3.841 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to social factors.

As far as entrepreneurial factors are concerned, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.20 and 2.86 and S.D are 1.17 and 1.12. Assumption of equality of variance is followed with p value .820 which is >.05. T value is 2.215 and p value (.028) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to entrepreneurial factors.

Table 5.32

Summary of Hypotheses Test Results

	Construct	**Hypotheses**	**Result**	**Decision**
H1a	Individual factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding individual factors with respect to entrepreneurial family background	T value = 1.543 p value (0.124) >.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1b	Environmental factors	There is no significant difference in the motivating factors experienced by IT services start-ups founders regarding environmental factors with respect to entrepreneurial family background.	T value = 1.116 p value (.265) > 0.05	Fail to Reject Null
H1c	Social factors	There is significant difference in the motivating factors experienced by IT services start-ups founders regarding social factors with respect to entrepreneurial family background.	T value = 3.841 p value (.000) < 0.05	Reject Null
H1d	Entrepreneurial factors	There is significant difference in the motivating factors experienced by IT services start-ups founders regarding entrepreneurial factors with respect to entrepreneurial family background.	T value = 2.215 p value (.028) < 0.05	Reject Null

Source: Survey data

5.7.5 Difference in the motivating factors experienced by IT services start-ups founders with respect to education level of founders.

It is reported that there is a significant relationship between the level of education of entrepreneurs and motivating factors and education level is an important factor lead to motivate to start a business start-ups (Ismail et al., 2006). It also found that the educated people are more interested in becoming entrepreneurs (Raman et al., 2008). To study education level wise comparison of motivating factors of founders, the following hypothesis was developed.

$H_{5.21}$: The motivating factors experienced by IT services start-ups founders differ based on their education level.

Table 5.33

ANOVA for significant difference in the motivating factors experienced by IT services start-ups founders with respect to Education level of founders

Motivating factors	Education level of founders					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Individual factors	4.26 (0.37)	4.34 (0.64	4.35 (0.84)	3.9 (1.07)	4.31 (0.49)	2.565	0.039*
Environmental factors	2.52 (0.43)	2.84 (0.85	2.9 (0.81)	2.68 (0.78)	2.3 (0.97)	1.969	0.099
Social factors	3.36 (0.43)	3.75 (0.34	3.65 (0.72)	3.48 (0.73)	2.8 (1.17)	2.859	0.024*
Entrepreneurial factors	1.94 (0.25)	3.45 (1.00)	2.92 (1.19)	2.93 (1.04)	4.18 (1.15)	3.491	0.008*

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The above table 5.33 presents one way ANOVA for the education level and motivating factors at 5% significant level. It reports that motivating factors such as individual factors, social factors and entrepreneurial factors have p value less than 0.05 and null hypothesis is rejected. So it can be concluded that motivational factors such as individual factors, social factors and entrepreneurial factors that drive founders to start up a business differ based on education level. But the p value of environmental factors is seen more than 0.05 and hence failed to reject null hypothesis. It can conclude that there is no significant difference in the environmental factors among founders having various education levels.

Table 5.34

Post hoc: Multiple comparisons between various motivating factors and education level of founders.

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.
Individual factors	Below Plus two	Diploma	-.08615	.48629	1.000
		Graduation	-.09364	.42005	.999
		Post graduation	.27000	.42256	.969
		Others	-.05667	.55957	1.000
	Diploma	Below Plus two	.08615	.48629	1.000
		Graduation	-.00749	.26710	1.000
		Post graduation	.35615	.27102	.683
		Others	.02949	.45609	1.000
	Graduation	Below Plus two	.09364	.42005	.999
		Diploma	.00749	.26710	1.000
		Post graduation	.36364*	.11584	.016
		Others	.03698	.38468	1.000
	Post graduation	Below Plus two	-.27000	.42256	.969
		Diploma	-.35615	.27102	.683
		Graduation	-.36364*	.11584	.016
		Others	-.32667	.38741	.917
	Others	Below Plus two	.05667	.55957	1.000
		Diploma	-.02949	.45609	1.000
		Graduation	-.03698	.38468	1.000
		Post graduation	.32667	.38741	.917
Social factors	Below Plus two	Diploma	-.39385	.38146	.840
		Graduation	-.29430	.32950	.899
		Post graduation	-.12909	.33146	.995
		Others	.56000	.43894	.706
	Diploma	Below Plus two	.39385	.38146	.840

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.
		Graduation	.09954	.20952	.990
		Post graduation	.26476	.21259	.725
		Others	.95385	.35776	.062
	Graduation	Below Plus two	.29430	.32950	.899
		Diploma	-.09954	.20952	.990
		Post graduation	.16521	.09087	.365
		Others	.85430*	.30175	.040
	Post graduation	Below Plus two	.12909	.33146	.995
		Diploma	-.26476	.21259	.725
		Graduation	-.16521	.09087	.365
		Others	.68909	.30389	.159
	Others	Below Plus two	-.56000	.43894	.706
		Diploma	-.95385	.35776	.062
		Graduation	-.85430*	.30175	.040
		Post graduation	-.68909	.30389	.159
Entrepreneurial factors	Below Plus two	Diploma	-1.51385	.59136	.081
		Graduation	-.98318	.51081	.307
		Post graduation	-.99364	.51385	.302
		Others	-2.24333*	.68046	.010
	Diploma	Below Plus two	1.51385	.59136	.081
		Graduation	.53067	.32481	.477
		Post graduation	.52021	.32957	.512
		Others	-.72949	.55462	.682
	Graduation	Below Plus two	.98318	.51081	.307
		Diploma	-.53067	.32481	.477
		Post graduation	-.01046	.14087	1.000
		Others	-1.26015	.46779	.057
	Post graduation	Below Plus two	.99364	.51385	.302
		Diploma	-.52021	.32957	.512

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.
		Graduation	.01046	.14087	1.000
		Others	-1.24970	.47111	.064
	Others	Below Plus two	2.24333*	.68046	.010
		Diploma	.72949	.55462	.682
		Graduation	1.26015	.46779	.057
		Post graduation	1.24970	.47111	.064

Source: Survey data, * denotes significant at 5% level

The above table 5.34 describes the post Hoc – multiple comparisons by using Tukey test to identify which combination of education level of founders has more significant in terms of individual factors, social factors and entrepreneurial factors. The table reveals that there is a significant difference in the graduation and post-graduation combination in the case of individual factors (p value = .016), and graduation and others combination in the case of social factors (p value = .040) and below plus two and others combination in the case of entrepreneurial factors (p value = .010).

5.7.6 Relationship between motivating factors experienced by founders and the growth of IT services start-ups

Motivating factors are critical factors that are closely associated with start-up growth and its survival (Watson et al., 1998). It is reported that entrepreneurs' motivational factors are generic in developing countries and lack of motives among entrepreneurs adversely affect in the sustainable development of business in the long run (Stefanovic et al., 2010). To study whether the motivating factors influence the growth of IT services start-ups in Kerala, the following hypothesis was developed.

$H_{5.22}$: Motivating factors experienced by founders influence the growth of IT services start-ups

To analyze the above hypothesis, correlation and multiple regression analysis were used.

Table 5.35

Correlation analysis between motivational factors experienced by founders and growth of IT services start-ups

Variables		Motivational factors	Growth of IT services start-ups
Motivational factors	Pearson Correlation	1	.557
	Sig. (2-tailed)		.000*
Growth of IT services start-ups	Pearson Correlation	.557	1
	Sig. (2-tailed)	.000*	

Source: Survey data, *denotes Correlation is significant at the 0.05 level (2-tailed).

As mentioned in Table 5.35, Pearson correlation revealed that motivating factors experienced by founders are significantly and positively influenced on the growth of IT services start-ups with correlation value .557 and p value less than .01. So, different motivating factors experienced by founders lead to improve the growth of IT services start-ups. As a result, the study concludes that there is a statistically significant association between motivating factors experienced by founders and growth of IT services start-ups.

The researcher further uses regression analysis to analyses the data, the outcome of which are depicted in the table below.

Table 5.36

Multiple Regression Model Summary- Motivating factors experienced by founders and the growth of IT services start-ups

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.276	4	3.069	42.651	.000*
Residual	20.147	280	.072		
Total	32.423	284			
R			**R Square**		
0.615			0.379		

Source: Survey data, * denotes significant at 5% level

Dependent Variable: Growth of IT services start-ups

Predictors: (Constant), Entrepreneurial factors, Individual factors, Environmental factors, Social factors

From the above table 5.36, it can be ascertained that R square is 0.379, which implies that there is a variation of 37.9% between motivating factors (independent variable) and growth of IT services start-ups (dependent variable). This simply means that, Entrepreneurial factors, Individual factors, Environmental factors, and Social factors jointly contribute and reflect the growth of IT services start-ups at 37.9%. Hence it can be concluded that motivating factors experienced by founders improve the growth of IT services start-ups in Kerala.

Table 5.37

Strength of Relationship between motivating factors experienced by founders and the growth of IT services start-ups

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.205	.106		20.832	.000*		
Individual factors	.002	.017	.005	.108	.914	.961	1.041
Environmental factors	.077	.023	.183	3.409	.001*	.767	1.303
Social factors	.168	.025	.366	6.635	.000*	.729	1.372
Entrepreneurial factors	.075	.015	.253	4.980	.000*	.859	1.165

Source: Survey data
Dependent Variable: Growth of IT services start-ups
* denotes significant level at 5%

The above table 5.37 shows the significance of the variables (independent variables) in the model and its magnitude of impacts on the growth of IT services start-ups (dependent variable). Here we can find that there is moderate change in the growth of IT services start-ups due to Entrepreneurial factors, Individual factors, Environmental factors, and Social factors because of the sig. value is less than the acceptable value of 0.05.

Then multiple regression equation is

$$\mathbf{Y = 2.205 + 0.077\ X_1 + 0.168\ X_2 + 0.075 X_3}$$

Hence, it can describe as, with a 1% increase in the;

Environmental factors, the growth of IT services start-ups will increase by 0.077% (B value).

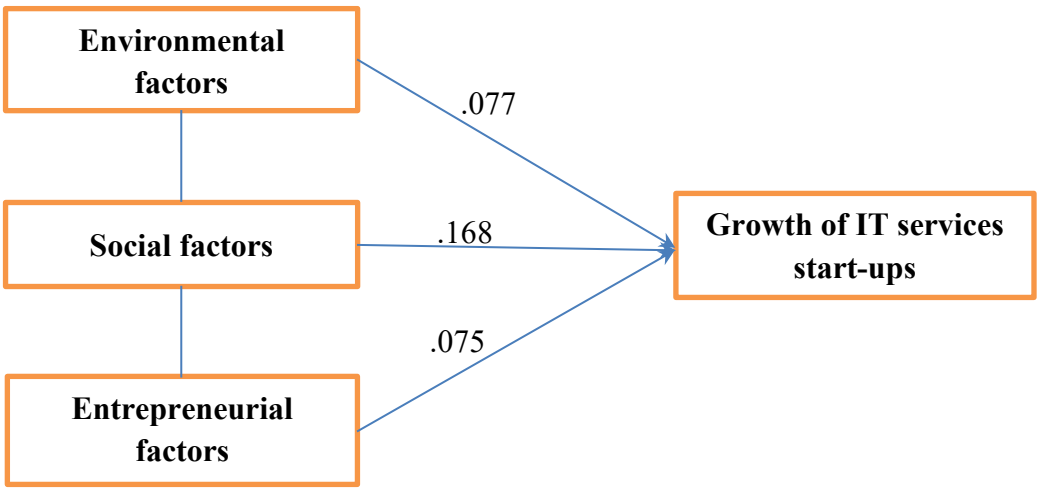
Social factors, the growth of IT services start-ups will increase by 0.168% (B value).

Entrepreneurial factors, the growth of IT services start-ups will increase by 0.075% (B value).

But there is no significant change in the growth of IT services start-ups based on Individual factors because of the Sig. value is more than the acceptable limit of 0.05.

Figure 5.6

Conceptual model of influence of motivating factors experienced by founders on the growth of IT services start-ups



5.8 Supports and facilities perceived by the founders of IT services start-ups from the KSUM

Better ecosystem helps the start-up to grow faster. In Kerala better ecosystem is providing to the nascent entrepreneurs through Kerala Start-up Mission. Various supports and facilities are provided by the KSUM to start-ups working in Kerala. The researcher tried to identify 11 different supports and facilities by using past

literatures and other sources. To analyze these variables the researcher used the following statistical tools.

- Exploratory Factor Analysis
- Independent sample T test
- One way ANOVA
- Tukey Post hoc analysis
- Correlation analysis
- Multiple Regression analysis

5.8.1 Development of Scales for Measurement of supports and facilities perceived by the founders of IT services start-ups from the KSUM using EFA

KSUM is the nodal agency of the government of Kerala to create and develop start-up culture in the state by providing adequate supports and facilities to start-ups through various incubation centres, accelerators etc.. In order to study the supports and facilities offered by KSUM, 11 items are included in the survey questionnaire. Respondents were asked to rate this 11 items related to supports and facilities offered by KSUM on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. In order to analyse the supports and facilities perceived by the IT services start-ups from KSUM and its dimensions, all the items were examined with help of Exploratory Factor Analysis. The output of EFA is presented below.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of founder's perception on supports and facilities offered by the KSUM

To use factor analysis, suitability of data was checked. To do this, both KMO test and Bartlett's test were used. Value of KMO of .818 (Table 5.38) reveals that factor analysis can be used for the present data. Under Bartlett's test of Sphericity, we test the variables are related or not through correlation matrix. The result shows that there exist significant relationships among the variables (p value is 0.000). So the result of KMO test and Bartlett's test reports that the present data is appropriate for factor analysis.

Table 5.38

KMO and Bartlett's Test- founder's perception on supports and facilities offered by the KSUM

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.818
Bartlett's Test of Sphericity	Approx. Chi-Square	3445.187
	df	55
	Sig.	.000*

Source: Survey data, * denotes Significant at 5% level

Table 5.39

Communalities of founder's perception on supports and facilities offered by the KSUM

Variables	Initial	Extraction
Technical mentorships/consultancy	1.000	.855
Business mentorship/ consultancy	1.000	.842
KSUM provides adequate infrastructural facilities to start IT start-ups in the state.	1.000	.921
Regulatory support	1.000	.863
KSUM provides entrepreneurial workshop, training and development facilities to IT services entrepreneurs.	1.000	.679
KSUM provides various funding schemes	1.000	.840
Proper awareness programme offered by KSUM to IT services start-ups	1.000	.817
Helps to access funds from different sources.	1.000	.762
KSUM supports IT service start-ups by connecting with network of corporates and renowned entrepreneurs	1.000	.838
KSUM supports IT service start-ups by connecting with network academic and research institution.	1.000	.777
KSUM provides marketing facilities to IT services start-ups.	1.000	.654

Source: Survey data
Extraction Method: Principal Component Analysis.

The table 5.39 explains the communalities and it reveals how much proportion of the variance of each variable by the extracted factors and if the communality initial

value is closer to 1, the variable is explained better by the factors. From the table it is seen that over 92.1% of the variance is accounted for KSUM provides adequate infrastructural facilities to start IT start-ups in the state followed by regulatory support where variances is 86.3%, while 65.4% of the variance is accounted for in KSUM provides marketing facilities to IT services start-ups.

Then next step is to decide how many factors are to be derived based on the Eigen value. We can take factors whose Eigen values are greater than one as rule of thumb. Then to extract factors and rotation of these factors, Principal Component Analysis and Varimax rotation algorithm (Kaiser, 1958) were used. After that component matrix of various factors were located orthogonally. Finally, all of the statements were loaded on the extracted factors after the rotation. The results of total variance explained, Scree Plot diagram, Rotated Component Matrix as well as factor loadings, are presented separately in the tables.

Table 5.40

Total Variance Explained of founder's perception on supports and facilities offered by the KSUM

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.338	57.616	57.616	6.338	57.616	57.616	3.109	28.264	28.264
2	1.364	12.396	70.012	1.364	12.396	70.012	3.026	27.513	55.776
3	1.147	10.425	80.437	1.147	10.425	80.437	2.713	24.661	80.437
4	.859	7.813	88.250						
5	.436	3.963	92.213						
6	.388	3.530	95.743						
7	.191	1.733	97.475						
8	.109	.990	98.465						
9	.080	.728	99.193						
10	.055	.502	99.695						
11	.034	.305	100.000						

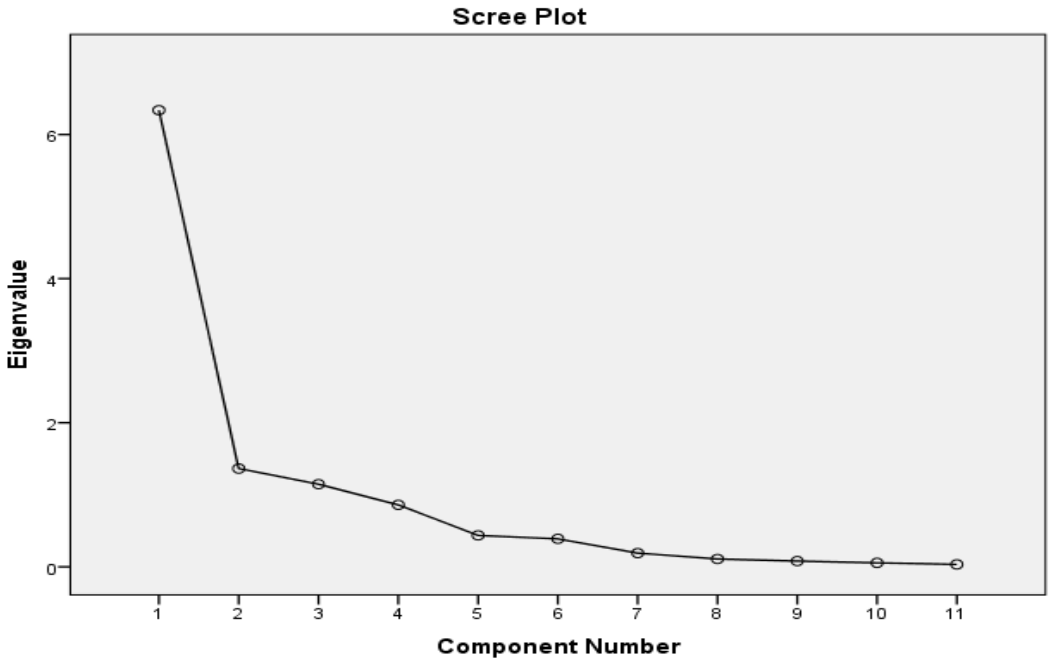
Source: Survey data

Extraction Method: Principal Component Analysis.

From the above table 5.40 it can be seen that 11 items (components), only 3 components having Eigen values more than 1 were selected. This means that these 3 components would be able to explain maximum variance in the characteristics of units. The total variance constitutes by all the three factors are 80.43% and maximum variance is explained by the three factors alone. Thus, these three variables alone are adequate for further analysis. Among the three factors, first factor accounted 28.26% of variance, second factor accounted 27.51% of variance and third factor accounted 24.66% of variance.

Figure 5.7

Scree Plot of founder's perception on supports and facilities offered by the KSUM



The table 5.6 showing the scree plot that explains the eigen values. It suggests that three factors are adequate for extraction and these three factors have eigen values of greater than one. The scree plot diagram clearly shows that only three factors with eigen value exceeding 1 before the curve becomes approximately a straight line (or before the curve starts to flatten).

Table 5.41

Rotated Component Matrix of founder's perception on supports and facilities offered by the KSUM

	Component		
	1	**2**	**3**
Technical mentorships/consultancy	.834		
Business mentorship/ consultancy	.833		
KSUM supports IT service start-ups by connecting with network of corporates and renowned entrepreneurs	.713		
KSUM provides entrepreneurial workshop, training and development facilities to IT services entrepreneurs.	.694		
KSUM supports IT service start-ups by connecting with network academic and research institution.	.662		
KSUM provides adequate infrastructural facilities to start IT start-ups in the state.		.854	
Regulatory support		.838	
Proper awareness programme offered by KSUM to IT services start-ups		.836	
KSUM provides various funding schemes			.810
Helps to access funds from different sources.			.803
KSUM provides marketing facilities to IT services start-ups.			.644

Source: Survey data
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 10 iterations.

The above Rotated component Matrix Table 5.41 describes that three factors are extracted for the study. By using factor analysis, total dependent variables (11 items) reduced to three factors. In order to analyse the supports and facilities perceived by the IT services start-ups from Kerala start-up mission, new labels were provided for these three factors in testing of hypotheses such as Factor 1- Mentorships and network support, 2 – Infrastructure and regulatory supports and 3 – Financial and marketing supports.

Table 5.42

Factors extracted through EFA regarding founders perception on supports and facilities offered by KSUM and reliability of factors

Factors of Supports and Facilities	Number of Items	Mean	Std. Deviation	Cronbach Alpha Coefficient
Mentorship and networking support	5	2.90	0.95	.892
Infrastructure and regulatory support	3	3.06	1.08	.953
Financial and Marketing supports	3	2.50	1.07	.876

Source: Survey data

The above table 5.42 reveals the number of items, mean, S.D and Cronbach Alpha Coefficient of three factors coming under supports and facilities offered by KSUM. Among these infrastructure and regulatory support have higher mean value (3.06) compared to others and concludes that Infrastructure and regulatory support are the important support perceived by IT services start-ups in Kerala. The table also clearly shows that Cronbach alpha coefficient of each three factor proved reliable and a strong internal consistency among the items: 892 (factor 1); .953 (factor 2); and .876 (factor 3). So the scales constructed for analysing the supports and facilities perceived by the IT services start-ups from KSUM by using factor analysis was appropriate for testing of hypotheses.

5.8.2 Difference in the founder's perception on supports and facilities offered by the KSUM with respect to gender of the founders.

It is relevant to compare the supports and facilities perceived by IT services start-up from the KSUM among gender of the founders. So the following hypothesis was developed by the researcher to analyze the same.

$H_{5.23}$: There is significant difference in the founder's perception on supports and facilities offered by the KSUM with respect to gender of the founders.

Table 5.43

Difference in the founder's perception on supports and facilities offered by the KSUM with respect to gender of the founders

Support and facilities from the KSUM	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Mentorship and networking support	Male	263	2.88	0.96	1.640	0.201	-0.860	0.390
	Female	22	3.06	0.79			-1.018	
Infrastructure and regulatory support	Male	263	3.02	1.08	1.133	0.288	-2.335	0.020*
	Female	22	3.58	0.95			-2.599	
Financial and Marketing supports	Male	263	2.54	1.09	9.101	0.003	1.821	0.019*
	Female	22	2.10	0.75			2.492	

Source: Survey data,
* Significant at 5% level of significance

The table 5.43 reports the mean values and standard deviations of level of support and facilities perceived by IT services start-up from the KSUM with respect to gender of the entrepreneurs. For the variable mentorship and networking support, mean values of male and female are 2.8821 and 3.0636 and S.D are .96263 and .78894. Assumption of equality of variance is followed with p value .201 which is >.05. T value is -.860 and p value (.390) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to mentorship and networking support of KSUM supports and facilities.

The variable infrastructure and regulatory support depicts the mean values of male and female are 3.0209 and 3.5773 and S.D are 1.08279 and .95415. Assumption of equality of variance is followed with p value .288 which is >.05. T value is .-2.335 and p value (.020) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to infrastructure and regulatory support of KSUM supports and facilities.

As far as Financial and Marketing supports are concerned, mean values of male and female are 2.5365 and 2.1045 and S.D are 1.09047 and .74927. Assumption of equality of variance is not followed with p value .003 which is <.05. T value is 2.492 and p value (.019) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial and Marketing supports of KSUM supports and facilities.

Table 5.44

Summary of Hypotheses Test Results

	Construct	**Hypotheses**	**Result**	**Decision**
H1a	Mentorship and networking support	There is no significant difference in the founder's perception on Mentorship and networking support from the KSUM with respect to gender of the founders.	T = -.860 p value = (.390) >0.05	Fail to Reject Null
H1b	Infrastructure and regulatory support	There is significant difference in the founder's perception on Infrastructure and regulatory support from the KSUM with respect to gender of the founders.	T value = -2.335 p value = (.020) <0.05	Reject Null
H1c	Financial and Marketing supports	There is significant difference in the founder's perception on Financial and Marketing supports from the KSUM with respect to gender of the founders.	T value = 2.492 p value = (.019) < 0.05	Reject Null

Source: Survey data

5.8.3 Difference in the founder's perception on supports and facilities offered by the KSUM with respect to previous experience of the founders.

It is relevant to compare the supports and facilities perceived by IT services start-up from the KSUM among previous experience of the founders. So the following hypothesis was developed by the researcher to analyze the same.

$H_{5.24}$: There is significant difference in the founder's perception on supports and facilities offered by the KSUM with respect to previous experience of founders.

Table 5.45

Difference in the founder's perception on supports and facilities offered by the KSUM with respect previous experience of founders

Support and facilities from the KSUM	Previous experience	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Mentorship and networking support	Yes	118	3.44	0.81	0.741	0.390	9.304	0.000*
	No	167	2.51	0.84			9.350	
Infrastructure and regulatory support	Yes	118	3.47	0.98	1.381	0.241	5.687	0.000*
	No	167	2.77	1.05			5.758	
Financial and Marketing supports	Yes	118	3.02	1.00	0.014	0.906	7.586	0.000*
	No	167	2.13	0.95			7.520	

Source: Survey data,
* Significant at 5% level of significance

The table 5.45 clearly depicts the descriptive statistics and t test along with Levene's test of the supports and facilities perceived by IT services start-up from the KSUM with respect to previous experience of founders. For the variable mentorship and networking support, mean values of founders having previous experience and not having previous experience are 3.44 and 2.51 and S.D are 0.81 and 0.84. Assumption of equality of variance is followed with p value 0.390 which is >.05. T value is 9.304 and p value (.000) is less than 0.05, the null hypothesis is rejected at

5% level of significance with regard to mentorship and networking support of KSUM supports and facilities.

The variable infrastructure and regulatory support depicts the mean values of founders having previous experience and not having previous experience are 3.47 and 2.77 and S.D are 0.98 and 1.05. Assumption of equality of variance is followed with p value 0.241 which is >.05. T value is 5.687 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to infrastructure and regulatory support of KSUM supports and facilities.

As far as Financial and Marketing supports are concerned, mean values of founders having previous experience and not having previous experience are 3.02 and 2.13 and S.D are 1.00 and 0.95. Assumption of equality of variance is followed with p value 0.906 which is >.05. T value is 7.586 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial and Marketing supports of KSUM supports and facilities.

Table 5.46

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Mentorship and networking support	There is significant difference in the founders' perception on Mentorship and networking support from the KSUM with respect to previous experience of founders.	T value = 9.304 p value = (.000) < 0.05	Reject Null
H1b	Infrastructure and regulatory support	There is significant difference in the founders' perception on Infrastructure and regulatory support from the KSUM with respect to previous experience of founders.	T value = 5.687 p value = (.000) < 0.05	Reject Null
H1c	Financial and Marketing supports	There is significant difference in the founders' perception on Financial and Marketing supports from the KSUM with respect to previous experience of founders.	T value = 7.586 p value = (.000) < 0.05	Reject Null

Source: Survey data

5.8.4 Difference in the founder's perception on supports and facilities offered by the KSUM with respect to entrepreneurial family background of founders.

It is relevant to compare the supports and facilities perceived by IT services start-up from the KSUM among entrepreneurial family background of founders. Hence the following hypothesis was set by the researcher to analyze the same.

$H_{5.25}$: There is significant difference in the founder's perception on supports and facilities offered by the KSUM with respect to entrepreneurial family background of founders.

Table 5.47

Difference in the founder's perception on supports and facilities offered by the KSUM with respect to educational family background of founders

Support and facilities from the KSUM	Entrepreneurial family background of founders	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Mentorship and networking support	Yes	79	3.13	1.01	1.614	0.205	2.675	0.008*
	No	206	2.80	0.90			2.544	
Infrastructure and regulatory support	Yes	79	3.17	1.08	0.041	0.840	1.12	0.264
	No	206	3.01	1.08			1.118	
Financial and Marketing supports	Yes	79	2.70	1.13	0.245	0.621	1.986	0.048*
	No	206	2.42	1.04			1.864	

Source: Survey data,
* Significant at 5% level of significance

The table 5.47 presents the mean values and standard deviations of level of supports and facilities perceived by IT services start-up from the KSUM with respect to entrepreneurial family background of founders. For the variable mentorship and networking support, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.13 and 2.80 and

S.D are 1.01 and .90. Assumption of equality of variance is followed with p value .205 which is >.05. T value is 2.675 and p value (.008) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to mentorship and networking support.

The variable infrastructure and regulatory support depicts the mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.17 and 3.01 and S.D are 1.08 and 1.08. Assumption of equality of variance is followed with p value .840 which is >.05. T value is 1.120 and p value (.264) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to infrastructure and regulatory support of KSUM supports and facilities.

As far as Financial and Marketing supports are concerned, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 2.70 and 2.42 and S.D are 1.13 and 1.04. Assumption of equality of variance is followed with p value .621 which is >.05. T value is 1.986 and p value (.048) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial and Marketing supports.

Table 5.48

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Mentorship and networking support	There is significant difference in the founder's perception on Mentorship and networking support from the KSUM with respect to entrepreneurial family background of founders.	T value = 2.675 p value = (.008) < 0.05	Reject Null
H1b	Infrastructure and regulatory support	There is no significant difference in the founder's perception on Infrastructure and regulatory support from the KSUM with respect to entrepreneurial family background of founders.	T value = 1.120 p value = (.264) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Financial and Marketing supports	There is significant difference in the founder's perception on Financial and Marketing supports from the KSUM with respect to entrepreneurial family background of founders.	T value = 1.986 p value = (.048) < 0.05	Reject Null

Source: Survey data

5.8.5 Difference in the founder's perception on supports and facilities offered by the KSUM with respect to incubation status of start-ups.

Many IT services start-ups have incubated their start-ups in incubation centres to get support and facilities from KSUM through incubation centres. It is relevant to compare the support and facilities perceived by IT services start-up from the KSUM among incubation status of start-ups. So the following hypothesis was set by the researcher to analyze the same.

$H_{5.26}$: There is significant difference in the founder's perception on supports and facilities offered by the KSUM with respect to incubation status of start-ups.

Table 5.49

Difference in the founder's perception on supports and facilities offered by the KSUM with respect to incubation status of start-ups.

Support and facilities from the KSUM	Incubated or not	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Mentorship and networking support	Yes	92	3.10	0.97	0.797	0.373	2.579	.010*
	No	193	2.80	0.93			2.536	
Infrastructure and regulatory support	Yes	92	3.40	1.07	0.019	0.890	3.663	.000*
	No	193	2.91	1.05			3.642	
Financial and Marketing supports	Yes	92	2.72	1.15	1.039	0.309	2.381	.018*
	No	193	2.40	1.02			2.281	

Source: Survey data,
* Significant at 5% level of significance

The table 5.49 shows the descriptive statistics and t test along with Levene's test of the support and facilities perceived by IT services start-up from the KSUM with respect to incubation status. For the variable mentorship and networking support, mean values of incubated start-ups and not incubated start-ups are 3.10 and 2.79 and S.D are .97 and .92. Assumption of equality of variance is followed with p value .373 which is >.05. T value is 2.579 and p value (.010) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to mentorship and networking support of KSUM supports and facilities.

The variable infrastructure and regulatory support depicts the mean values of incubated start-ups and not incubated start-ups are 3.39 and 2.90 and S.D are 1.07 and 1.05. Assumption of equality of variance is followed with p value .890 which is >.05. T value is 3.663 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to infrastructure and regulatory support of KSUM supports and facilities.

As far as Financial and Marketing supports are concerned, mean values of incubated start-ups and not incubated start-ups are 2.72 and 2.40 and S.D are 1.15 and 1.02. Assumption of equality of variance is followed with p value .309 which is >.05. T value is 2.381 and p value (.018) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial and Marketing supports of KSUM supports and facilities.

Table 5.50

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Mentorship and networking support	There is significant difference in the founder's perception on Mentorship and networking support from the KSUM with respect to incubation status of start-ups.	T value = 2.579 p value = (.010) < 0.05	Reject Null
H1b	Infrastructure and regulatory support	There is significant difference in the founder's perception on Infrastructure and regulatory support from the KSUM with respect to incubation status of start-ups.	T value = 3.663 p value = (.000) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Financial and Marketing supports	There is significant difference in the founder's perception on Financial and Marketing supports from the KSUM with respect to incubation status of start-ups.	T value = 2.381 p value = (.018) < 0.05	Reject Null

Source: Survey data

5.8.6 Founder's perception on supports and facilities offered by KSUM with respect to Education level of founders

Education system is an important element of start-up ecosystem and education level of founders is crucial part of growth of start-ups (Tripathi et al., 2019). To study education level wise comparison of KSUM supports and facilities perceived by IT services start-ups, the following hypothesis was developed.

$H_{5.27}$: The KSUM supports and facilities perceived by IT services start-ups differ based on education level of founders.

Table 5.51

ANOVA for significant difference in founder's perception on supports and facilities offered by KSUM with respect to education level of founders

KSUM supports and facilities	Education level of founders					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Mentorship and networking support	1.92 (0.75)	2.89 (0.94)	2.96 (0.99)	2.92 (0.84)	1.56 (0.41)	4.698	.001*
Infrastructure and regulatory support	2.06 (1.08)	2.91 (0.82)	3.10 (1.12)	3.10 (1.01)	2.33 (1.28)	1.951	.102
Financial and Marketing supports	1.38 (0.37)	2.51 (1.13)	2.51 (1.05)	2.61 (1.07)	1.38 (0.49)	3.385	.010*

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The above table 5.51 explains the one way ANOVA of Education level of respondents and supports and facilities extended by KSUM. For mentorship and networking support and Education level of entrepreneurs, F value = 4.698, p = .001 and for financial and marketing support and education level F value = 3.385, p = .010, where p value is <.05, therefore we rejected the null hypothesis and can conclude that mentorship and networking support and financial and Marketing supports of KSUM perceived by IT services start-ups differ based on education level of entrepreneurs. But the ANOVA of infrastructure and regulatory support of KSUM and Education level of entrepreneurs (F = 1.951), where p = .102, is more than .05. Therefore failed to reject null hypothesis and conclude that Infrastructure and regulatory support of KSUM perceived by IT services start-ups not differ based on education level of entrepreneurs.

Table 5.52

Post hoc: Multiple comparisons between founder's perception on supports and facilities offered by the KSUM and education level of founders

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.
Mentorship and networking support	Below Plus two	Diploma	-.97231	.48760	.272
		Graduation	-1.04424	.42118	.098
		Post graduation	-1.00000	.42369	.129
		Others	.35333	.56107	.970
	Diploma	Below Plus two	.97231	.48760	.272
		Graduation	-.07193	.26782	.999
		Post graduation	-.02769	.27175	1.000
		Others	1.32564*	.45731	.033
	Graduation	Below Plus two	1.04424	.42118	.098
		Diploma	.07193	.26782	.999
		Post graduation	.04424	.11615	.996
		Others	1.39757*	.38572	.003
	Post graduation	Below Plus two	1.00000	.42369	.129
		Diploma	.02769	.27175	1.000
		Graduation	-.04424	.11615	.996
		Others	1.35333*	.38845	.005

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.
	Others	Below Plus two	-.35333	.56107	.970
		Diploma	-1.32564*	.45731	.033
		Graduation	-1.39757*	.38572	.003
		Post graduation	-1.35333*	.38845	.005
Financial and Marketing supports	Below Plus two	Diploma	-1.13538	.55552	.248
		Graduation	-1.12596	.47986	.134
		Post graduation	-1.23000	.48272	.083
		Others	-.00333	.63923	1.000
	Diploma	Below Plus two	1.13538	.55552	.248
		Graduation	.00942	.30513	1.000
		Post graduation	-.09462	.30961	.998
		Others	1.13205	.52102	.193
	Graduation	Below Plus two	1.12596	.47986	.134
		Diploma	-.00942	.30513	1.000
		Post graduation	-.10404	.13233	.934
		Others	1.12263	.43945	.082
	Post graduation	Below Plus two	1.23000	.48272	.083
		Diploma	.09462	.30961	.998
		Graduation	.10404	.13233	.934
		Others	1.22667*	.44257	.047
	Others	Below Plus two	.00333	.63923	1.000
		Diploma	-1.13205	.52102	.193
		Graduation	-1.12263	.43945	.082
		Post graduation	-1.22667*	.44257	.047

Source: Survey data, * denotes significant at 5% level

The above table 5.52 depicts the post Hoc – multiple comparisons by using Tukey test to identify which combination of Education level of respondents has more significant in terms of mentorship and networking support and financial and marketing supports. The table reveals that there is a significant difference in the graduation and others combination in the case of mentorship and networking support

(p value = .003) and post-graduation and others combination in the case of financial and marketing supports (p value = .047).

5.8.7 Founders perception on supports and facilities offered by KSUM with respect to nature of start-ups

It is reported that KSUM provides support and facilities mainly to technology start-ups in Kerala (KSUM report, 2020). As per start-up India statistics, IT services start-ups are using product based, service based and mixed based start-ups. Hence, the researcher tried to study whether the KSUM provides supports and facilities to IT services start-ups in Kerala based on their nature of start-ups or not. The following hypothesis was developed to analyze the same.

$H_{5.28}$: Founders perception on supports and facilities offered by KSUM differ based on nature of start-ups.

Table 5.53

ANOVA for significant difference in founders perception on supports and facilities offered by KSUM with respect to nature of start-ups

KSUM supports and facilities	Nature of start-ups			F	Sig.
	Product	Service	Mixed		
Mentorship and networking support	2.9	2.91	2.87	0.043	0.958
	(0.96)	(0.88)	(0.99)		
Infrastructure and regulatory support	3.19	3.03	3.02	0.579	0.561
	(1.12)	(1.05)	(1.08)		
Financial and Marketing supports	2.46	2.64	2.42	1.143	0.320
	(1.03)	(1.03)	(1.05)		

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD

The above table 5.53 clearly reveals the ANOVA for the KSUM supports and facilities and nature of start-ups at 5% significant level. It reports that all factors related to KSUM supports and facilities such as mentoring and networking support,

infrastructure and regulatory support and financial and marketing supports have p value is less than 0.05 and failed to reject null hypotheses. So it can be concluded that the opinion of IT services start-ups entrepreneurs towards mentoring and networking support, infrastructure and regulatory support and financial and marketing supports not differ based on education level of entrepreneurs.

5.8.8 Relationship between supports and facilities perceived by founders from KSUM and the growth of IT services start-ups.

KSUM as a nodal agency of Kerala government provides various supports and facilities to technology start-ups in Kerala through various incubation centres and other channels. It is also seen that creation of digital environment in Kerala help the entrepreneurs to create new ventures and that may lead to success of start-ups (Elia et al., 2020). To study whether the KSUM supports and facilities influence the growth of IT services start-ups in Kerala, the following hypothesis was developed.

$H_{5.29}$: Founders perception on supports and facilities offered by KSUM influence the growth of the IT services start-ups

To analyze the above hypothesis, the study used correlation and multiple regression analysis was used.

Table 5.54

Correlation analysis between founders perception on supports and facilities offered by KSUM and growth of IT services start-ups

Variable		KSUM supports and facilities	Growth of IT services start-ups
KSUM supports and facilities	Pearson Correlation	1	.761
	Sig. (2-tailed)		.000*
Growth of IT services start-ups	Pearson Correlation	.761	1
	Sig. (2-tailed)	.000*	

Source: Survey data, *denotes Correlation is significant at the 0.05 level (2-tailed).

As indicated in Table 5.54, it can be seen that KSUM supports and facilities are significantly and positively related with the growth of IT services start-ups with correlation value .761 and p value less than .01. So, supports and facilities offered by KSUM improve the growth of IT services start-ups. As a result, the study concludes that there is a statistically significant association between founders perception on supports and facilities offered by KSUM and growth of IT services start-ups.

The researcher further uses regression analysis to analyses the data, the outcome which are depicted in the table below.

Table 5.55

Multiple Regression Model Summary- Supports and facilities perceived by founders from KSUM and the growth of IT services start-ups

Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	19.405	3	6.468	139.619	.000*
Residual	13.018	281	.046		
Total	32.423	284			
R			**R Square**		
0.774			0.598		

*Denotes significant at 5% level of significant, Dependent Variable: Growth of IT services start-ups
Predictors: (Constant), Financial and Marketing supports, Mentorship and networking support, Infrastructure and regulatory support

From the above table 5.55, it can be ascertained that R square is 0.598, which implies that there is a variation of 59.8% between KSUM supports and facilities (independent variable) and growth of IT services start-ups (dependent variable). This simply means that, Financial and Marketing supports, Mentorship and networking support, Infrastructure and regulatory support jointly contribute and change the growth of IT services start-ups at 59.8%. Hence it can be concluded that supports and facilities perceived by founders from KSUM improve the growth of IT services start-ups.

Table 5.56

Strength of Relationship between supports and facilities perceived by founders from by KSUM and growth of IT services start-ups

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.439	.044		55.224	.000*		
Mentorship and networking support	.127	.018	.357	7.220	.000*	.583	1.714
Infrastructure and regulatory support	.039	.016	.126	2.433	.016*	.530	1.886
Financial and Marketing supports	.129	.016	.410	8.002	.000*	.543	1.840

Source: Survey data
Dependent Variable: Growth of IT services start-ups
* denotes significant level at 5%

The above table 5.56 explains the significance of the variables (independent variables) in the model and its magnitude of effects on the growth of IT services start-ups (dependent variable). Here we can see that there is significant change in the growth of IT services start-ups due to Mentorship and networking support, Mentorship and networking support and Infrastructure and regulatory support because of the Sig. value is less than the acceptable value of 0.05.

Then multiple regression equation is

$$\mathbf{Y = 2.439 + 0.127\ X_1 + 0.039\ X_2 + 0.129\ X_3}$$

Hence, it can describe as, with a 1% increase in the;

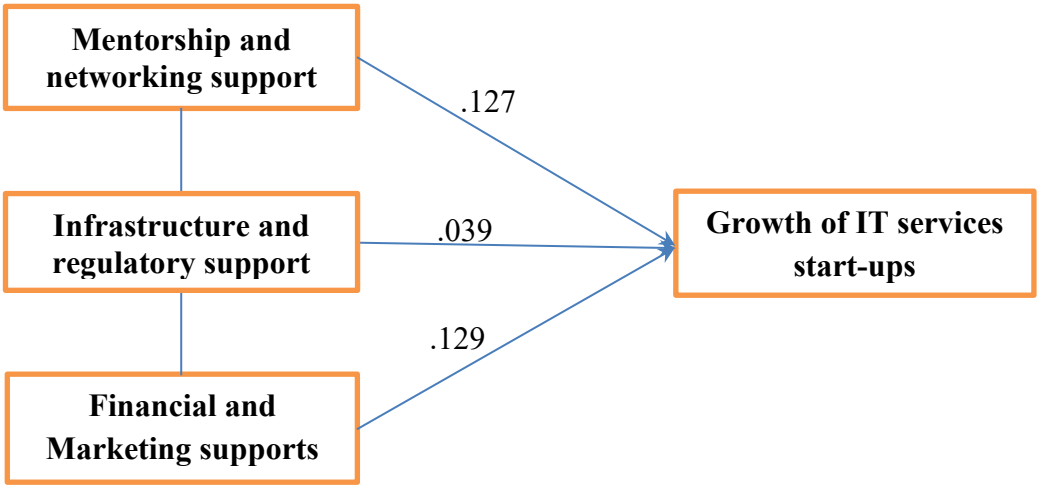
Mentorship and networking support, the growth of IT services start-ups will increase by 0.127%.

Infrastructure and regulatory support, the growth of IT services start-ups will increase by 0.039%.

Financial and Marketing supports, the growth of IT services start-ups will increase by 0.129%.

Figure 5.8

Conceptual model of influence of founders' perception on supports and facilities offered by KSUM on the growth of IT services start-ups



5.9 Founders perception on policies and schemes extended by the government to boost IT services start-ups in Kerala.

Government initiatives and supports are indispensible elements in the start-up ecosystem and in the promotion of start-ups culture in a country. Many researchers pointed out on the support of government in the creation of new ventures. Many initiatives are implemented by both central and state government to strengthen the start-up ecosystem in the state. The researcher identified 14 variables related to policies and schemes extended by the government to boost IT services start-ups in Kerala**.** These variables were analyzed by using the following statistical tools:

- Exploratory Factor Analysis
- Independent sample T test
- One way ANOVA
- Tukey Post hoc analysis
- Correlation analysis
- Multiple Regression analysis

5.9.1 Development of Scales for Measuring founders perception on policies and schemes extended by the governments to boost IT services start-ups in Kerala.

Government support is a important weapon in the creation of new ventures in a country. To check the opinion of entrepreneurs towards policies and schemes extended by the governments to boost IT services start-ups in Kerala., 14 items are included in the survey questionnaire. Respondents were asked to rate this 14 items related to policies and schemes extended by the governments on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. In order to check the opinion of entrepreneurs towards policies and schemes extended by the governments and its dimensions, all the items were examined with help of Exploratory Factor Analysis. The output of EFA is presented below.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test on founders perception on policies and schemes extended by the government.

To use factor analysis, suitability of data was checked. To do this, both KMO test and Bartlett's test were used. Value of KMO of .800 (Table 5.57) reveals that factor analysis can be used for the present data. Under Bartlett's test of Sphericity, we test the variables are related or not through correlation matrix. The result shows that there exist significant relationships among the variables (p value is 0.000). So the result of KMO test and Bartlett's test reports that the present data is appropriate for factor analysis.

Table 5.57

KMO and Bartlett's Test - founders perception on policies and schemes extended by the government

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.800
Bartlett's Test of Sphericity	Approx. Chi-Square	2534.490
	df	91
	Sig.	.000*

Source: Survey data, * denotes significant level at 5%

Table 5.58

Communalities of founders perception on policies and schemes extended by the governments

Variables	Initial	Extraction
Start-up schemes and initiatives implemented by the Central government are adequate	1.000	.705
The role of KSUM as a facilitator between the start-ups and the Government is as expected.	1.000	.841
Interventions of academic, educational and industrial institutions	1.000	.737
The concessions and incentives offered by the state governments to IT services start-ups are sufficient enough to attract the entrepreneurs to the state	1.000	.635
The govt. provide adequate awareness to IT start-ups regarding concessions, incentives and various initiatives.	1.000	.593
Start-up funding implemented by the government through various schemes are adequate to start new venture creation in the state	1.000	.622
The government's involvement in the upliftment of women entrepreneurs in the field of IT services start-up through women entrepreneurs support programme are as expected.	1.000	.752
Single window scheme and simplified /liberal regulations are supporting to the entrepreneurs.	1.000	.713
Taxation policies related to IT services start-ups are satisfactory	1.000	.910
Provide IPR protection	1.000	.800
The government brings adequate infrastructure facilities in the state are sufficient for the promotion of start-up.	1.000	.361
The government supports IT services start-ups by giving purchasing and marketing opportunities.	1.000	.403
Approach of bureaucracy in the state is a problem in the proper implementation of government policies and support system to promote start-up culture in the state	1.000	.657
The state has succeeded in building confidence in IT services start-up entrepreneurs by giving support as and when required.	1.000	.561

Source: Survey data

Extraction Method: Principal Component Analysis.

The table 5.58 describes the communalities and it reveals how much proportion of the variance of each variable by the extracted factors and if the communality initial value is closer to 1, the variable is explained better by the factors. From the table it is seen that over 91% of the variance is accounted for Taxation policies related to IT services start-ups are satisfactory followed by the role of KSUM as a facilitator between the start-ups and the Government is as expected where variances is 84.1%, where as 36.1% of the variance is accounted for in the government brings adequate infrastructure facilities in the state are sufficient for the promotion of start-up.

Then next step is to decide how many factors are to be derived based on the Eigen value. We can take factors whose Eigen values are greater than one as rule of thumb. Then to extract factors and rotation of these factors, Principal Component Analysis and Varimax rotation algorithm (Kaiser, 1958) were used. After that component matrix of various factors were located orthogonally. Finally, all of the statements were loaded on the extracted factors after the rotation. The results of total variance explained, Scree Plot diagram, Rotated Component Matrix as well as factor loadings, are presented separately in the tables.

Table 5.59

Total Variance Explained on founders perception on policies and schemes extended by the government

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.053	36.095	36.095	5.053	36.095	36.095	3.420	24.432	24.432
2	2.746	19.618	55.713	2.746	19.618	55.713	3.025	21.609	46.041
3	1.490	10.642	66.355	1.490	10.642	66.355	2.844	20.314	66.355
4	.990	7.074	73.429						
5	.825	5.896	79.325						
6	.690	4.930	84.255						
7	.508	3.627	87.882						
8	.450	3.215	91.097						
9	.369	2.637	93.734						
10	.284	2.027	95.761						
11	.231	1.650	97.412						
12	.139	.990	98.402						
13	.118	.846	99.248						
14	.105	.752	100.000						

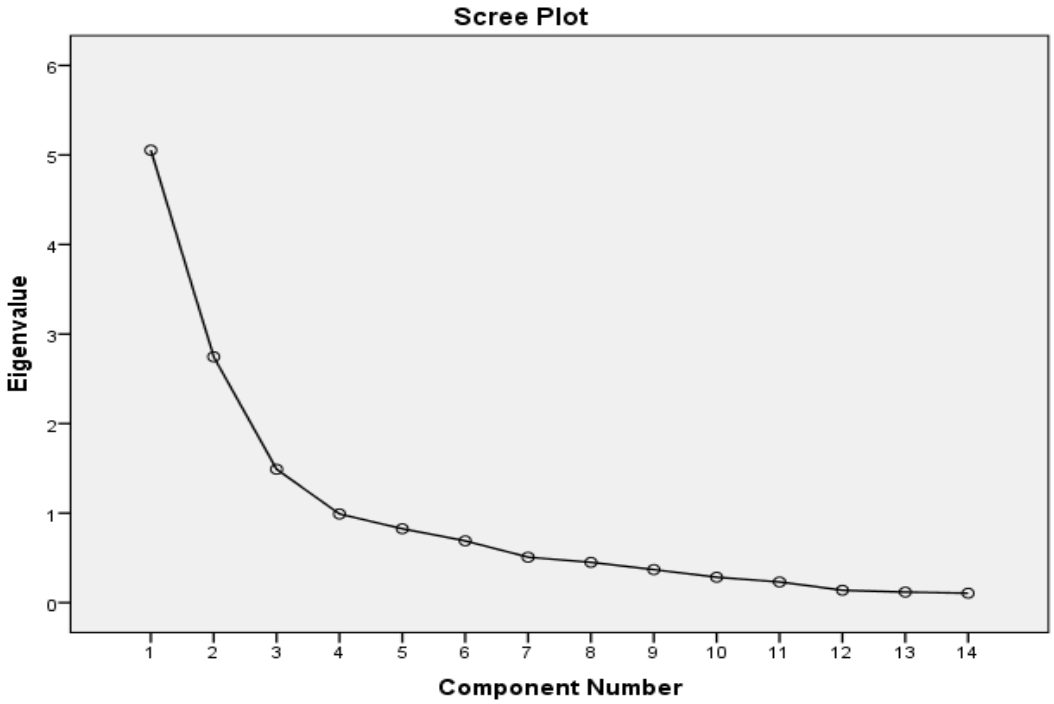
Source: Survey data

Extraction Method: Principal Component Analysis.

From the above table 5.59 it can be ascertained that from the 14 items (components), only 3 components having Eigen values more than 1 were selected. This means that these 3 components would be able to explain maximum variance in the characteristics of units. The total variance constitutes by all the three factors are 66.35% and maximum variance is explained by the three factors alone. Thus, these three variables alone are adequate for further analysis. Among the three factors, first factor accounted 24.43% of variance, second factor accounted 21.6% of variance and third factor accounted 20.31% of variance.

Figure 5.9

Scree Plot of founders perception on policies and schemes extended by the government



The figure 5.7 clearly exhibits the scree plot that explains the eigen values. It suggests that three factors are adequate for extraction and these three factors have eigen values of greater than one. The scree plot diagram clearly shows that only three factors with eigen value exceeding 1 before the curve becomes approximately a straight line (or before the curve starts to flatten).

Table 5.60

Rotated Component Matrix on founders perception on policies and schemes extended by the government

Variable	Component		
	1	2	3
Interventions of academic, educational and industrial institutions	.839		
Start-up schemes and initiatives implemented by the Central government are adequate	.801		
Approach of bureaucracy in the state is a problem in the proper implementation of government policies and support system to promote start-up culture in the state	.786		
The govt provide adequate awareness to IT start-ups regarding concessions, incentives and various initiatives.	.748		
The concessions and incentives offered by the state governments to IT services start-ups are sufficient enough to attract the entrepreneurs to the state	.632		
The government supports IT services start-ups by giving purchasing and marketing opportunities.	.534		
The government's involvement in the upliftment of women entrepreneurs in the field of IT services start-up through women entrepreneurs support programme are as expected.		.861	
Single window scheme and simplified /liberal regulations are supporting to the entrepreneurs.		.841	
Start-up funding implemented by the government through various schemes are adequate to start new venture creation in the state		.785	
The state has succeeded in building confidence in IT services start-up entrepreneurs by giving support as and when required.		.748	
The government brings adequate infrastructure facilities in the state are sufficient for the promotion of start-up.		.552	
Taxation policies related to IT services start-ups are satisfactory			.914
The role of KSUM as a facilitator between the start-ups and the Government is as expected.			.880
Provide IPR protection			.865

Source: Survey data
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 5 iterations.

The above Rotated component Matrix Table 5.60 discloses three factors are extracted for the study. By using factor analysis, total dependent variables (14 items) reduced to three factors. In order to check the opinion of entrepreneurs towards policies and schemes extended by the governments, new labels were provided for these three factors in testing of hypotheses such as Factor 1- Supporting and promoting measures, 2 – Financial and developmental measures and 3 – Protection measures.

Table 5.61

Factors extracted through EFA regarding founders perception on policies and schemes extended by the governments and reliability of factors

Policies and Schemes	Number of Items	Mean	Std. Deviation	Cronbach Alpha Coefficient
Supporting and promoting measures	6	3.03	0.74	.855
Financial and developmental measures	5	3.07	0.83	.824
Protection measures	3	2.74	0.96	.923

Source: Survey data

The above table 5.61 reveals the number of items, mean, S.D and Cronbach Alpha Coefficient of three factors coming under policies and schemes extended by the governments. Among these Financial and developmental measures have higher mean value (3.07) compared to others and concludes that Financial and developmental measures are the important policies and schemes extended by the governments. The table also clearly shows that Cronbach alpha coefficient of each three factor proved reliable and a strong internal consistency among the items: 855 (factor 1); .824 (factor 2); and .923 (factor 3). So the scales constructed for checking the opinion of entrepreneurs towards policies and schemes extended by the State government to boost IT services start-ups in Kerala by using factor analysis was appropriate for testing of hypotheses.

5.9.2 Difference in the founders perception on policies and schemes extended by the government with respect to Gender of the founders.

It is seen that only few female entrepreneurs are coming to the IT services start-ups in Kerala based on the start-up India statistics and KSUM report. To study whether the policies and schemes extended by the government differ for male and female founders, the following hypothesis was developed by the researcher to analyze the same.

$H_{5.30}$: There is significant difference in the founders perception on policies and schemes extended by the government with respect to Gender of the founders.

Table 5.62

Difference in the founders perception on policies and schemes extended by the government with respect to gender of the founders.

Policies and schemes extended by the government	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Supporting and promoting measures	Male	263	3.05	0.75	2.58	0.109	2.012	0.045*
	Female	22	2.72	0.62			2.360	
Financial and developmental measures	Male	263	3.07	0.82	0.46	0.498	0.253	0.800
	Female	22	3.03	0.97			0.219	
Protection measures	Male	263	2.76	0.96	0.843	0.359	1.161	0.247
	Female	22	2.51	1.01			1.116	

Source: Survey data,
* Significant at 5% level of significance

The above table 5.62 explains the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the policies and schemes extended by the government with respect to Gender of the entrepreneurs. For the variable Supporting and promoting measures, mean values of male and female are 3.0521 and 2.7227 and S.D are .74648 and .61793. Assumption of

equality of variance is followed with p value .109 which is >.05. T value is 2.012 and p value (.045) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Supporting and promoting measures extended by the government.

The variable Financial and developmental measures depicts the mean values of male and female are 3.0738 and 3.0273 and S.D are .81524 and 96864. Assumption of equality of variance is followed with p value .498 which is >.05. T value is .253 and p value (.800) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Financial and developmental measures extended by the government.

As far as Protection measures are concerned, mean values of male and female are 2.7574 and 2.5091 and S.D are .96056 and 1.00566. Assumption of equality of variance is followed with p value .359 which is >.05. T value is 1.161 and p value (.247) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Protection measures extended by the government.

Table 5.63

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Supporting and promoting measures	There is significant difference in the perception of IT services start-ups founders regarding the Supporting and promoting measures with respect to Gender of the founders.	T value = 2.012 p value= (.045) < 0.05	Reject Null
H1b	Financial and developmental measures	There is no significant difference in the perception of IT services start-ups founders regarding Financial and developmental measures with respect to Gender of the entrepreneurs.	T value = .253 p value = (.800) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Protection measures	There is no significant difference in the perception of IT services start-ups founders regarding the Protection measures with respect to Gender of the entrepreneurs.	T value = 1.161 p value = (.247) > 0.05	Fail to Reject Null

Source: Survey data

5.9.3 Difference in the founders perception on policies and schemes extended by the government with respect to previous experience of the founders.

To study whether the policies and schemes extended by the government are based on the previous experience of founders or not, it is necessary to compare the policies and schemes extended by the government among the founders having experience or not. So the following hypothesis was set by the researcher to analyze the same.

$H_{5.31}$: There is significant difference in the founders perception on policies and schemes extended by the government with respect to previous experience of the founders.

Table 5.64

Difference in the founders perception on policies and schemes extended by the government with respect to previous experience of the founders

Policies and schemes extended by the government	Previous experience	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Supporting and promoting measures	Yes	118	3.43	0.65	0.282	0.596	8.542	0.000*
	No	167	2.74	0.67			8.59	
Financial and developmental measures	Yes	118	3.33	0.78	1.042	0.308	4.694	0.000*
	No	167	2.88	0.81			4.72	
Protection measures	Yes	118	3.14	0.90	1.208	0.273	6.313	0.000*
	No	167	2.45	0.91			6.327	

Source: Survey data,
* Significant at 5% level of significance

The table 5.64 clearly shows the descriptive statistics and t test along with Levene's test of policies and schemes extended by the government with respect to previous experience of founders. For the supporting and promoting measures variable, mean values of founders having previous experience and not having previous experience are 3.43 and 2.74 and S.D are 0.65 and 0.67. Assumption of equality of variance is followed with p value 0.596 which is >.05. T value is 8.542 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Supporting and promoting measures.

The Financial and developmental measures depicts the mean values of founders having previous experience and not having previous experience are 3.33 and 2.88 and S.D are 0.78 and 0.81. Assumption of equality of variance is followed with p value 0.308 which is >.05. T value is 4.694 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial and developmental measures.

As far as Protection measures are concerned, mean values of founders having previous experience and not having previous experience are 3.14 and 2.45 and S.D are 0.90 and 0.91. Assumption of equality of variance is followed with p value 0.273 which is >.05. T value is 6.313 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Protection measures.

Table 5.65

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Supporting and promoting measures	There is significant difference in the perception of IT services start-ups founders regarding the Supporting and promoting measures with respect to Previous experience of founders.	T value = 8.542 p value = (.000) < 0.05	Reject Null
H1b	Financial and developmental measures	There is significant difference in the perception of IT services start-ups founders regarding Financial and developmental measures with respect to Previous experience of founders.	T value = 4.694 p value = (.000) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Protection measures	There is significant difference in the perception of IT services start-ups founders regarding Protection measures with respect to Previous experience of founders.	T value = 6.313 p value = (.000) < 0.05	Reject Null

Source: Survey data

5.9.4 Difference in the founders perception on policies and schemes extended by the government with respect to entrepreneurial family background of founders.

Entrepreneurial background of founders is critical success factors of start-ups (Barba-Sanchez et al., 2012). As a matter of facts, to compare the policies and schemes extended by the government among entrepreneurial family background of founders, the following hypothesis was set by the researcher to analyze the same.

$H_{5.32}$: There is significant difference in the founders perception on policies and schemes extended by the government with respect to entrepreneurial family background of founders.

Table 5.66

Difference in the founders perception on policies and schemes extended by the government with respect to entrepreneurial family background of founders

Policies and schemes extended by the government	Entrepreneurial family	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Supporting and promoting measures	Yes	79	3.26	0.80	1.969	0.162	3.473	.001*
	No	206	2.93	0.69			3.257	
Financial and developmental measures	Yes	79	3.13	0.89	1.37	0.243	0.809	.419
	No	206	3.04	0.80			0.772	
Protection measures	Yes	79	2.91	1.02	1.238	0.267	1.885	.060
	No	206	2.67	0.93			1.806	

Source: Survey data,
* Significant at 5% level of significance

The table 5.66 depicts the descriptive statistics and t test along with Levene's test of policies and schemes extended by the government with respect to entrepreneurial family background of founders. For the supporting and promoting measures variable, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.26 and 2.93 and S.D are 0.80 and 0.69. Assumption of equality of variance is followed with p value 0.162 which is >.05. T value is 3.473 and p value (.001) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Supporting and promoting measures.

The Financial and developmental measures depicts the mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.13 and 3.04 and S.D are 0.89 and 0.80. Assumption of equality of variance is followed with p value 0.243 which is >.05. T value is .809 and p value (.419) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Financial and developmental measures.

As far as Protection measures are concerned, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 2.91 and 2.67 and S.D are 1.02 and 0.93. Assumption of equality of variance is followed with p value 0.267 which is >.05. T value is 1.885 and p value (.060) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Protection measures.

Table 5.67

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Supporting and promoting measures	There is significant difference in the perception of IT services start-ups founders regarding the Supporting and promoting measures with respect to entrepreneurial family background of founders.	T value = 3.473 p value = (.001) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1b	Financial and developmental measures	There is no significant difference in the perception of IT services start-ups founders regarding Financial and developmental measures with respect to entrepreneurial family background of founders.	T value = .809 p value = (.419) > 0.05	Failed to Reject Null
H1c	Protection measures	There is no significant difference in the perception of IT services start-ups founders regarding Protection measures with respect to entrepreneurial family background of founders.	T value = 1.885 p value = (.060) >0.05	Failed to Reject Null

Source: Survey data

5.9.5 Difference in the founders perception on policies and schemes extended by the government with respect to incubation status of start-ups.

From the survey it is found that majority of the IT services start-ups are incubated their start-ups in any incubation centres in Kerala. So it is necessary to compare the policies and schemes extended by the government with incubation status of start-ups. So the following hypothesis was set by the researcher to study whether the policies and schemes extended by the government based on incubated start-ups or not.

$H_{5.33}$: There is significant difference in the founders perception on policies and schemes extended by the government with respect to incubation status of start-ups.

Table 5.68

Difference in the founders perception on policies and schemes extended by the government with respect to incubation status of start-ups

Policies and schemes extended by the government	Incubation status	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Supporting and promoting measures	Yes	92	3.08	0.83	3.97	0.047	0.896	0.371
	No	193	3.00	0.70			0.842	
Financial and developmental measures	Yes	92	3.16	0.87	0.131	0.718	1.25	0.212
	No	193	3.03	0.81			1.218	
Protection measures	Yes	92	2.69	1.16	17.143	0.000	-0.527	0.599
	No	193	2.76	0.86			-0.474	

Source: Survey data

The above table 5.68 illustrates the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the policies and schemes extended by the government with respect to incubation status of start-ups. For the variable Supporting and promoting measures, mean values of incubated and not incubated start-ups are 3.0837 and 2.9995 and S.D are .83077 and .69586. Assumption of equality of variance is not followed with p value .047 which is <.05. So take T value in the row of equal variances not assumed. Then T value is .842 and p value (.371) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Supporting and promoting measures extended by the government.

The variable Financial and developmental measures shows the mean values of incubated and not incubated start-ups are 3.1587 and 3.0280 and S.D are .86624 and .80535. Assumption of equality of variance is followed with p value .718 which is >.05. T value is 1.250 and p value (.212) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Financial and developmental measures extended by the government.

As far as Protection measures are concerned, mean values of incubated and not incubated start-ups are 2.6946 and 2.7591 and S.D are 1.16368 and 85619. Assumption of equality of variance is not followed with p value .000 which is <.05. So take T value in the row of equal variances not assumed. Then T value is -.474 and p value (.599) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Protection measures extended by the government.

Table 5.69

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Supporting and promoting measures	There is no significant difference in the perception of IT services start-ups founders regarding the Supporting and promoting measures with respect to incubation status.	T value = .842 p value = (.371) > 0.05	Fail to Reject Null
H1b	Financial and developmental measures	There is no significant difference in the perception of IT services start-ups founders regarding Financial and developmental measures with respect to incubation status.	T value = 1.250 p value = (.212) > 0.05	Fail to Reject Null
H1c	Protection measures	There is no significant difference in the perception of IT services start-ups founders regarding the Protection measures with respect to incubation status.	T value = -.474 p value = (.599) > 0.05	Fail to Reject Null

Source: Survey data

5.9.6 Founders' perception on policies and schemes extended by the Govt. with respect to education level of founders

Numerous initiative and schemes are implementing by the Govt. to different sectors of start-ups in Kerala. To know whether the policies and schemes are extended by the Govt. considering the education level of founders or not, the following hypothesis was developed.

$H_{5.34}$: The perception of IT services start-ups founders towards government policies and schemes differ based on education level of founders.

Table 5.70

ANOVA for significant difference in the perception of IT services start-ups founders towards government policies and schemes with respect to education level of founders

Govt. policies and schemes	Education level of founders					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Supporting and promoting measures	2.34 (0.49)	2.94 (0.54)	3.08 (0.75)	2.99 (0.74)	2.9 (0.70)	1.446	.219
Financial and developmental measures	2.52 (1.43)	2.83 (1.04)	3.15 (.65)	3.08 (.95)	1.66 (.45)	5.948	.000*
Protection measures	2.2 (0.30)	2.51 (.59)	2.67 (.88)	2.88 (1.08)	2.5 (1.23)	1.477	.209

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The above table 5.70 clearly interprets the ANOVA for the Education level and Govt. policies and schemes at 5% significant level. It reports that financial and developmental measures have p value less than 0.05 and null hypothesis is rejected. So it can be concluded that the opinion of IT services start-ups founders towards financial and developmental measures differ based on education level of founders. But the p values of supporting and promoting measures and protection measures are seen more than 0.05 and hence failed to reject null hypothesis. It can conclude that there is no significant difference in the supporting and promoting measures and protection measure among entrepreneurs having various education levels.

Table 5.71

Post hoc: Multiple comparison between Govt. policies and schemes and education level of founders

Dependent Variable	(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.
Financial and developmental measures	Below Plus two	Diploma	-.31077	.42039	.947
		Graduation	-.63497	.36313	.406
		Post graduation	-.56364	.36529	.535
		Others	.85333	.48374	.397
	Diploma	Below Plus two	.31077	.42039	.947
		Graduation	-.32420	.23091	.626
		Post graduation	-.25287	.23429	.817
		Others	1.16410*	.39428	.028
	Graduation	Below Plus two	.63497	.36313	.406
		Diploma	.32420	.23091	.626
		Post graduation	.07133	.10014	.954
		Others	1.48830*	.33255	.000
	Post graduation	Below Plus two	.56364	.36529	.535
		Diploma	.25287	.23429	.817
		Graduation	-.07133	.10014	.954
		Others	1.41697*	.33491	.000
	Others	Below Plus two	-.85333	.48374	.397
		Diploma	-1.16410*	.39428	.028
		Graduation	-1.48830*	.33255	.000
		Post graduation	-1.41697*	.33491	.000

* denotes significant at 5% level

The above table 5.71 describes the post Hoc – multiple comparisons by using Tukey test to identify which combination of education level of respondents has more significant in terms of financial and developmental measures. The table reveals that there is a significant difference in the graduation and others combination, diploma

and others combination and post-graduation and others combination (P value <.05). Among these, graduation and others combination have the highest mean value and highest difference.

5.9.7 Relationship between founders' perception on policies and schemes extended by the Govt. and the growth of IT services start-ups

Government policies and schemes are critical success factor of start-ups (Okpa, 2015). Government initiatives are crucial weapon to strengthen the performance of start-ups in India (Kumar, K., 2015). Hence, to study whether the Govt. policies and schemes influence the growth of IT services start-ups in Kerala, the following hypothesis was developed.

$H_{5.35}$: Founders' perception on policies and schemes extended by the Govt. influence the growth of the IT services start-ups

For testing the hypothesis correlation analysis and multiple regression analysis were used.

Table 5.72

Correlation analysis between founders' perception on policies and schemes extended by the Govt. and growth of IT services start-ups

Variable		Govt. policies and schemes	Growth of IT services start-ups
Govt. policies and schemes	Pearson Correlation	1	.718
	Sig. (2-tailed)		.000*
Growth of IT services start-ups	Pearson Correlation	.718	1
	Sig. (2-tailed)	.000*	

Source: Survey data, *denotes Correlation is significant at the 0.05 level (2-tailed).

As indicated in Table 5.72, it is described that founders' perception on policies and schemes extended by the Govt. are significantly and positively affected the growth of IT services start-ups with correlation value .718 and p value less than .01. So,

founders' perception on policies and schemes extended by the Govt. improve the growth of IT services start-ups. As a result, the study concludes that there is a statistically significant association between founders' perception on policies and schemes extended by the Govt. and the growth of IT services start-ups.

The researcher further uses regression analysis to analyses the data, the outcome which are depicted in the table below.

Table 5.73

Multiple Regression Model Summary- Founders' perception on policies and schemes extended by the Govt. and the growth of IT services start-ups

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.877	3	6.292	130.535	.000*
Residual	13.545	281	.048		
Total	32.423	284			
R			**R Square**		
0.763			0.582		

*denotes significant level at 5%, Dependent Variable: Growth of IT services start-ups
Predictors: (Constant), Protection measures, Financial and developmental measures, Supporting and promoting measures

From the above table 5.73, it can be ascertained that the R square is 0.582, which implies that there is a variation of 58.2% between Govt. policies and supports (independent variable) and growth of IT services start-ups (dependent variable). This simply means that, Protection measures, Financial and developmental measures, Supporting and promoting measures jointly contribute and change the growth of IT services start-ups at 58.2%. Hence it can be concluded that founders' perception on the policies and schemes extended by the Govt. improve the growth of IT services start-ups.

Table 5.74

Strength of Relationship between Founders' perception on policies and schemes extended by the Govt. and the growth of IT services start-ups.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.009	0.067		29.797	.000*		
Protection measures	0.263	0.021	0.578	12.515	.000*	.697	1.434
Financial and developmental measures	0.093	0.016	0.227	5.755	.000*	.956	1.046
Supporting and promoting measures	0.059	0.016	0.168	3.653	.000*	.706	1.417

Source: Survey data
Dependent Variable: Growth of IT services start-ups
* denotes significant level at 5%

The above table 5.74 clearly explains the significance of the variables (independent variables) in the model and its magnitude of effects on the growth of IT services start-ups (dependent variable). Here we can see that there is significant change in growth of IT services start-ups due to Protection measures, Financial and developmental measures and Supporting and promoting measures because of the Sig. value is less than the acceptable value of 0.05.

Then multiple regression equation is

$$\mathbf{Y = 2.009 + 0.263\ X_1 + 0.093\ X_2 + 0.059\ X_3}$$

Hence, it can describe as, with a 1% increase in the;

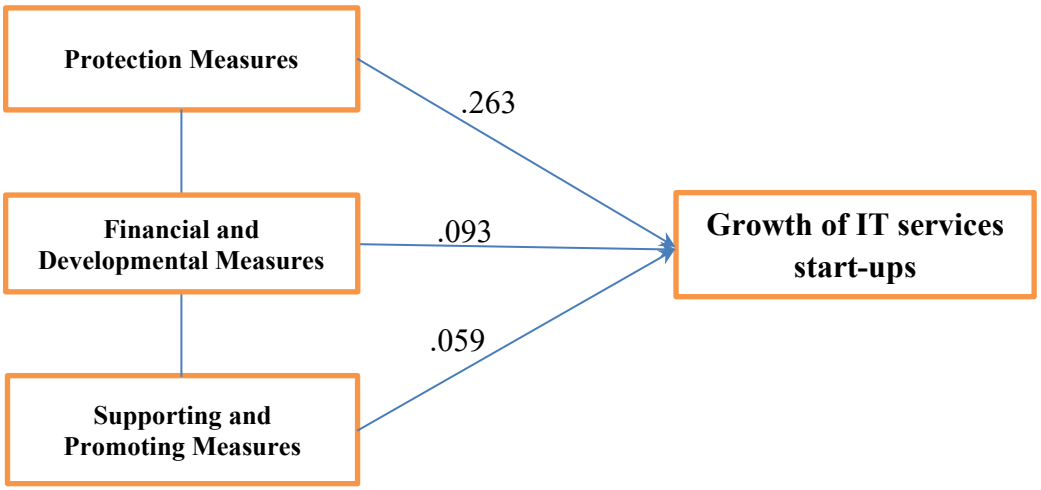
Protection measures, the growth of IT services start-ups will increase by 0.263%.

Financial and developmental measures, the growth of IT services start-ups will increase by 0.093%.

Supporting and promoting measures, the growth of IT services start-ups will increase by 0.059%.

Figure 5.10

Conceptual model of influence of founders' perception on policies and schemes extended by the Govt. on the growth of IT services start-ups



5.10 Conclusion

This chapter talks over the demographic profile of founders, start-up profile and their comparison. It explains the current trends of IT service start-ups in Kerala in terms of number of IT services start-ups, focused business areas, various business models and development stages of IT services start-ups. It revealed that an increasing trend of number of start-ups in different sectors at each stage of development of start-up. Then the chapter discussed about various motivating factors that lead persons to start IT services start-ups in Kerala. The result shows that individual factors are the important motivating factors and other three factors such as environmental factors, social factors and entrepreneurial factors influence the growth of IT services start-ups in Kerala. Considering the supports and facilities offered by KSUM to IT services start-ups, majority of the entrepreneurs are not agreed with the supports and facilities except infrastructure and regulatory support which has moderately perceived by entrepreneurs. It also shows that supports and

facilities of KSUM directly influence the growth of the IT services start-ups. As far as government policies and schemes to IT services start-ups, majority of the entrepreneurs opined that they do not get adequate support from government. If the government implements adequate policies and schemes to IT services start-ups, the result shows that it will influence the growth of the IT services start-ups in Kerala.

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CHAPTER 6

PERCEPTION OF FOUNDERS REGARDING GROWTH FACTORS, PROBLEMS AND PROSPECTS OF IT SERVICES START-UP IN KERALA

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6.1 Introduction

Recently large numbers of innovative businesses are being started in many countries. Majority of the innovative businesses are in the form of technology based start-ups and IT services start-ups (Hormiga, E., et al., 2011). These companies are new and innovative business models and have a high potential for growth and rapid scalability. In today's competitive world, technology is an indispensible part of social life and these companies become an integral part of countries economic growth and stability worldwide through job creation and economic contribution (Wu, W. W., 2009). Even though the technology based start-ups or IT services start-ups are highly innovative, they are also have high mortality rates. This chapter covers the growth factors and important problems faced by IT services start-ups. The researcher also attempted to study the prospect for growth in IT services start-ups in Kerala.

In this chapter the researcher tried to analyze the collected data from respondents and present the result in the following sections:

6.2 Growth factors of IT services start-ups in Kerala
6.3 Problems faced by IT services start-ups in Kerala
6.4 Prospects for growth of IT services start-ups in Kerala
6.5 Conclusion

The following tools were used for data analysis.

- Mean
- Percentage analysis
- Standard Deviation

- Independent Sample t Test
- One Way ANOVA
- Tukey Post Hoc Test for Multiple Comparisons
- Correlation Analysis
- Multiple Regression
- Exploratory Factor analysis

6.2 Growth factors of IT services start-ups.

To explore growth factors of start-ups especially IT services start-ups is crucial to know the performance of the companies. Each firm is different from other in terms of its different characteristics. Many researchers identified different factors that contribute to the success of firms. Numerous studies focuses on growth factors of technology start-ups and product based start-ups. Unlike other start-ups, IT service start-ups have different factors to achieve the success of the firm. In this context the researcher tried to identify critical growth factors that mandate the growth of IT services start-ups in Kerala.

6.2.1 Development of Scales for Measurement of growth factors of IT services start-ups.

There are a lot of indicators used to measure entrepreneur success or growth of new ventures. In order to measure growth factors of IT services start-ups in Kerala. 35 items were used in the survey questionnaire. Respondents were asked to rate this 35 items related to growth factors on a 5-point Likert scale, ranging from 1 = Not at all important to 5 = Extremely important. In order to check the growth factors of IT services start-ups and its dimensions, all the items were examined with help of Exploratory Factor Analysis. The output of EFA is presented below.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of growth factors

To use factor analysis, suitability of data was checked. To do this, both KMO test and Bartlett's test were used. Value of KMO of .785 (Table 6.1) reveals that factor analysis can be used for the present data. Under Bartlett's test of Sphericity, we test the variables are related or not through correlation matrix. The result shows that there exist significant relationships among the variables (p value is 0.000). So the

result of KMO test and Bartlett's test reports that the present data is appropriate for factor analysis.

Table 6.1

KMO and Bartlett's Test – Founders' perception on growth factors of IT services start-ups

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.785
Bartlett's Test of Sphericity	Approx. Chi-Square	5640.980
	df	595
	Sig.	.000*

Source: Survey data, * denotes Significant at 5% level

Table 6.2

Communalities of founders' perception on growth factors of IT services start-ups

Growth factors	Initial	Extraction
Entrepreneurial competencies	1	0.541
Technical knowledge	1	0.536
Leadership skill of entrepreneurs	1	0.593
Managerial skills of entrepreneurs	1	0.743
Propensity for risk taking of entrepreneur	1	0.508
Problem solving and decision making skill	1	0.608
Idea commercialization capability	1	0.631
Appropriate training	1	0.56
Innovative IT product/ Service features	1	0.827
Ability to exploit business opportunities	1	0.527
Ownership structure of the firm	1	0.556
Team expertise and their commitment	1	0.526
Availability of Talent employees	1	0.672
Creative and up to date technology utilization	1	0.799
IPR protection	1	0.798
Good business climate	1	0.817
Availability of infrastructure	1	0.727
Availability of adequate capital	1	0.883
Financial assistance from banking institution	1	0.563

Growth factors	Initial	Extraction
Availability of Government fund	1	0.852
Tax incentives	1	0.6
Competitive advantage	1	0.724
Alliance with another company	1	0.557
Better services quality	1	0.603
Incubators support	1	0.881
Accelerator's support	1	0.944
Support through Co-working space	1	0.771
Mentoring support	1	0.396
Favourable political environment	1	0.767
Comfort administrative system for ease of doing business	1	0.623
Favourable regulatory environment	1	0.817
Adapt to customer needs	1	0.677
Relationship with cutomer	1	0.611
Digital marketing strategies	1	0.601
Brand image	1	0.563

Source: Survey data
Extraction Method: Principal Component Analysis.

The table 6.2 shows the communalities and it reveals how much proportion of the variance of each variable by the extracted factors and if the communality initial value is closer to 1, the variable is explained better by the factors. From the table it is seen that over 94.4% of the variance is accounted for accelerator's support followed by availability of adequate capital where variances is 88.3%, where as 39.6% of the variance is accounted for in the mentoring support. Then next step is to decide how many factors are to be derived based on the Eigen value. We can take factors whose Eigen values are greater than one as rule of thumb. Then to extract factors and rotation of these factors, Principal Component Analysis and Varimax rotation algorithm (Kaiser, 1958) were used. After that component matrix of various factors were located orthogonally. Finally, all of the statements were loaded on the extracted factors after the rotation. The results of total variance explained, Scree Plot diagram, Rotated Component Matrix as well as factor loadings, are presented separately in the tables.

Table 6.3

Total Variance Explained of founders' perception on growth factors of IT services start-ups

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.838	19.537	19.537	6.838	19.537	19.537	3.588	10.250	10.250
2	4.215	12.043	31.580	4.215	12.043	31.580	3.284	9.383	19.633
3	2.772	7.921	39.501	2.772	7.921	39.501	3.245	9.271	28.904
4	2.459	7.027	46.528	2.459	7.027	46.528	2.838	8.107	37.011
5	2.058	5.881	52.410	2.058	5.881	52.410	2.769	7.912	44.923
6	1.793	5.122	57.531	1.793	5.122	57.531	2.724	7.783	52.706
7	1.537	4.392	61.923	1.537	4.392	61.923	2.359	6.741	59.446
8	1.274	3.640	65.563	1.274	3.640	65.563	2.141	6.117	65.563
9	.978	2.794	68.358						
10	.898	2.566	70.924						
11	.858	2.452	73.375						
12	.795	2.273	75.648						
13	.773	2.208	77.857						
14	.738	2.109	79.966						
15	.639	1.826	81.792						
16	.618	1.764	83.556						
17	.581	1.660	85.216						
18	.502	1.434	86.650						

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
19	.494	1.410	88.060						
20	.472	1.349	89.410						
21	.427	1.220	90.629						
22	.395	1.129	91.758						
23	.363	1.037	92.795						
24	.356	1.018	93.813						
25	.343	.981	94.793						
26	.319	.912	95.706						
27	.299	.854	96.560						
28	.242	.690	97.250						
29	.240	.685	97.935						
30	.185	.529	98.465						
31	.166	.473	98.938						
32	.135	.387	99.325						
33	.101	.289	99.614						
34	.087	.249	99.863						
35	.048	.137	100.000						

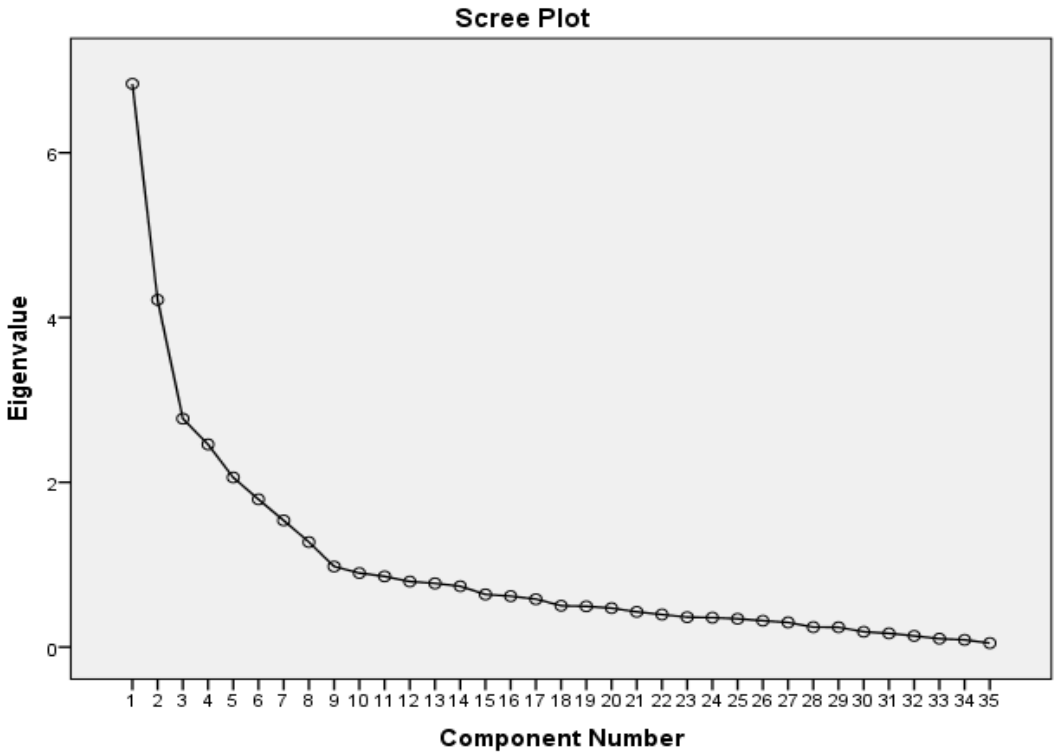
Source: Survey data

Extraction Method: Principal Component Analysis.

From the above table 6.3, it can be seen that from the 35 items (components), only 8 components having Eigen values more than 1 were selected. This means that these 8 components would be able to explain maximum variance in the characteristics of units. The total variance constitutes by all the three factors are 65.56% and maximum variance is explained by the eight factors alone. Thus, these eight variables alone are adequate for further analysis. Among the eight factors, first factor accounted 10.25% of variance, second factor accounted 9.38% of variance, third factor accounted 9.27% of variance, forth factor accounted 8.1% of variance, fifth factor accounted 7.91% of variance, sixth factor accounted 7.78% of variance, seventh factor accounted 6.74% of variance and eight factor accounted 6.11% of variance.

Figure 6.1

Scree Plot of founders' perception on the growth factors of IT services start-ups



The figure 6.1 showing the scree plot that explains the eigen values. It suggests that eight factors are adequate for extraction and these eight factors have eigen values of greater than one. The scree plot diagram clearly shows that only eight factors with

eigen value exceeding 1 before the curve becomes approximately a straight line (or before the curve starts to flatten).

Table 6.4

Rotated Component Matrix of founders' perception on growth factors of IT services start-ups

	Component							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Accelerator's support	.918							
Incubators support	.877							
Good business climate	.870							
Support through Co-working space	.849							
Availability of adequate capital		.902						
Competitive advantage		.844						
Availability of infrastructure		.818						
Availability of Talent employees		.802						
Favourable regulatory environment			.829					
Favourable political environment			.824					
Adapt to customer needs			.605					
Team expertise and their commitment			.570					
Appropriate training			.550					
Ability to exploit business opportunities			.510					
Availability of Government fund				.878				
IPR protection				.858				
Financial assistance from banking institution				.734				
Tax incentives				.669				
Better services quality					.763			

	Component							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Relationship with customer					.715			
Brand image					.712			
Comfort administrative system for ease of doing business					.636			
Digital marketing strategies						.705		
Technical knowledge						.627		
Alliance with another company						.624		
Entrepreneurial competencies						.619		
Idea commercialization capability						.581		
Managerial skills of entrepreneurs							.846	
Leadership skill of entrepreneurs							.726	
Problem solving and decision making skill							.570	
Ownership structure of the firm							.544	
Propensity for risk taking of entrepreneur							.519	
Creative and up to date technology utilization								.888
Innovative IT product/ Service features								.882
Mentoring support								.533

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 7 iterations.

The above Rotated component Matrix Table 6.4 shows eight factors are extracted for the study. By using factor analysis, total dependent variables (35 items) reduced to eight factors. In order to measure the perception of IT services start-up entrepreneurs regarding the factors that contribute to the growth of IT services start-ups, new labels were provided for these eight factors in testing of hypotheses such as Factor 1-Institutional support, 2 – Resource availabilities, 3 – Team capabilities and environmental factors, 4 – Financial supports, 5 – Marketing factors, 6 – Firm distinctiveness, 7 – Entrepreneurial traits and 8 - Technology and mentoring support factors.

Table 6.5

Factors extracted through EFA regarding founders' perception on growth factors of IT services start-ups and reliability of factors

Growth Factors	Number of Items	Mean	Std. Deviation	Cronbach Alpha Coefficient
Institutional support	4	3.70	1.02	.944
Resources availabilities	5	3.89	0.85	.703
Team capabilities and environmental factors	4	3.89	0.73	.886
Financial factors	6	3.75	0.81	.806
Marketing factors	4	4.30	0.66	.831
Firm distinctiveness	4	4.25	0.55	.753
Entrepreneurial traits	5	4.37	0.48	.712
Technology and mentoring support factors	3	4.33	0.68	.714

Source: Survey data

The above table 6.5 reveals the number of items, mean, S.D and Cronbach Alpha Coefficient of eight factors coming under growth factors of IT services start-ups in Kerala. Among these entrepreneurial traits have the highest mean value (4.37) and conclude that entrepreneurial traits are the most important growth factor of IT services start-ups in Kerala. The table also clearly shows that Cronbach alpha coefficient of each eight factors proved reliable and a strong internal consistency among the items: .944 (factor 1); .703 (factor 2); .886 (factor 3), .806 (factor 4); .831 (factor 5); .753 (factor 6); .712(factor 7); and .714 (factor 8). So the scales constructed to measure the perception of IT services start-up entrepreneurs regarding the factors that contribute to the growth of IT services start-ups by using factor analysis was appropriate for testing of hypotheses.

6.2.2 Difference in the founders' perception on growth factors of IT services start-ups with respect to previous experience of founders

From various literatures, it can be seen that previous experience of founders is the main factor that contribute to the growth of the new ventures. It is found that seed stages are influenced by the previous start-up experience (Santisteban, J., & Mauricio, D., 2017). Founders marketing experience and industry experience are positively correlated to new venture creation (Song et al., 2008). But in the study of Lasch et al. (2007) working experience has no significant effect on the success of ICT services start-ups. Since it is necessary to compare the growth factors of IT services start-ups among previous experience of founders. So the following hypothesis was set by the researcher to analyse the same.

$H_{6.1}$: There is significant difference in the founders' perception on growth factors of IT services start-ups with respect to previous experience of founders

Table 6.6

Difference in the founders' perception on growth factors of IT services start-ups with respect to previous experience of founders

Growth factors	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Institutional support	Yes	118	3.97	0.85	12.834	0.000	3.944	.000*
	No	167	3.5	1.07			4.101	
Resources availabilities	Yes	118	4.02	0.88	0.897	0.345	2.221	.027*
	No	167	3.79	0.81			2.188	
Team capabilities and environmental factors	Yes	118	4.11	0.66	2.290	0.131	4.485	.000*
	No	167	3.73	0.74			4.572	
Financial factors	Yes	118	3.96	0.73	3.201	0.075	3.903	.000*
	No	167	3.59	0.82			3.979	

Growth factors	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Marketing factors	Yes	118	4.38	0.6	7.151	0.008	1.821	.064
	No	167	4.24	0.68			1.86	
Firm distinctiveness	Yes	118	4.39	0.41	10.81	0.001	3.854	.000*
	No	167	4.14	0.61			4.117	
Entrepreneurial traits	Yes	118	4.43	0.46	1.502	0.221	2.034	.043*
	No	167	4.32	0.48			2.049	
Technology and mentoring support factors	Yes	118	4.46	0.59	0.976	0.324	2.796	.006*
	No	167	4.23	0.71			2.885	

Source: Survey data,
* Significant at 5% level of significance

The above table 6.6 reveals the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the growth factors of IT services start-ups with respect to gender of the entrepreneurs.

For the variable Institutional support, mean values of founders having previous experience and not having previous experience are 3.97 and 3.50 and S.D are .85 and 1.07. Assumption of equality of variance is followed with p value .000 which is <.05, So take T value in the row of equal variances not assumed. Then T value is 4.101 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Institutional support.

For the variable Resources availabilities, mean values of founders having previous experience and not having previous experience are 4.02 and 3.79 and S.D are .88 and .81. Assumption of equality of variance is followed with p value .345 which is >.05, T value is 2.221 and p value (.027) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Resources availabilities.

The variable Team capabilities and environmental factors show the mean values of founders having previous experience and not having previous experience are 4.11

and 3.73 and S.D are .66 and .74. Assumption of equality of variance is followed with p value .131 which is >.05. T value is 4.485 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Team capabilities and environmental factors.

As far as Financial factors are concerned, mean values of founders having previous experience and not having previous experience are 3.96 and 3.59 and S.D are .73 and .82. Assumption of equality of variance is followed with p value .075 which is >.05. Then T value is 3.903 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to financial factors.

In the case of Marketing factors, mean values of founders having previous experience and not having previous experience are 4.38 and 4.24 and S.D are .60 and .68. Assumption of equality of variance is not followed with p value .008 which is <.05. So take T value in the row of equal variances not assumed. Then T value is 1.860 and p value (.064) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to marketing factors.

For the variable Firm distinctiveness, mean values of founders having previous experience and not having previous experience are 4.39 and 4.14 and S.D are .41 and .61. Assumption of equality of variance is not followed with p value .001 which is <.05, So take T value in the row of equal variances not assumed. Then T value is 4.117 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Firm distinctiveness.

In the case of the variable Entrepreneurial traits, mean values of founders having previous experience and not having previous experience are 4.43 and 4.32 and S.D are .46 and .48. Assumption of equality of variance is followed with p value .221 which is >.05, Then T value is 2.034 and p value (.043) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Entrepreneurial traits.

As far as Technology and mentoring support factors are concerned, mean values of founders having previous experience and not having previous experience are 4.46

and 4.23 and S.D are .59 and .71. Assumption of equality of variance is followed with p value .324 which is >.05. Then T value is 2.796 and p value (.006) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Technology and mentoring support factors.

Table 6.7

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Institutional support	There is significant difference in the founders' perception on Institutional support with respect to previous experience of founders.	T value = 4.101 p value = (.000) < 0.05	Reject Null
H1b	Resources availabilities	There is significant difference in the founders' perception on Resources availabilities with respect to previous experience of founders.	T value = 2.221 p value = (.027) < 0.05	Reject Null
H1c	Team capabilities and environmental factors	There is significant difference in the founders' perception on Team capabilities and environmental factors with respect to previous experience of founders.	T value = 4.485 p value = (.000) < 0.05	Reject Null
H1d	Financial factors	There is significant difference in the founders' perception on Financial factors with respect to previous experience of founders.	T value = 3.903 p value =(.000) < 0.05	Reject Null
H1e	Marketing factors	There is no significant difference in the founders' perception on Marketing factors with respect to previous experience of founders.	T value = 1.860 p value = (.064) > 0.05	Fail to Reject Null
H1f	Firm distinctiveness	There is significant difference in the founders' perception on Firm distinctiveness with respect to previous experience of founders.	T value = 4.117 p value = (.000) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1g	Entrepreneurial traits	There is significant difference in the founders' perception on Entrepreneurial traits with respect to previous experience of founders.	T value = 2.034 p value = (.043) < 0.05	Reject Null
H1h	Technology and mentoring support factors	There is significant difference in the founders' perception on Technology and mentoring support factors with respect to previous experience of founders.	T value = 2.796 p value =(.006) < 0.05	Reject Null

Source: Survey data

6.2.3 Difference in the founders' perception on growth factors of IT services start-ups with respect to entrepreneurial family background of founders.

Some of the studies found that entrepreneurial family background is the important motivating factor of entrepreneurial intention and but very little study has conducted to know family background on the growth or success of new venture. Family support encourages the entrepreneur to take risks boldly and a greater chance to become success in their business. It is found that family background of funders is directly affected the entrepreneurial success (Staniewski, M. W., & Awruk, K., 2021). Hence it is necessary to compare the growth factors of IT services start-ups among entrepreneurial family background of founders. So the following hypothesis was set by the researcher to analyse the same.

$H_{6.2}$: There is significant difference in the founders' perception on growth factors of IT services start-ups with respect to entrepreneurial family background of founders.

Table 6.8

Difference in the founders' perception on growth factors of IT services start-ups with respect to entrepreneurial family background of founders.

Growth Factors	Entrepreneurial Background Family	N	Mean	SD	Levene's Test for Equality of Variances		t	Sig (2 tailed)
					F	Sig.		
Institutional support	Yes	79	4.10	0.87	5.626	0.018	4.368	0.000*
	No	206	3.53	1.02			4.698	
Resources availabilities	Yes	79	4.05	0.94	2.15	0.144	2.039	0.042*
	No	206	3.82	0.80			1.899	
Team capabilities and environmental factors	Yes	79	4.17	0.64	3.161	0.077	4.192	0.000*
	No	206	3.78	0.73			4.439	
Financial factors	Yes	79	3.99	0.72	2.813	0.095	3.195	0.002*
	No	206	3.65	0.82			3.376	
Marketing factors	Yes	79	4.36	0.64	0.976	0.324	0.942	0.347
	No	206	4.27	0.66			0.952	
Firm distinctiveness	Yes	79	4.41	0.46	0.42	0.518	3.157	0.002*
	No	206	4.18	0.57			3.473	
Entrepreneurial traits	Yes	79	4.45	0.39	7.526	0.006	1.862	0.039*
	No	206	4.33	0.50			2.081	
Technology and mentoring support factors	Yes	79	4.45	0.60	0.467	0.495	1.959	0.047*
	No	206	4.27	0.70			2.094	

Source: Survey data,
* Significant at 5% level of significance

The table 6.8 clearly reveals the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the growth factors of IT services start-ups with respect to Entrepreneurial family background. For the variable Institutional support, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.10 and 3.53 and S.D are .87 and 1.02. Assumption of equality of variance is not followed with p value .018 which is <.05, so take T value in the row of equal variances not assumed. Then T value is 4.698 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to institutional support.

For the variable Resources availabilities, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.05 and 3.82 and S.D are .94 and .80. Assumption of equality of variance is followed with p value .144 which is >.05, T value is 2.039 and p value (.042) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to resources availabilities.

The variable Team capabilities and environmental factors show the mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.17 and 3.78 and S.D are .64 and .73. Assumption of equality of variance is not followed with p value .077 which is >.05, Then T value is 4.192 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Team capabilities and environmental factors.

As far as Financial factors are concerned, mean values of are 3.99 and 3.65 and S.D are .72 and .82. Assumption of equality of variance is followed with p value .095 which is >.05. Then T value is 3.195 and p value (.002) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to financial factors.

In the case of marketing factors, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.36 and 4.27 and S.D are .64 and .66. Assumption of equality of variance is followed with p value .324 which is >.05. Then T value is .942 and p value (.347) is more than 0.05,

the null hypothesis is failed to reject at 5% level of significance with regard to marketing factors.

For the variable Firm distinctiveness, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.41 and 4.18 and S.D are .46 and .57. Assumption of equality of variance is followed with p value .518 which is >.05. Then T value is 3.157 and p value (.002) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Firm distinctiveness.

In the case of the variable Entrepreneurial traits, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.45 and 4.33 and S.D are .39 and .50. Assumption of equality of variance is not followed with p value .006 which is <.05. Then T value is 2.081 and p value (.039) is less than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Entrepreneurial traits.

As far as Technology and mentoring support factors are concerned, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.45 and 4.27 and S.D are .60 and .70. Assumption of equality of variance is followed with p value .495 which is >.05. Then T value is 1.959 and p value (.047) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Technology and mentoring support factors.

Table 6.9

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Institutional support	There is significant difference in the founders' perception on Institutional support with respect to entrepreneurial family background.	T value = 4.638 p value (.000) < 0.05	Reject Null
H1b	Resources availabilities	There is significant difference in the founders' perception on Resources availabilities with respect to entrepreneurial family background.	T value = 2.039 p value = (.042) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Team capabilities and environmental factors	There is significant difference in the founders' perception on Team capabilities and environmental factors with respect to entrepreneurial family background.	T value = 4.192 p value = (.000) < 0.05	Reject Null
H1d	Financial factors	There is significant difference in the founders' perception on Financial factors with respect to entrepreneurial family background.	T value = 3.195 p value = (.002) < 0.05	Reject Null
H1e	Marketing factors	There is no significant difference in the founders' perception on Marketing factors with respect to entrepreneurial family background.	T value = .942 p value = (.347) > 0.05	Fail to Reject Null
H1f	Firm distinctiveness	There is significant difference in the founders' perception on Firm distinctiveness with respect to entrepreneurial family background.	T value = 3.157 p value = (.002) < 0.05	Reject Null
H1g	Entrepreneurial traits	There is significant difference in the founders' perception on Entrepreneurial traits with respect to entrepreneurial family background.	T value = 2.081 p value = (.039) < 0.05	Reject Null
H1h	Technology and mentoring support factors	There is significant difference in the founders' perception on Technology and mentoring support factors with respect to entrepreneurial family background.	T value = 1.959 p value = (.047) < 0.05	Reject Null

Source: Survey data

6.2.4 Difference in the founders' perception on growth factors of IT services start-ups with respect to incubation status of start-ups.

Incubated start-ups are getting better services and supports from incubation centre and it leads to growth of the start-ups. It is reported that there is a significant higher survival probabilities for firms incubated in selected incubator organizations (Schwartz, M., 2013). Based on this, the researcher tried to compare the growth

factors of IT services start-ups among incubation status of start-ups. So the following hypothesis was set to analyse the same.

$H_{6.3}$: There is significant difference in the founders' perception on growth factors of IT services start-ups with respect to incubation status of start-ups.

Table 6.10

Difference in the founders' perception on growth factors of IT services start-ups with respect to incubation status of start-ups.

Growth factors	Incubated or not	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Institutional support	Yes	92	4.01	0.75	27.486	0.000	3.627	.000*
	No	193	3.55	1.09			4.115	
Resources availabilities	Yes	92	3.98	0.88	0.036	0.850	1.167	.244
	No	193	3.85	0.84			1.148	
Team capabilities and environmental factors	Yes	92	3.97	0.68	2.304	0.130	1.285	.200
	No	193	3.85	0.76			1.331	
Financial factors	Yes	92	3.63	0.90	3.243	0.073	-1.701	.090
	No	193	3.80	0.76			-1.601	
Marketing factors	Yes	92	4.47	0.62	4.637	0.032	2.977	.003*
	No	193	4.22	0.66			3.040	
Firm distinctiveness	Yes	92	4.30	0.46	2.071	0.151	1.135	.257
	No	193	4.22	0.59			1.236	
Entrepreneurial traits	Yes	92	4.53	0.42	4.447	0.036	4.095	.000*
	No	193	4.29	0.49			4.338	
Technology and mentoring support factors	Yes	92	4.23	0.76	2.463	0.118	-1.597	.111
	No	193	4.37	0.63			-1.495	

Source: Survey data,
* Significant at 5% level of significance

The table 6.10 depicts the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the growth factors of IT services start-ups with respect to incubation status of start-ups. For the variable Institutional support, mean values of start-ups incubated or not are 4.01 and 3.55 and S.D are .75 and 1.09. Assumption of equality of variance is not followed with p value .000 which is <.05, so take T value in the row of equal variances not assumed. Then T value is 4.115 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Institutional support.

For the variable Resources availabilities, mean values of start-ups incubated or not are 3.98 and 3.85 and S.D are .88 and .84. Assumption of equality of variance is followed with p value .85 which is >.05. Then T value is 1.167 and p value (.244) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Resources availabilities.

The variable Team capabilities and environmental factors show the mean values of start-ups incubated or not are 3.97 and 3.85 and S.D are .68 and .76. Assumption of equality of variance is followed with p value .13 which is >.05. Then T value is 1.285 and p value (.200) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Team capabilities and environmental factors.

As far as Financial factors are concerned, mean values of start-ups incubated or not 3.63 and 3.80 and S.D are .90 and .76. Assumption of equality of variance is followed with p value .073 which is >.05. Then T value is -1.701 and p value (.09) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Financial factors.

In the case of marketing factors, mean values of start-ups incubated or not are 4.47 and 4.22 and S.D are .62 and .66. Assumption of equality of variance is not followed with p value .032 which is <.05, so take T value in the row of equal variances not assumed. Then T value is 2.977 and p value (.003) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to marketing factors.

For the variable Firm distinctiveness, mean values of start-ups incubated or not are 4.30 and 4.22 and S.D are .46 and .59. Assumption of equality of variance is followed with p value .151 which is >.05. Then T value is 1.135 and p value (.257) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Firm distinctiveness.

In the case of the variable Entrepreneurial traits, mean values of start-ups incubated or not are 4.53 and 4.29 and S.D are .42 and .49. Assumption of equality of variance is not followed with p value .036 which is <.05. so take T value in the row of equal variances not assumed. Then T value is 4.338 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Entrepreneurial traits.

As far as Technology and mentoring support factors are concerned, mean values of start-ups incubated or not are 4.23 and 4.37 and S.D are .76 and .63. Assumption of equality of variance is followed with p value .118 which is >.05. Then T value is -1.597 and p value (.111) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Technology and mentoring support factors.

Table 6.11

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Institutional support	There is significant difference in the founders' perception on Institutional support with respect to incubation status.	T value = 4.115 p value = (.000) < 0.05	Reject Null
H1b	Resources availabilities	There is no significant difference in the founders' perception on Resources availabilities with respect to incubation status.	T value = 1.167 p value = (.244) > 0.05	Fail to Reject Null
H1c	Team capabilities and environmental factors	There is no significant difference in the founders' perception on Team capabilities and environmental factors with respect to incubation status.	T value = 1.285 p value = (.200) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1d	Financial factors	There is no significant difference in the founders' perception on Financial factors with respect to incubation status.	T value = -1.701 p value = (.090) > 0.05	Fail to Reject Null
H1e	Marketing factors	There is significant difference in the founders' perception on Marketing factors with respect to incubation status.	T value = 2.977 p value = (.003) < 0.05	Reject Null
H1f	Firm distinctiveness	There is no significant difference in the founders' perception on Firm distinctiveness with respect to incubation status.	T value = 1.135 p value = (.257) > 0.05	Fail to Reject Null
H1g	Entrepreneurial traits	There is significant difference in the founders' perception on Entrepreneurial traits with respect to incubation status.	T value = 4.338 p value = (.000) < 0.05	Reject Null
H1h	Technology and mentoring support factors	There is significant no difference in the founders' perception on Technology and mentoring support factors with respect to incubation status.	T value = --1.597 p value = (.111) > 0.05	Fail to Reject Null

Source: Survey data

6.2.5 Founders' perception on the growth factors of IT service start-ups with reference to education level of founders

Education level of founders is a critical factor that contributes to the growth of technology start-ups. It is found that strong education of founders is directly influenced the growth of a firm (Khan et al., 2005). So it is necessary to compare the education level of founders and growth factors of IT services start-ups. The following hypothesis was developed to analyse the same.

$H_{6.4}$: The perception of IT services start-up founders regarding growth factors differ based on education level of founders.

Table 6.12

ANOVA for significant difference in the founders' perception on growth factors of IT services start-ups with reference to education level of founders

Growth factors	Educational level					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Institutional support	1.52 -0.59	3.35 -1.33	3.75 -0.91	3.74 -1.02	3.96 (.85	6.894	.000*
Team capabilities and environmental factors	2.94 -0.61	3.46 -0.91	3.92 -0.71	3.94 -0.69	3.76 -0.89	3.547	.008*
Financial factors	3.32 -1.12	3.58 -0.65	3.84 -0.79	3.66 -0.81	3.53 -0.98	1.398	0.235
Marketing factors	3 -0.27	4.4 -0.75	4.34 -0.6	4.3 -0.66	4.16 -93	5.469	.000*
Firm distinctiveness	3.96 -0.57	4.03 -0.62	4.3 -0.58	4.22 -0.48	4.13 -0.54	1.345	0.253
Resources availabilities	3.78 -0.45	4.13 -1.07	3.92 -0.83	3.81 -0.85	4.06 -1.07	0.632	0.640
Entrepreneurial traits	4.1 -0.32	4.61 -0.33	4.33 -0.47	4.38 -0.49	4.53 -0.57	1.476	0.209
Technology and mentoring support factors	4.14 -0.8	4.62 -0.36	4.35 -0.61	4.3 -0.72	3.46 -1.22	3.331	.011*

Source: Survey data
Note 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The table 6.12 shows the ANOVA for the Educational level and growth factors of start-ups at 5% significant level. It is reported that team capabilities and environmental factors and technology and mentoring support factors have p value less than 0.05 and null hypothesis is rejected. So it can be interpreted that the opinion of IT services start-ups entrepreneurs towards team capabilities and environmental factors and technology and mentoring support factors differ based on

education level of entrepreneurs. But the p values of institutional support, financial factors, marketing factors, firm distinctiveness, resource availabilities, entrepreneurial traits are seen more than 0.05 and hence failed to reject null hypothesis. It can conclude that there is no significant difference in the institutional support, financial factors, marketing factors, firm distinctiveness, resource availabilities, entrepreneurial traits among entrepreneurs having various education levels.

Table 6.13

Post hoc: Multiple comparisons between founders' perception on growth factors of IT services start-ups and education level of founders

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
Team capabilities and environmental factors	Below Plus two	Diploma	-.52923	.37955	.632
		Graduation	-.98450*	.32785	.024
		Post graduation	-1.00182*	.32981	.022
		Others	-.82667	.43674	.324
	Diploma	Below Plus two	.52923	.37955	.632
		Graduation	-.45527	.20847	.189
		Post graduation	-.47259	.21153	.170
		Others	-.29744	.35598	.919
	Graduation	Below Plus two	.98450*	.32785	.024
		Diploma	.45527	.20847	.189
		Post graduation	-.01731	.09041	1.000
		Others	.15784	.30025	.985
	Post graduation	Below Plus two	1.00182*	.32981	.022
		Diploma	.47259	.21153	.170
		Graduation	.01731	.09041	1.000
		Others	.17515	.30238	.978

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
	Others	Below Plus two	.82667	.43674	.324
		Diploma	.29744	.35598	.919
		Graduation	-.15784	.30025	.985
		Post graduation	-.17515	.30238	.978
Technology and mentoring support factors	Below Plus two	Diploma	-.48308	.35228	.647
		Graduation	-.21960	.30430	.951
		Post graduation	-.16455	.30611	.983
		Others	.67333	.40536	.460
	Diploma	Below Plus two	.48308	.35228	.647
		Graduation	.26347	.19349	.653
		Post graduation	.31853	.19633	.484
		Others	1.15641*	.33040	.005
	Graduation	Below Plus two	.21960	.30430	.951
		Diploma	-.26347	.19349	.653
		Post graduation	.05506	.08392	.965
		Others	.89294*	.27867	.013
	Post graduation	Below Plus two	.16455	.30611	.983
		Diploma	-.31853	.19633	.484
		Graduation	-.05506	.08392	.965
		Others	.83788*	.28065	.025
	Others	Below Plus two	-.67333	.40536	.460
		Diploma	-1.15641*	.33040	.005
		Graduation	-.89294*	.27867	.013
		Post graduation	-.83788*	.28065	.025

Source: Survey data * denotes significant at 5% level

The above table 6.13 describes the post Hoc – multiple comparisons by using Tukey test to identify which combination of educational level of respondents has more significant in terms of team capabilities and environmental factors and technology and mentoring support factors. The table reveals that there is a significant difference in the below plus two and post-graduation combination in the case of team capabilities and environmental factors (p value = .022), diploma and others combination in the case of technology and mentoring support factors (p value = .005).

6.2.6 Founders' perception on the growth factors of IT service start-ups with reference to nature of start-ups.

Growth of start-ups may dependent on nature of start-ups such as product based; service based and mixed based start-ups. As per the IT start-up profile, mixed based start-ups are mainly adopted by majority of the IT service start-ups. Hence, the researcher tried to compare nature of start-ups and growth factors of IT services start-ups. The following hypothesis was developed to analyse the same.

$H_{6.5}$: The perception of IT services start-up entrepreneurs regarding growth factors differ based on nature of start-ups.

Table 6.14

ANOVA for significant difference in the founders' perception on growth factors of IT services start-ups with reference to nature of start-ups

Growth factors	Nature of start-ups			F	Sig.
	Product	Service	Mixed		
Institutional support	3.82 (1.02)	3.7 (.95)	3.62 (1.05)	0.821	.441
Team capabilities and environmental factors	3.62 (.73)	4.05 (.73)	3.9 (.69)	6.777	.001*
Financial factors	3.55 (.81)	3.96 (.72)	3.69 (.83)	5.552	.004*

Growth factors	Nature of start-ups			F	Sig.
	Product	Service	Mixed		
Marketing factors	4.15 (.75)	4.27 (.61)	4.39 (.62)	3.152	.048*
Firm distinctiveness	4.06 (.47)	4.32 (.46)	4.32 (.46)	4.911	.008*
Resources availabilities	3.73 (0.9)	3.85 (.84)	3.99 (.82)	2.151	.118
Entrepreneurial traits	4.24 (.52)	4.27 (.46)	4.49 (.44)	8.609	.000*
Technology and mentoring support factors	4.21 (.86)	4.46 (.52)	4.29 (.66)	3.236	.045*

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The table 6.14 shows the ANOVA for the nature of start-ups and growth factors of start-ups at 5% significant level. It is reported that team capabilities and environmental factors, financial factors, marketing factors, firm distinctiveness, entrepreneurial traits and technology and mentoring support factors have p value less than 0.05 and null hypothesis is rejected. So it can be interpreted that the opinion of IT services start-ups entrepreneurs towards team capabilities and environmental factors, financial factors, marketing factors, firm distinctiveness, entrepreneurial traits and technology and mentoring support factors differ based on nature of start-ups. But the p values of institutional support and resource availabilities are seen more than 0.05 and hence failed to reject null hypothesis. It can conclude that there is no significant difference in the institutional supports and resource availabilities among entrepreneurs with regard to nature of start-ups.

Table 6.15

Post hoc: Multiple comparisons between founders' perception on growth factors of IT services start-ups and nature of start-ups

Dependent Variable	(I) Nature of start-ups	(J) Nature of start-ups	Mean Difference (I-J)	Std. Error	Sig.
Team capabilities and environmental factors	Product	Service	-.43066*	.11769	.001
		Mixed	-.28218*	.10904	.027
	Service	Product	.43066*	.11769	.001
		Mixed	.14848	.09903	.293
	Mixed	Product	.28218*	.10904	.027
		Service	-.14848	.09903	.293
Financial factors	Product	Service	-.41587*	.13058	.005
		Mixed	-.14618	.12098	.449
	Service	Product	.41587*	.13058	.005
		Mixed	.26970*	.10988	.039
	Mixed	Product	.14618	.12098	.449
		Service	-.26970*	.10988	.039
Marketing factors	Product	Service	-.11848	.10702	.510
		Mixed	-.23628*	.09915	.047
	Service	Product	.11848	.10702	.510
		Mixed	-.11780	.09005	.392
	Mixed	Product	.23628*	.09915	.047
		Service	.11780	.09005	.392
Firm distinctiveness	Product	Service	-.20049	.08912	.065
		Mixed	-.25655*	.08257	.006
	Service	Product	.20049	.08912	.065
		Mixed	-.05606	.07499	.735
	Mixed	Product	.25655*	.08257	.006
		Service	.05606	.07499	.735

Dependent	(I) Nature	(J) Nature	Mean	Std.	Sig.
Entrepreneurial traits	Product	Service	-.02577	.07653	.939
		Mixed	-.24471*	.07090	.002
	Service	Product	.02577	.07653	.939
		Mixed	-.21894*	.06439	.002
	Mixed	Product	.24471*	.07090	.002
		Service	.21894*	.06439	.002
Technology and mentoring support factors	Product	Service	-.25059	.11056	.046
		Mixed	-.08544	.10243	.682
	Service	Product	.25059	.11056	.046
		Mixed	.16515	.09303	.180
	Mixed	Product	.08544	.10243	.682
		Service	-.16515	.09303	.180

Source: Survey data, * denotes significant at 5% level

The above table 6.15 describes the post Hoc – multiple comparisons by using Tukey test to identify which combination of nature of start-ups has more significant in terms of team capabilities and environmental factors, financial factors, marketing factors, firm distinctiveness, entrepreneurial traits and technology and mentoring support factors. The table reveals that there is a significant difference in the product and service based start-ups combination in the case of team capabilities and environmental factors (p value = .001), product and service based start-ups combination in the case of financial factors (p value = 005), product and mixed based start-ups combination in the case of marketing factors (.047), product and mixed based start-up combination in the case of firm distinctiveness (.006), product and mixed based start-up combination in the case of entrepreneurial traits (.002) and product and service based start-up combination in the case of technology and mentoring support factors (.046).

6.2.7 Relationship between founder's experience on factors lead to growth of IT services start-ups and the real growth of their business

There are 35 growth factors identified by the researcher through EFA. From the literature surveyed majority of the factors are directly related to the success or growth of the start-ups. Here the researcher tried to analyse that whether these 35 growth factors contribute to the growth of IT services start-ups in Kerala and the following hypothesis was developed.

$H_{6.6}$: Founder's experience on factors lead to growth of IT services start-ups influence the real growth of their business.

For this correlation analysis and multiple regression analysis were used by the researcher.

Table 6.16

Correlation analysis between founder's experience on factors lead to growth of IT services start-ups and the real growth of their business

Variable		Growth factors	Growth of IT services start-ups
Growth factors	Pearson Correlation	1	.594
	Sig. (2-tailed)		.000*
Growth of IT services start-ups	Pearson Correlation	.594	1
	Sig. (2-tailed)	.000*	

* Correlation is significant at the 0.05 level (2-tailed).

As indicated in Table 6.16, it is described that founder's experience on factors lead to growth of IT services start-ups is significantly and positively affected the growth of IT services start-ups with correlation value .594 and p value less than .01. So, founder's experience on factors lead to growth of IT services start-ups influence the growth of IT services start-ups. As a result, the study concludes that there is a statistically significant association between founder's experience on factors lead to growth of IT services start-ups and the real growth of their business.

The researcher further uses regression analysis to analyses the data, the outcome which are depicted in the table below.

Table 6.17

Multiple Regression Model Summary- Founder's experience on factors lead to growth of IT services start-ups and the real growth of their business

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.088	8	1.636	23.353	.000*
Residual	19.335	276	.070		
Total	32.423	284			
R			**R Square**		
0.635			0.404		

*denotes significant level at 5%, Dependent Variable: Growth of IT services start-ups
Predictors: (Constant), Technology and mentoring support factors, Entrepreneurial traits, Institutional support, Resources availabilities, Financial factors, Firm distinctiveness, Marketing factors, Team capabilities and environmental factors

From the above table 6.17, it is inferred that R square is 0.404, which implies that there is a variation of 40.4% percentage between growth factors of start-ups (independent variable) and real growth of IT services start-ups (dependent variable). This simply means that, Technology and mentoring support factors, Entrepreneurial traits, Institutional support, Resources availabilities, Financial factors, Firm distinctiveness, Marketing factors, Team capabilities and environmental factors jointly contribute and change the growth of IT services start-ups at 40.4%. Hence it can be concluded that founder's experience on factors lead to growth of IT services start-ups improves the real growth of their business.

Table 6.18

Strength of Relationship between Founder's experience on factors lead to growth of IT services start-ups and the real growth of their business

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.385	.206		6.734	.000*		
Institutional support	.053	.018	.160	2.900	.004*	.711	1.407
Resources availabilities	.043	.020	.109	2.157	.032*	.847	1.180
Team capabilities and environmental factors	.181	.026	.394	6.915	.000*	.667	1.499
Financial factors	.054	.021	.131	2.581	.010*	.843	1.187
Marketing factors	.044	.028	.086	2.162	.033*	.713	1.403
Firm distinctiveness	.002	.033	.003	0.063	.950	.747	1.338
Entrepreneurial traits	.052	.038	.075	2.856	.004*	.738	1.354
Technology and mentoring support factors	.038	.025	.076	1.540	.125	.877	1.141

Dependent Variable: Growth of IT services start-ups
*Significant level at 5%.

The above table 6.18 explains the significance of the variables (independent variables) in the model and its magnitude of effects on the growth of IT services start-ups (dependent variable). Here we can see that there is moderate change in the real growth of IT services start-ups due to Institutional support, Resources availabilities, Team capabilities and environmental factors and Financial factors because of the Sig. value is less than the acceptable value of 0.05.

Multiple regression equation is

$$\mathbf{Y = 1.385 + 0.053\ X_1 + 0.043\ X_2 + 0.181\ X_3 + 0.054 X_4 + 0.044\ X_5 + 0.052\ X_6}$$

Hence, it can describe as, with a 1% increase in the;

Institutional support, the growth of IT services start-ups will increase by 0.053%.

Resources availabilities, the growth of IT services start-ups will increase by 0.043%.

Team capabilities and environmental factors, the growth of IT services start-ups will increase by 0.181%.

Financial factors, the growth of IT services start-ups will increase by 0.054%.

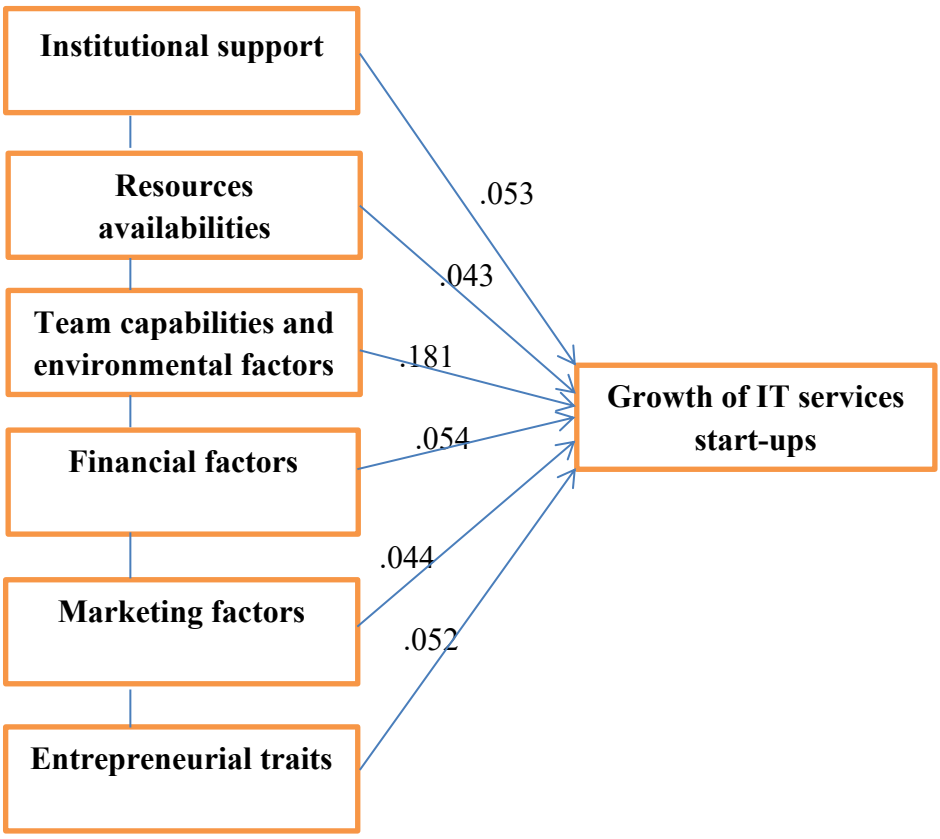
Marketing factors, the growth of IT services start-ups will increase by 0.044%.

Entrepreneurial traits, the growth of IT services start-ups will increase by 0.052%.

But there is no significant change in the real growth of IT services start-ups based on Firm distinctiveness and Technology and mentoring support factors because of the Sig. value is more than the acceptable limit of 0.05.

Figure 6.2

Conceptual model of influence of founder's experience on factors lead to growth of IT services start-ups on the real growth of their business



6.3 Founders' perception on problems faced by IT services start-ups in Kerala.

Many start-up companies fail in the initial years before they have fulfilled their commercial potential. In the case of IT services start-ups, it has a low probability of success. Many IT start-ups fail in the initial stages as the owners are not deal with problems they face and cannot identify solutions to these multifarious challenges. IT services start-ups are running their business in a dynamic and chaotic environment and frequent technology disruptions are occurred. It is also facing with the problems of time pressure, technology uncertainty, customer acquisition etc. Many researchers identified different problems faced by different sectors of start-ups. But only limited studies can be seen in the sector of IT services start-ups. Hence the researcher tried to identify various problems faced by IT services start-ups in Kerala.

6.3.1 Development of Scales for Measurement on founders' perception on problems faced by IT services start-ups in Kerala.

Many IT services start-ups are highly innovative initiatives but they are also laid in problems and risky scenario. To identify major problems perceived by IT services start-ups, 41 items are included in the survey questionnaire. Respondents were asked to rate this 41 items related problem factors on a 5-point Likert scale, ranging from 1 = not at all a problem to 5 = Very serious problem. In order to identify major problems perceived by IT services start-ups and its dimensions, all the items are examined with help of Exploratory Factor Analysis. The output of EFA is presented below.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of problems faced by IT services start-ups in Kerala.

To use factor analysis, suitability of data was checked. To do this, both KMO test and Bartlett's test were used. Value of KMO of .809 (Table 6.19) reveals that factor analysis can be used for the present data. Under Bartlett's test of Sphericity, we test the variables are related or not through correlation matrix. The result shows that there exist significant relationships among the variables (p value is 0.000). So the result of KMO test and Bartlett's test reports that the present data is appropriate for factor analysis.

Table 6.19

KMO and Bartlett's Test- Founders' perception on problems faced by IT services start-ups in Kerala.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.809
Bartlett's Test of Sphericity	Approx. Chi-Square	8030.949
	df	820
	Sig.	.000*

Source: Survey data,*denotes significant level at 5%

Table 6.20

Communalities of founders' perception on problems faced by IT services start-ups

Variable	Initial	Extraction
No / wrong business model	1.000	.825
Loss of original vision and mission of idea	1.000	.900
Problems with newness and smallness	1.000	.888
Lack of entrepreneurial development training	1.000	.794
Lack of proper guidance and mentoring	1.000	.843
Inexperienced management	1.000	.726
Co-founder misalignment	1.000	.626
Lack of business management skill	1.000	.846
Lack of leadership skill	1.000	.597
Inability to manage risk	1.000	.654
Services offered did not evolve with the market	1.000	.882
High cost of customer acquisition	1.000	.571
Change of customer taste	1.000	.883
Unfaithful customers	1.000	.871
Inadequate customer feedback or ratings	1.000	.830
Bad marketing strategies	1.000	.538
Wrong price of the services	1.000	.786
Unable to build brand image	1.000	.727
Difficulty in hiring and retaining high quality talent	1.000	.685
Lack of team commitment	1.000	.485
Employee attrition	1.000	.659
Restrictive labour regulations	1.000	.599
Lack/ unavailability of adequate capital	1.000	.833
High credit and collateral requirement	1.000	.782
Inadequate disbursement of loan	1.000	.680
Poor knowledge of financial management	1.000	.622

Variable	Initial	Extraction
Difficult to find investors	1.000	.591
Difficulty in getting continuous investment	1.000	.473
Less return on capital	1.000	.624
Excess tax charged by the government	1.000	.534
Not keeping pace with disruptive technology	1.000	.553
High cost of technological acquisition	1.000	.564
Lack of support from government	1.000	.460
Lack of protection of Patent, copy right and IPR issue	1.000	.685
Unstable political and social conditions	1.000	.752
Complicated administrative procedures to acquire permit, licence etc.	1.000	.735
Asymmetric information	1.000	.740
In ability to compete with big brands	1.000	.787
Inadequate technology infrastructure	1.000	.516
Lack of supporting networks	1.000	.525
Socio-cultural problems related to the basic ethics of the society, language, religion etc.	1.000	.829

Source: Survey data
Extraction Method: Principal Component Analysis

The table 6.20 shows the communalities and it reveals how much proportion of the variance of each variable by the extracted factors and if the communality initial value is closer to 1, the variable is explained better by the factors. From the table it is seen that over 90% of the variance is accounted for loss of original vision and mission of idea followed by problems with newness and smallness where variances is 88.8%, where as 46% of the variance is accounted for in lack of support from government.

Then next step is to decide how many factors are to be derived based on the Eigen value. We can take factors whose Eigen values are greater than one as rule of thumb. Then to extract factors and rotation of these factors, Principal Component Analysis and Varimax rotation algorithm (Kaiser, 1958) were used. After that component matrix of various factors were located orthogonally. Finally, all of the statements were loaded on the extracted factors after the rotation. The results of total variance explained, Scree Plot diagram, Rotated Component Matrix as well as factor loadings, are presented separately in the tables.

Table 6.21

Total Variance Explained on founders' perception on problems faced by IT services start-ups.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.702	21.225	21.225	8.702	21.225	21.225	4.327	10.553	10.553
2	3.836	9.356	30.580	3.836	9.356	30.580	3.787	9.237	19.790
3	3.504	8.547	39.127	3.504	8.547	39.127	3.574	8.717	28.508
4	2.910	7.097	46.224	2.910	7.097	46.224	3.300	8.048	36.556
5	2.692	6.565	52.789	2.692	6.565	52.789	3.299	8.045	44.601
6	2.341	5.711	58.500	2.341	5.711	58.500	3.175	7.744	52.345
7	1.889	4.606	63.106	1.889	4.606	63.106	2.776	6.771	59.116
8	1.426	3.478	66.584	1.426	3.478	66.584	2.271	5.540	64.656
9	1.197	2.919	69.503	1.197	2.919	69.503	1.987	4.847	69.503
10	.960	2.342	71.845						
11	.919	2.241	74.086						
12	.817	1.992	76.078						
13	.761	1.856	77.934						
14	.752	1.835	79.769						
15	.656	1.600	81.369						
16	.654	1.595	82.964						
17	.567	1.382	84.346						
18	.556	1.356	85.702						
19	.526	1.283	86.985						
20	.488	1.189	88.174						

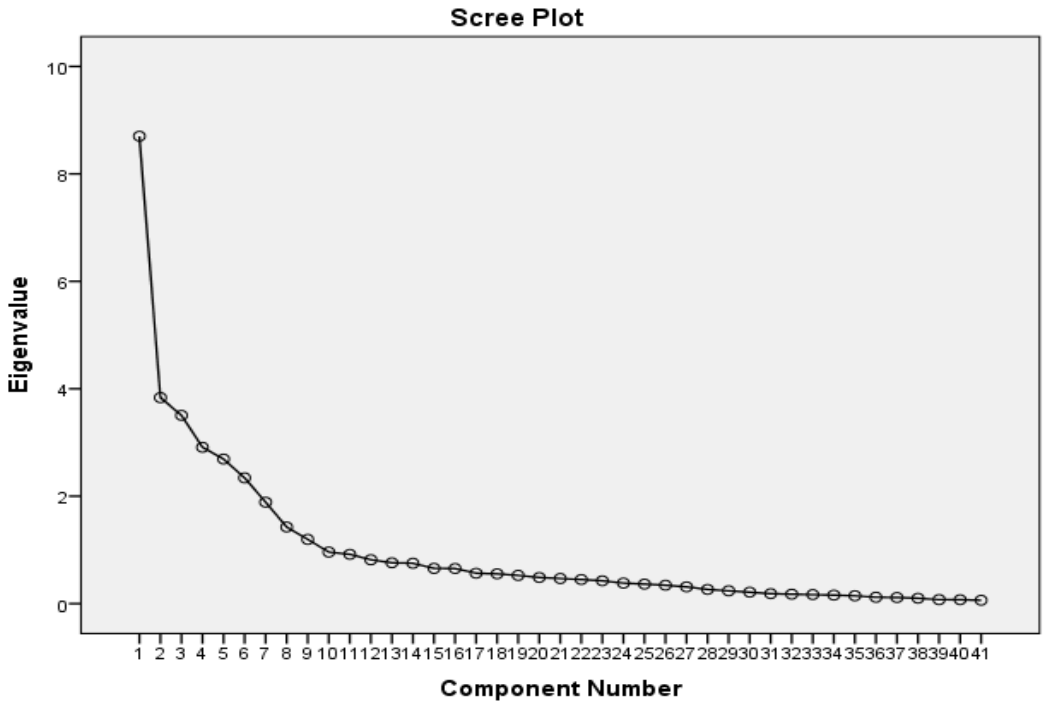
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
21	.468	1.141	89.315						
22	.448	1.094	90.409						
23	.426	1.038	91.448						
24	.383	.934	92.382						
25	.364	.888	93.270						
26	.343	.838	94.107						
27	.313	.764	94.871						
28	.266	.648	95.519						
29	.239	.583	96.102						
30	.214	.522	96.623						
31	.185	.452	97.075						
32	.177	.431	97.506						
33	.168	.410	97.916						
34	.159	.389	98.304						
35	.147	.358	98.662						
36	.119	.291	98.953						
37	.114	.278	99.231						
38	.102	.248	99.479						
39	.076	.185	99.663						
40	.074	.180	99.844						
41	.064	.156	100.000						

Source: Survey data
Extraction Method: Principal Component Analysis.

The table 6.21 describes that from the 41 items (components), only 9 components having Eigen values more than 1 were selected. This means that these 9 components would be able to explain maximum variance in the characteristics of units. The total variance constitutes by all the nine factors are 69.5% and maximum variance is explained by the nine factors alone. Thus, these nine variables alone are adequate for further analysis. Among the nine factors, first factor accounted 10.55% of variance, second factor accounted 9.23% of variance, third factor accounted 8.71% of variance, fourth factor accounted 8.05% of variance, fifth factor accounted 8.04% of variance, sixth factor accounted 7.74% of variance, seven factor accounted 6.77% of variance, eighth factor accounted 5.54% of variance and ninth factor accounted 4.84% of variance.

Figure 6.3

Scree Plot of founders' perception on problems faced by IT services start-ups



The figure 6.2 showing the scree plot that explains the eigen values. It suggests that nine factors are adequate for extraction and these nine factors have eigen values of greater than one. The scree plot diagram clearly shows that only nine factors with

eigen value exceeding 1 before the curve becomes approximately a straight line (or before the curve starts to flatten).

Table 6.22

Rotated Component Matrix of founders' perception on problems faced by IT services start-ups

	Component								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Socio-cultural problems related to the basic ethics of the society, language, religion etc.	.886								
Unstable political and social conditions	.859								
Co-founder misalignment	.694								
Complicated administrative procedures to acquire permit, licence etc.	.667								
Restrictive labour regulations	.661								
Lack of team commitment	.620								
Unfaithful customers		.928							
Services offered did not evolve with the market		.927							
Wrong price of the services		.856							
Unable to build brand image		.847							
Bad marketing strategies		.614							
Loss of original vision and mission of idea			.935						
No / wrong business model			.901						
Problems with newness and smallness			.897						
Asymmetric information			.816						
Lack of proper guidance and mentoring				.886					
Employee attrition				.776					

	Component								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Difficulty in hiring and retaining high quality talent				.775					
Lack of entrepreneurial development training				.707					
Inexperienced management				.668					
Lack/ unavailability of adequate capital					.873				
High credit and collateral requirement					.872				
Inadequate disbursement of loan					.819				
Less return on capital					.766				
Change of customer taste						.883			
Inadequate customer feedback or ratings						.875			
In ability to compete with big brands						.848			
Not keeping pace with disruptive technology						.527			
High cost of customer acquisition						.502			
Lack of business management skill							.857		
Inability to manage risk							.786		
Lack of leadership skill							.753		
Poor knowledge of financial management							.720		
Difficult to find investors								.721	
High cost of technological acquisition								.701	
Difficulty in getting continuous investment								.653	
Inadequate technology infrastructure								.612	
Lack of protection of Patent, copy right and IPR issue									.607
Lack of supporting networks									.525

	Component								
	1	2	3	4	5	6	7	8	9
Tax related problems									.514
Lack of support from government									.506

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 7 iterations.

The above Rotated component Matrix Table 6.22 shows nine factors are extracted for the study. By using factor analysis, total dependent variables (41 items) reduced to nine factors. In order to identify major problems perceived by IT services start-ups, new labels were provided for these nine factors in testing of hypotheses such as Factor 1- Socio-political and team, 2 – Marketing problems, 3 – Business planning problems, 4 - Management and HR problems, 5 - Financial problems, 6 - Competitive and customer problems, 7 - Management skills problems, 8 - Technological and investment problems and 9 - Government supporting problems.

Table 6.23

Factors extracted through EFA regarding founders' perception on problems faced by IT services start-ups and reliability of factors

Problems Factors	Number of Items	Mean	Std. Deviation	Cronbach Alpha Coefficient
Socio-political and team	6	3.02	1.01	.872
Marketing problems	5	3.43	0.85	.907
Business planning problems	4	3.43	0.92	.932
Management and HR problems	5	3.80	0.70	.847
Financial problems	4	3.81	0.90	.876
Competitive and customer problems	5	3.51	0.82	.847
Management skills problems	4	4.03	0.69	.818
Technological and investment problems	4	3.67	0.71	.721
Government supporting problems	4	3.26	0.84	.744

Source: Survey data

The above table 6.23 discloses the number of items, mean, S.D and Cronbach Alpha Coefficient of nine factors coming under problems factors faced by founders in Kerala.. Among these management skill problems have higher mean value (4.03) compared to others and concludes that management skill problems are the important problems perceived by IT services start-ups. The table also clearly shows that Cronbach alpha coefficient of each nine factor proved reliable and a strong internal consistency among the items: .872 (factor 1); .907 (factor 2); .923 (factor 3); .847 (factor 4); .876 (factor 5); .847 (factor 6); items: .818 (factor 7); .721 (factor 8); and .744 (factor 9). So the scales constructed for identifying problems perceived by IT services start-ups in Kerala by using factor analysis was appropriate for testing of hypotheses.

6.3.2 Difference in the founders' perception on problems faced by IT services start-ups with respect to gender of the founders.

Male and female founders have their own problems while running their start-up companies. Here the researcher tried to compare the problems perceived by IT services start-ups among gender of the founders. So the following hypothesis was set by the researcher to analyze the same.

$H_{6.7}$: There is significant difference in the founders' perception on problems faced by IT services start-ups with respect to gender of the founders.

Table 6.24

Difference in founders' perception on problems faced by IT services start-ups with respect to gender of the founders

Problems perceived by start-ups	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Socio-political and team	Male	263	3.03	1.00	0.274	0.601	0.606	0.589
	Female	22	2.90	1.13			0.548	
Marketing problems	Male	263	3.40	0.86	1.34	0.248	-1.983	0.048*
	Female	22	3.77	0.71			-2.321	
Business planning problems	Male	263	3.45	0.93	1.83	0.177	1.624	0.106
	Female	22	3.12	0.86			1.737	
Management and HR problems	Male	263	3.83	0.65	1.36	0.251	1.992	0.047*
	Female	22	3.52	1.08			1.320	
Financial problems	Male	263	3.86	0.87	3.237	0.073	3.494	0.001*
	Female	22	3.18	1.02			3.061	
Competitive and customer problems	Male	263	3.52	0.81	0.289	0.591	0.303	0.762
	Female	22	3.46	0.87			0.285	
Management skills problems	Male	263	4.04	0.70	0.848	0.358	0.898	0.370
	Female	22	3.90	0.54			1.118	
Technological and investment problems	Male	263	3.65	0.71	0.027	0.869	-0.989	0.323
	Female	22	3.81	0.69			-1.018	
Government supporting problems	Male	263	3.3	0.83	0.182	0.67	2.408	0.017*
	Female	22	2.85	0.79			2.528	

Source: Survey data,
* Significant at 5% level of significance

The table 6.24 depicts the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the problems perceived with respect to gender of the respondents. For the variable Socio-political and team, mean values of male and female are 3.03 and 2.90 and S.D are 1.00 and 1.13.

Assumption of equality of variance is followed with p value .601 which is >.05, so take T value in the row of equal variances not assumed. Then T value is 0.548 and p value (.589) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Socio-political and team.

The variable Marketing problems show the mean values of male and female are 3.40 and 3.77 and S.D are .86 and .71. Assumption of equality of variance is followed with p value .248 which is >.05. Then T value is -1.983 and p value (.048) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Marketing problems.

As far as Business planning problems are concerned, mean values of male and female are 3.45 and 3.12 and S.D are .93 and .86. Assumption of equality of variance is followed with p value .177 which is >.05. Then T value is 1.624 and p value (.106) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Business planning problems.

In the case of Management and HR problems, mean values of male and female are 3.83 and 3.52 and S.D are .65 and 1.08. Assumption of equality of variance is not followed with p value .001 which is <.05, so take T value in the row of equal variances not assumed. Then T value is 1.32 and p value (.047) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Management and HR problems.

For the variable Financial problems, mean values of male and female are 3.86 and 3.18 and S.D are .87 and 1.02. Assumption of equality of variance is followed with p value .073 which is >.05. Then T value is 3.494 and p value (.001) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial problems.

For the variable Competitive and customer problems, mean values of male and female are 3.52 and 3.46 and S.D are .81 and .87. Assumption of equality of variance is followed with p value .591 which is >.05. Then T value is .303 and p

value (.762) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Competitive and customer problems.

In the case of the variable Management skills problems, mean values of male and female are 4.04 and 3.90 and S.D are .70 and .54. Assumption of equality of variance is followed with p value .358 which is >.05. Then T value is .898 and p value (.370) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Management skills problems.

As far as Technological and investment problems are concerned, mean values of male and female are 3.65 and 3.81 and S.D are .71 and .69. Assumption of equality of variance is followed with p value .869 which is >.05. Then T value is -0.989 and p value (.323) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Technological and investment problems.

In the case of the variable government supporting problems, mean values of male and female are 3.30 and 2.85 and S.D are .83 and .79. Assumption of equality of variance is followed with p value .67 which is >.05. Then T value is 2.408 and p value (.017) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to government supporting problems.

Table 6.25

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Socio-political and team	There is no significant difference in the founders' perception on Socio-political and team with respect to gender of the respondents.	T value = 0.589 p value= (0.589) > 0.05	Fail to Reject Null
H1b	Marketing problems	There is significant difference in the founders' perception on Marketing problems with respect to gender.	T value = -1.983 p value = (.048) <0.05	Reject Null
H1c	Business planning problems	There is no significant difference in the founders' perception on Business planning problems with respect to gender.	T value = 1.624 p value = (.106) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1d	Management and HR problems	There is significant difference in the founders' perception on Management and HR problems with respect to gender.	T value = 1.32 p value = (.047) < 0.05	Reject Null
H1e	Financial problems	There is significant difference in the founders' perception on Financial problems with respect to gender.	T value = 3.494 p value = (.001) < 0.05	Reject Null
H1f	Competitive and customer problems	There is no significant difference in the founders' perception on Competitive and customer problems with respect to gender.	T value = .303 p value = (.762) > 0.05	Fail to Reject Null
H1g	Management skills problems	There is no significant difference in the founders' perception on Management skills problems with respect to gender	T value = .898 P value = (.370) > 0.05	Fail to Reject Null
H1h	Technological and investment problems	There is no significant difference in the founders' perception on Technological and investment problems with respect to gender.	T value = -0.989 p value = (.323) > 0.05	Fail to Reject Null
H1i	Government supporting problems	There is significant difference in the founders' perception on government supporting problems with respect to gender.	T value = 2.408 p value = (.017) < 0.05	Reject Null

Source: Survey data

6.3.3 Difference in the founders' perception on problems faced by IT services start-ups with reference to previous experience of founders.

Previous experience of founders is an important factor in determining firm's growth and failure. It is reported that lack of business experience is one of the important problem experienced by start-up founders (Evers, N., 2003). So it is necessary to compare the problems perceived by IT services start-ups among previous experience of founders. So the following hypothesis was set by the researcher to analyse the same.

$H_{6.8}$: There is significant difference in the founders' perception on problems faced by IT services start-ups with respect to previous experience of founders.

Table 6.26

Difference in the founders' perception on problems faced by IT services start-ups with respect to previous experience of founders

Problems perceived by start-ups	Previous experience	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Socio-political and team	Yes	118	3.31	1.03	1.975	0.161	4.24	.000*
	No	267	2.81	0.94			4.17	
Marketing problems	Yes	118	3.58	0.85	0.041	0.839	2.56	.011*
	No	267	3.32	0.83			2.549	
Business planning problems	Yes	118	3.57	0.80	3.285	0.071	2.303	.022*
	No	267	3.32	0.99			2.388	
Management and HR problems	Yes	118	3.98	0.60	3.007	0.084	3.7	.000*
	No	267	3.67	0.73			3.82	
Financial problems	Yes	118	4.03	0.75	9.656	0.002	3.64	.000*
	No	267	3.64	0.96			3.8	
Competitive and customer problems	Yes	118	3.72	0.78	0.01	0.920	3.74	.000*
	No	267	3.36	0.80			3.76	
Management skills problems	Yes	118	3.22	0.65	0.307	0.580	4.11	.000*
	No	267	3.89	0.67			4.13	
Technological and investment problems	Yes	118	3.83	0.69	0.000	0.986	3.41	.001*
	No	267	3.54	0.69			3.41	
Government supporting problems	Yes	118	3.49	0.84	1.123	0.29	3.95	.000*
	No	267	3.10	0.79			3.91	

Source: Survey data,
* Significant at 5% level of significance

The table 6.26 depicts the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the problems perceived with respect to gender of the respondents. For the variable Socio-political and team, mean values of founders having previous experience and not having previous experience are 3.31 and 2.81 and S.D are 1.03 and .94. Assumption of equality of variance is followed with p value 0.161 which is >.05, so take T value in the row of equal variances not assumed. Then T value is 4.24 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Socio-political and team.

The variable Marketing problems show the mean values of founders having previous experience and not having previous experience are 3.58 and 3.32 and S.D are .85 and .83. Assumption of equality of variance is followed with p value .839 which is >.05. Then T value is 2.56 and p value (.011) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Marketing problems.

As far as Business planning problems are concerned, mean values of founders having previous experience and not having previous experience are 3.57 and 3.32 and S.D are .80 and .99. Assumption of equality of variance is followed with p value .071 which is >.05. Then T value is 2.303 and p value (.022) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Business planning problems.

In the case of Management and HR problems, mean values of founders having previous experience and not having previous experience are 3.98 and 3.67 and S.D are .60 and .73. Assumption of equality of variance is followed with p value .084 which is >.05, Then T value is 3.70 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Management and HR problems.

For the variable Financial problems, mean values of founders having previous experience and not having previous experience are 4.03 and 3.64 and S.D are .75 and .96. Assumption of equality of variance is followed with p value .002 which is <.05. Then T value is 3.64 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to financial problems.

For the variable Competitive and customer problems, mean values of founders having previous experience and not having previous experience are 3.72 and 3.36 and S.D are .78 and .80. Assumption of equality of variance is followed with p value .78 which is >.05. Then T value is 3.74 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to competitive and customer problems.

In the case of the variable Management skills problems, mean values of founders having previous experience and not having previous experience are 3.22 and 3.89 and S.D are .65 and .67. Assumption of equality of variance is followed with p value .65 which is >.05. Then T value is .4.11 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Management skills problems.

As far as Technological and investment problems are concerned, mean values of founders having previous experience and not having previous experience are 3.83 and 3.54 and S.D are .69 and .69. Assumption of equality of variance is followed with p value .986 which is >.05. Then T value is 3.41 and p value (.001) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Technological and investment problems.

In the case of the variable government supporting problems, mean values of founders having previous experience and not having previous experience are 3.49 and 3.10 and S.D are .84 and .79. Assumption of equality of variance is followed with p value .290 which is >.05. Then T value is 3.95 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to government supporting problems.

Table 6.27

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Socio-political and team	There is significant difference in the founders' perception on Socio-political and team with respect to previous experience.	T value = 4.24 P value= (0.000) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1b	Marketing problems	There is significant difference in the founders' perception on Marketing problems with respect to previous experience.	T value = 2.56 p value = (.011) <0.05	Reject Null
H1c	Business planning problems	There is significant difference in the founders' perception on Business planning problems with respect to previous experience.	T value = 2.303 p value = (.022) < 0.05	Reject Null
H1d	Management and HR problems	There is significant difference in the founders' perception on Management and HR problems with respect to previous experience.	T value = 3.70 p value = (.000) < 0.05	Reject Null
H1e	Financial problems	There is significant difference in the founders' perception on Financial problems with respect to previous experience.	T value = 3.64 p value = (.000) < 0.05	Reject Null
H1f	Competitive and customer problems	There is significant difference in the founders' perception on Competitive and customer problems with respect to previous experience..	T value = 3.74 p value = (.000) < 0.05	Reject Null
H1g	Management skills problems	There is significant difference in the founders' perception on Management skills problems with respect to previous experience.	T value = 4.11 pvalue = (.000) < 0.05	Reject Null
H1h	Technological and investment problems	There is significant difference in the founders' perception on Technological and investment problems with respect to previous experience.	T value = 3.41 p value = (.001) < 0.05	Reject Null
H1i	Government supporting problems	There is significant difference in the founders' perception on government supporting problems with respect to previous experience.	T value = 3.95 p value = (.000) < 0.05	Reject Null

Source: Survey data

6.3.4 Difference in the founders' perception on problems faced by IT services start-ups with respect to entrepreneurial family background of founders.

Many researchers reported that entrepreneurial family background of founders leads to success of the company. Without entrepreneurial background of founders, it is required to analyse whether the company is going to failure or not. Hence it is necessary to compare the problems perceived by IT services start-ups among entrepreneurial family background of founders. So the following hypothesis was set by the researcher to analyse the same.

$H_{6.9}$: There is significant difference in the founders' perception on problems faced by IT services start-ups with respect to entrepreneurial family background of founders.

Table 6.28

Difference in the founders' perception on problems faced by IT services start-ups with respect to entrepreneurial family background of founders

Problems perceived by start-ups	Entrepreneurial family	N	Mean	S.D	Levene's Test for Equality of Variances		T	Sig. (2-tailed)
					F	Sig.		
Socio-political and team	Yes	79	3.32	1.06	3.254	0.072	3.212	0.001*
	No	206	2.90	0.96			3.079	
Marketing problems	Yes	79	3.56	0.96	5.414	0.021	1.639	0.135
	No	206	3.37	0.79			1.504	
Business planning problems	Yes	79	3.66	0.71	7.29	0.007	2.678	0.002*
	No	206	3.33	0.97			3.066	
Management and HR problems	Yes	79	3.98	0.69	0.599	0.44	2.794	0.006*
	No	206	3.73	0.69			2.795	
Financial problems	Yes	79	4.03	0.85	1.195	0.275	2.686	0.008*
	No	206	3.72	0.90			2.749	
Competitive and customer problems	Yes	79	3.89	0.86	0.9	0.344	5.017	0.000*
	No	206	3.36	0.75			4.721	

Problems perceived by start-ups	Entrepreneurial family	N	Mean	S.D	Levene's Test for Equality of Variances		T	Sig. (2-tailed)
					F	Sig.		
Management skills problems	Yes	79	4.19	0.65	0.264	0.608	2.582	0.010*
	No	206	3.96	0.68			2.65	
Technological and investment problems	Yes	79	3.55	0.64	1.974	0.161	4.579	0.000*
	No	206	3.5	0.7			4.747	
Govt. supporting problems	Yes	79	3.17	0.97	10.61	0.001	3.014	0.008*
	No	206	3.3	0.75			2.692	

Source: Survey data,
* Significant at 5% level of significance

In the above table 6.28 clearly depicts the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the problems perceived with respect to entrepreneurial family background of the respondents. For the variable Socio-political and team, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.32 and 2.90 and S.D are 1.06 and .96. Assumption of equality of variance is followed with p value .072 which is >.05. Then T value is 3.212 and p value (.001) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Socio-political and team.

The variable Marketing problems show the mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.56 and 3.37 and S.D are .96 and .79. Assumption of equality of variance is not followed with p value .021 which is <.05. Then T value is 1.504 and p value (.135) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Marketing problems.

As far as Business planning problems are concerned, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.66 and 3.33 and S.D are .71 and .97. Assumption of equality of

variance is not followed with p value .007 which is <.05. Then T value is 2.678 and p value (.002) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Business planning problems.

In the case of Management and HR problems, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.98 and 3.73 and S.D are .69 and .69. Assumption of equality of variance is followed with p value .440 which is >.05. Then T value is 2.794 and p value (.006) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Management and HR problems.

For the variable Financial problems, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.03 and 3.72 and S.D are .85 and .90. Assumption of equality of variance is followed with p value .275 which is >.05. Then T value is 2.686 and p value (.008) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Financial problems.

For the variable Competitive and customer problems, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.89 and 3.36 and S.D are .86 and .75. Assumption of equality of variance is followed with p value .344 which is >.05. Then T value is 5.017 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Competitive and customer problems.

In the case of the variable Management skills problems, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 4.19 and 3.96 and S.D are .65 and .68. Assumption of equality of variance is followed with p value .608 which is >.05. Then T value is 2.582 and p value (.010) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Management skills problems.

As far as Technological and investment problems are concerned, mean values of founders having entrepreneurial family background and not having entrepreneurial

family background are 3.55 and 3.50 and S.D are .64 and .70. Assumption of equality of variance is followed with p value .161 which is >.05. Then T value is 4.579 and p value (.000) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Technological and investment problems.

In the case of the variable government supporting problems, mean values of founders having entrepreneurial family background and not having entrepreneurial family background are 3.17 and 3.30 and S.D are .97 and .75. Assumption of equality of variance is not followed with p value .001 which is <.05. Then T value is 3.014 and p value (.008) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to government supporting problems.

Table 6.29

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Socio-political and team	There is significant difference in the founders' perception on Socio-political and team with respect to entrepreneurial family background.	T value = 3.212 p value = (.001) < 0.05	Reject Null
H1b	Marketing problems	There is no significant difference in the founders' perception on Marketing problems with respect to entrepreneurial family background.	T value = 1.504 p value = (.135) > 0.05	Fail to Reject Null
H1c	Business planning problems	There is significant difference in the founders' perception on Business planning problems with respect to entrepreneurial family background.	T value = 2.678 p value = (.002) < 0.05	Reject Null
H1d	Management and HR problems	There is significant difference in the founders' perception on Management and HR problems with respect to entrepreneurial family background.	T value = 2.794 p value = (.006) < 0.05	Reject Null

	Construct	Hypotheses	Result	Decision
H1e	Financial problems	There is significant difference in the founders' perception on Financial problems with respect to entrepreneurial family background.	T value = 2.686 p value = (.008) < 0.05	Reject Null
H1f	Competitive and customer problems	There is significant difference in the founders' perception on Competitive and customer problems with respect to entrepreneurial family background.	T value = 5.017 p value = (.000) < 0.05	Reject Null
H1g	Management skills problems	There is significant difference in the founders' perception on Management skills problems with respect to entrepreneurial family background.	T value = 2.582 p value = (.010) < 0.05	Reject Null
H1h	Technological and investment problems	There is significant difference in the founders' perception on Technological and investment problems with respect to entrepreneurial family background.	T value = 4.579 p value (.000) < 0.05	Reject Null
H1i	Government supporting problems	There is significant difference in the founders' perception on government supporting problems with respect to entrepreneurial family background.	T value = 3.014 p value = (.008) is < 0.05	Reject Null

Source: Survey data

6.3.5 Difference in the founders' perception on problems faced by IT services start-ups with respect to incubation status of start-ups.

Incubation centres provide various facilities and supports to incubated start-ups during the initial years. Many start-ups are running their business in their own place without incubating their start-ups. Here the researcher tried to compare the problems perceived by IT services start-ups among incubation status of start-ups. So the following hypothesis was set by the researcher to analyse the same.

$H_{6.10}$: There is significant difference in the founders' perception on problems faced by IT services start-ups with respect to incubation status of start-ups.

Table 6.30

Difference in the founders' perception on problems faced by IT services start-ups with respect to incubation status of start-ups

Problems perceived by start-ups	Incubated or not	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Socio-political and team	Yes	92	3.04	0.94	3.817	0.052	0.246	0.806
	No	193	3.01	1.05			0.256	
Marketing problems	Yes	92	3.35	0.90	0.56	0.455	-1.091	0.276
	No	193	3.47	0.83			-1.06	
Business planning problems	Yes	92	3.44	0.88	0.488	0.485	0.194	0.846
	No	193	3.42	0.95			0.199	
Management and HR problems	Yes	92	3.68	0.70	0.009	0.926	-1.979	0.049*
	No	193	3.86	0.69			-1.968	
Financial problems	Yes	92	3.89	0.92	0.06	0.807	1.05	0.295
	No	193	3.77	0.89			1.036	
Competitive and customer problems	Yes	92	3.56	0.88	0.996	0.319	0.662	0.509
	No	193	3.49	0.79			0.636	
Management skills problems	Yes	92	4.09	0.72	0.189	0.664	1.008	0.314
	No	193	4.00	0.67			0.984	
Technological and investment problems	Yes	92	3.73	0.75	0.628	0.429	1.034	0.302
	No	193	3.64	0.69			1.001	
Government supporting problems	Yes	92	3.28	0.93	4.821	0.029	0.296	0.780
	No	193	3.25	0.79			0.28	

Source: Survey data,
* Significant at 5% level of significance

The above table 6.30 clearly shows the descriptive statistics and t test along with Levene's test of the opinion of IT services start-ups entrepreneurs regarding the problems perceived with respect to incubation status. For the variable Socio-political and team, mean values of start-ups incubated or not are 3.04 and 3.01 and S.D are .94 and 1.05. Assumption of equality of variance is followed with p value .052 which is >.05. Then T value is .246 and p value (.806) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Socio-political and team.

The variable Marketing problems show the mean values of start-ups incubated or not are 3.35 and 3.47 and S.D are .90 and .83. Assumption of equality of variance is followed with p value .455 which is >.05. Then T value is -1.091 and p value (.276) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Marketing problems.

As far as Business planning problems are concerned, mean values of start-ups incubated or not are 3.44 and 3.42 and S.D are .88 and .95. Assumption of equality of variance is followed with p value .485 which is >.05. Then T value is .194 and p value (.846) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Business planning problems.

In the case of Management and HR problems, mean values of start-ups incubated or not are 3.68 and 3.86 and S.D are .70 and .69. Assumption of equality of variance is followed with p value .926 which is >.05. Then T value is -1.979 and p value (.049) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Management and HR problems.

For the variable Financial problems, mean values of start-ups incubated or not are 3.89 and 3.77 and S.D are .92 and .89. Assumption of equality of variance is followed with p value .807 which is >.05. Then T value is 1.05 and p value (.295) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Financial problems.

For the variable Competitive and customer problems, mean values of start-ups incubated or not are 3.56 and 3.49 and S.D are .88 and .79. Assumption of equality of variance is followed with p value .319 which is >.05. Then T value is .662 and p value (.509) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Competitive and customer problems.

In the case of the variable Management skills problems, mean values of start-ups incubated or not are 4.09 and 4.00 and S.D are .72 and .67. Assumption of equality of variance is followed with p value .664 which is >.05. Then T value is 1.008 and p value (.314) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Management skills problems.

As far as Technological and investment problems are concerned, mean values of start-ups incubated or not are 3.73 and 3.64 and S.D are .75 and .69. Assumption of equality of variance is followed with p value .429 which is >.05. Then T value is 1.034 and p value (.302) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Technolog ical and investment problems.

In the case of the variable government supporting problems, mean values of start-ups incubated or not are 3.28 and 3.25 and S.D are .93 and .79. Assumption of equality of variance is not followed with p value .029 which is <.05. So take T value in the row of equal variances not assumed. Then T value is .280 and p value (.780) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to government supporting problems.

Table 6.31

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Socio-political and team	There is no significant difference in the founders' perception on Socio-political and team with respect to incubation status.	T value = .246 p value = (.806) > 0.05	Fail to Reject Null
H1b	Marketing problems	There is no significant difference in the founders' perception on Marketing problems with respect to incubation status.	T value = -1.091 p value = (.276) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Business planning problems	There is no significant difference in the founders' perception on Business planning problems with respect to incubation status.	T value = .194 p value = (.846) > 0.05	Fail to Reject Null
H1d	Management and HR problems	There is significant difference in the founders' perception on Management and HR problems with respect to incubation status.	T value = -1.979 p value = (.049) < 0.05	Reject Null
H1e	Financial problems	There is no significant difference in the founders' perception on Financial problems with respect to incubation status.	T value = 1.05 p value = (.295) > 0.05	Fail to Reject Null
H1f	Competitive and customer problems	There is no significant difference in the founders' perception on Competitive and customer problems with respect to incubation status.	T value = .662 p value = (.509) > 0.05	Fail to Reject Null
H1g	Management skills problems	There is no significant difference in the founders' perception on Management skills problems with respect to incubation status.	T value = 1.008 p value = (.314) > 0.05	Fail to Reject Null
H1h	Technological and investment problems	There is no significant difference in the founders' perception on Technological and investment problems with respect to incubation status.	T value = 1.034 p value = (.302) > 0.05	Fail to Reject Null
H1i	Government supporting problems	There is no significant difference in the founders' perception on government supporting problems with respect to incubation status.	T value = .280 p value = (.780) > 0.05	Fail to Reject Null

6.3.6 Founders' perception on problems faced by IT services start-ups with reference to education level of founders.

In the case of IT services start-ups, education level of founders is crucial because technical knowledge and frequent technology disruption are to be acquitted by the founders in order to compete with established companies. To cope up with this, proper education system should be established in the country. It is reported that imperfect education system is an important problem faced by the start-ups (Sharifi, O., & Hossein, B. K., 2015). So it is necessary to compare education level of founders and growth problems experienced by IT services start-ups founders. The following hypothesis was developed to analyse the same.

$H_{6.11}$: The problems experienced by IT services start-ups founders differ based on education level of founders.

Table 6.32

ANOVA for significant difference in the problems experienced by IT services start-ups founders differ based on education level of founders.

Problems	Educational level					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Socio-political and team	2.20 (.81)	2.35 (.86)	3.17 (.98)	2.91 (1.03)	3.25 (.12)	3.620	.007*
Marketing problems	2.20 (.44)	3.80 (.83)	3.43 (.79)	3.42 (.91)	3.42 (.84)	3.353	.011*
Business planning problems	3.62 (.50)	3.13 (1.21)	3.42 (.90)	3.48 (.95)	3.10 (.15)	.674	.611
Management and HR problems	3.60 (1.24)	3.63 (.58)	3.95 (.57)	3.65 (.77)	3.13 (.86)	5.079	.001*
Financial problems	4.12 (.80)	3.92 (.75)	3.83 (.95)	3.76 (.83)	3.51 (1.12)	.463	.763
Competitive and customer problems	2.3 (.71)	3.70 (.75)	3.57 (.74)	3.46 (.89)	3.46 (.67)	3.077	.017*

Problems	Educational level					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Management skills problems	4.36 (.47)	4.37 (.56)	3.94 (.61)	4.11 (.74)	3.55 (1.23)	2.917	.022*
Technological and investment problems	3.72 (.38)	4.04 (.68)	3.70 (.67)	3.56 (.71)	3.63 (1.43)	1.693	.152
Government supporting problems	2.72 (.72)	3.29 (.85)	3.37 (.87)	3.16 (.76)	2.76 (.60)	2.179	.072

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The table 6.32 shows the ANOVA for the educational level and problem factors of start-ups at 5% significant level. It is reported that socio-political team, marketing problems, management and HR problems, competitive and customer problems, and management skills problems have p value less than 0.05 and null hypothesis is rejected. So it can be interpreted that the opinion of IT services start-ups entrepreneurs towards socio-political team, marketing problems, management and HR problems, competitive and customer problems, and management skills problems differ based on education level of entrepreneurs. But the p values of business planning problems, financial problems, technological and investment problems and government supporting problems are seen more than 0.05 and hence failed to reject null hypothesis. It can conclude that there is no significant difference in the business planning problems, financial problems, technological and investment problems and government supporting problems among entrepreneurs having various education levels.

Table 6.33

Post hoc: Multiple comparisons between founders' perception on problems faced by IT services start-ups and Education level of founders.

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
Socio-political and team	Below Plus two	Diploma	-.15385	.52223	.998
		Graduation	-.97417	.45110	.198
		Post graduation	-.71455	.45378	.515
		Others	-1.05000	.60092	.407
	Diploma	Below Plus two	.15385	.52223	.998
		Graduation	-.82033*	.28684	.037
		Post graduation	-.56070	.29105	.306
		Others	-.89615	.48979	.359
	Graduation	Below Plus two	.97417	.45110	.198
		Diploma	.82033*	.28684	.037
		Post graduation	.25963	.12440	.229
		Others	-.07583	.41311	1.000
	Post graduation	Below Plus two	.71455	.45378	.515
		Diploma	.56070	.29105	.306
		Graduation	-.25963	.12440	.229
		Others	-.33545	.41604	.929
	Others	Below Plus two	1.05000	.60092	.407
		Diploma	.89615	.48979	.359
		Graduation	.07583	.41311	1.000
		Post graduation	.33545	.41604	.929
Marketing problems	Below Plus two	Diploma	-1.60000*	.43981	.003
		Graduation	-1.23974*	.37991	.011
		Post graduation	-1.22545*	.38217	.013
		Others	-1.26667	.50608	.093
	Diploma	Below Plus two	1.60000*	.43981	.003
		Graduation	.36026	.24157	.569
		Post graduation	.37455	.24512	.545
		Others	.33333	.41249	.928
	Graduation	Below Plus two	1.23974*	.37991	.011
		Diploma	-.36026	.24157	.569
		Post graduation	.01428	.10477	1.000
		Others	-.02693	.34791	1.000

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
	Post graduation	Below Plus two	1.22545*	.38217	.013
		Diploma	-.37455	.24512	.545
		Graduation	-.01428	.10477	1.000
		Others	-.04121	.35038	1.000
	Others	Below Plus two	1.26667	.50608	.093
		Diploma	-.33333	.41249	.928
		Graduation	.02693	.34791	1.000
		Post graduation	.04121	.35038	1.000
Management and HR problems	Below Plus two	Diploma	-.03077	.35755	1.000
		Graduation	-.35894	.30884	.773
		Post graduation	-.05455	.31068	1.000
		Others	.46667	.41142	.788
	Diploma	Below Plus two	.03077	.35755	1.000
		Graduation	-.32817	.19639	.454
		Post graduation	-.02378	.19927	1.000
		Others	.49744	.33534	.574
	Graduation	Below Plus two	.35894	.30884	.773
		Diploma	.32817	.19639	.454
		Post graduation	.30439*	.08517	.004
		Others	.82561*	.28284	.031
	Post graduation	Below Plus two	.05455	.31068	1.000
		Diploma	.02378	.19927	1.000
		Graduation	-.30439*	.08517	.004
		Others	.52121	.28485	.358
	Others	Below Plus two	-.46667	.41142	.788
		Diploma	-.49744	.33534	.574
		Graduation	-.82561*	.28284	.031
		Post graduation	-.52121	.28485	.358
Competitive and customer problems	Below Plus two	Diploma	-1.34769*	.42416	.014
		Graduation	-1.21483*	.36639	.009
		Post graduation	-1.10364*	.36857	.025
		Others	-1.10667	.48808	.159
	Diploma	Below Plus two	1.34769*	.42416	.014
		Graduation	.13286	.23298	.979
		Post graduation	.24406	.23639	.840

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
		Others	.24103	.39782	.974
	Graduation	Below Plus two	1.21483*	.36639	.009
		Diploma	-.13286	.23298	.979
		Post graduation	.11120	.10104	.806
		Others	.10817	.33554	.998
	Post graduation	Below Plus two	1.10364*	.36857	.025
		Diploma	-.24406	.23639	.840
		Graduation	-.11120	.10104	.806
		Others	-.00303	.33792	1.000
	Others	Below Plus two	1.10667	.48808	.159
		Diploma	-.24103	.39782	.974
		Graduation	-.10817	.33554	.998
		Post graduation	.00303	.33792	1.000
Management skills problems	Below Plus two	Diploma	-.01692	.35638	1.000
		Graduation	.41298	.30784	.665
		Post graduation	.24364	.30967	.934
		Others	.81000	.41008	.281
	Diploma	Below Plus two	.01692	.35638	1.000
		Graduation	.42990	.19575	.184
		Post graduation	.26056	.19862	.684
		Others	.82692	.33424	.100
	Graduation	Below Plus two	-.41298	.30784	.665
		Diploma	-.42990	.19575	.184
		Post graduation	-.16934	.08489	.271
		Others	.39702	.28191	.623
	Post graduation	Below Plus two	-.24364	.30967	.934
		Diploma	-.26056	.19862	.684
		Graduation	.16934	.08489	.271
		Others	.56636	.28392	.271
	Others	Below Plus two	-.81000	.41008	.281
		Diploma	-.82692	.33424	.100
		Graduation	-.39702	.28191	.623
		Post graduation	-.56636	.28392	.271

* denotes significant at 5% level

The above table 6.33 describes the post Hoc – multiple comparisons by using Tukey test to identify which combination of educational level of respondents has more significant in terms of socio-political and team, marketing problems, Management and HR problems, competitive problems and management and skills problems. The table reveals that there is a significant difference in the diploma and graduation combination in the case of socio-political and team, (p value = .037), below plus two and graduation combination in the case of marketing problems (p value = .011), graduation and post-graduation combination in the case of Management and HR problems (.004), below plus two and graduation combination in the case of competitive problems (.009) and no combination is found in the case of management and skills problems.

6.3.7 Problems experienced by IT service start-ups founders with reference to nature of start-ups.

IT services start-ups are using product based, services based and product and service based start-ups in their business activities with aim to achieve maximum profit. In order to study which type of business has more problems, it is necessary to compare education level of founders and growth problems experienced by IT services start-ups founders and the following hypothesis was developed for the same.

$H_{6.12}$: The problems experienced by IT services start-ups founders differ based on nature of start-ups.

Table 6.34

ANOVA for significant difference in the problems experienced by IT service start-ups founders with reference to nature of start-ups

Problems	Nature of start-ups			F	Sig.
	Product	Service	Mixed		
Socio-political and team	2.76	3.23	3	4.06	.018*
	(.85)	(1.06)	(1.02)		
Marketing problems	3.21	3.46	3.51	2.725	.067
	(.79)	(.89)	(.83)		

Problems	Nature of start-ups			F	Sig.
	Product	Service	Mixed		
Business planning problems	3.47	3.41	3.41	0.105	.900
	(1.04)	(.91)	(.87)		
Management and HR problems	3.45	3.8	3.96	12.537	.000*
	(.66)	(.78)	(.58)		
Financial problems	3.85	3.69	3.86	1.059	.348
	(.79)	(.99)	(.87)		
Competitive and customer problems	3.34	3.65	3.5	2.741	.066
	(.76)	(.78)	(.85)		
Management skills problems	4	3.95	4.09	1.047	.352
	(.77)	(.62)	(.67)		
Technological and investment problems	3.5	3.6	3.78	3.959	.020*
	(.7)	(.69)	(.7)		
Government supporting problems	3.01	3.4	3.29	4.343	.014*
	(.72)	(.85)	(.84)		

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The table 6.34 shows the ANOVA for the nature of start-ups and problems perceived by start-ups at 5% significant level. It is reported that socio-political team, management and HR problems, technological and investment problems and government supporting problems have p value less than 0.05 and null hypotheses are rejected. So it can be interpreted that the opinion of IT services start-ups entrepreneurs towards socio-political team, management and HR problems, technological and investment problems and government supporting problems differ based on nature of start-ups. But the p values of marketing problems, financial problems and competitive and customer problems are seen more than 0.05 and hence failed to reject null hypotheses. It can conclude that there is no significant difference in the marketing problems, financial problems and competitive and customer problems among entrepreneurs with regard to nature of start-ups.

Table 6.35

Post hoc: Multiple comparisons between founders' perception on problems faced by IT services start-ups and nature of start-ups

Dependent Variable	(I) Nature of start-ups	(J) Nature of start-ups	Mean Difference (I-J)	Std. Error	Sig.
Socio-political and team	Product	Service	-.46453*	.16352	.013
		Mixed	-.24066	.15150	.252
	Service	Product	.46453*	.16352	.013
		Mixed	.22386	.13760	.236
	Mixed	Product	.24066	.15150	.252
		Service	-.22386	.13760	.236
		Mixed	-.29366	.12795	.058
	Service	Product	.24290	.13810	.185
		Mixed	-.05076	.11621	.900
	Mixed	Product	.29366	.12795	.058
		Service	.05076	.11621	.900
Management and HR problems	Product	Service	-.35063*	.10989	.004
		Mixed	-.50972*	.10181	.000
	Service	Product	.35063*	.10989	.004
		Mixed	-.15909	.09247	.199
	Mixed	Product	.50972*	.10181	.000
		Service	.15909	.09247	.199
		Mixed	-.16604	.12316	.370
	Service	Product	.31073	.13293	.052
		Mixed	.14470	.11185	.400
	Mixed	Product	.16604	.12316	.370
		Service	-.14470	.11185	.400
Technological and investment problems	Product	Service	-.10260	.11492	.645
		Mixed	-.28177*	.10647	.023
	Service	Product	.10260	.11492	.645
		Mixed	-.17917	.09670	.155
	Mixed	Product	.28177*	.10647	.023
		Service	.17917	.09670	.155

Dependent Variable	(I) Nature of start-ups	(J) Nature of start-ups	Mean Difference (I-J)	Std. Error	Sig.
Government supporting problems	Product	Service	-.39184*	.13520	.011
		Mixed	-.27782	.12526	.070
	Service	Product	.39184*	.13520	.011
		Mixed	.11402	.11376	.576
	Mixed	Product	.27782	.12526	.070
		Service	-.11402	.11376	.576

* denotes significant at 5% level

The above table 6.35 describes the post Hoc – multiple comparison by using Tukey test to identify which combination of nature of start-ups has more significant in terms of socio-political team, management and HR problems, technological and investment problems and government supporting problems. The table reveals that there is a significant difference in the product and service based start-ups combination in the case of socio-political team (p value = .013), product and mixed based start-ups combination in the case of management and HR problems (p value = .000), product and mixed based start-ups combination in the case of technological and investment problems (.023) and product and service based start-up combination in the case of government supporting problems (.011).

6.4 Opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala

From literature surveyed, there are tremendous opportunities for start-ups especially for technology start-ups in future in Kerala. Advancement of information technology in the country is mainly promoted and used by start-up companies in India. Central government initiatives like start-ups India stand-up India scheme, digital India initiatives etc. promote start-up culture especially technology start-ups in the country. It is found that rapidly growing population is one of the main opportunities for start-ups in future (Meero et al., 2021). This study identified 12 variables regarding the prospects for growth of IT services start-ups in Kerala. These 12 variables are reduced to 3 dimensions based on EFA.

6.4.1 Development of Scales for measuring opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala

There are good prospects for the entrepreneurial venture in the country by various means (Sharma, D & Gautam, K.P. 2020). To check the growth prospects of IT services start-ups in Kerala, 12 items are included in the survey questionnaire. Respondents were asked to rate this 12 items related problem factors on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. In order to study prospects in growth in IT services start-ups in Kerala and its dimensions, all the items are examined with help of Exploratory Factor Analysis. The output of EFA is presented below.

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala

To use factor analysis, suitability of data was checked. To do this, both KMO test and Bartlett's test were used. Value of KMO of .714 (Table 6.36) reveals that factor analysis can be used for the present data. Under Bartlett's test of Sphericity, we test the variables are related or not through correlation matrix. The result shows that there exist significant relationships among the variables (p value is 0.000). So the result of KMO test and Bartlett's test reports that the present data is appropriate for factor analysis.

Table 6.36

KMO and Bartlett's Test- opinions of start-ups founders regarding the prospects for growth of IT services start-ups

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	1095.416
	df	66
	Sig.	.000*

Source: Survey data, * denotes Significant at 5% level

Table 6.37

Communalities of opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala

Variable	Initial	Extraction
Technological advancement and technology disruption in the industrial world promotes IT services start-ups in the state.	1.000	.279
Easing FDI norms and various funding initiatives of government will be helpful to start IT services start-ups.	1.000	.513
Easing government regulations will boost starting of IT services start-ups in the state.	1.000	.794
The state actively involved in the upliftment of women entrepreneurs in the field of IT services start-up through women entrepreneurs support programme.	1.000	.741
Taxation policies related to IT services start-ups and Angel investors are effective to develop start-up ecosystem in the system.	1.000	.516
Tremendous potential in market size in future will strengthen the sustainability of IT services start-ups in the state.	1.000	.555
E-Commerce boom in the online market place provides a wider market to IT services start-ups.	1.000	.460
The changing axis of international trade and opportunities in export of IT products or services needs to begin more start-ups in IT sector.	1.000	.620
IT Start-up movement in the present era inculcate the entrepreneurial culture among youth especially technical students	1.000	.828
Digital infrastructure availability and increasing internet users will attract the entrepreneurs to the IT services start-ups.	1.000	.323
Big companies are looking in search of diversified information, creative people and process at IT services start-ups.	1.000	.502
Change in mind set of working class	1.000	.777

Extraction Method: Principal Component Analysis.

The table 6.37 shows the communalities and it reveals how much proportion of the variance of each variable by the extracted factors and if the communality initial

value is closer to 1, the variable is explained better by the factors. From the table it is seen that over 82.8% of the variance is accounted for IT Start-up movement in the present era inculcate the entrepreneurial culture among youth especially technical students followed by Easing government regulations will boost starting of IT services start-ups in the state where variances is 79.4%, where as 27.9% of the variance is accounted for in Technological advancement and technology disruption in the industrial world promotes IT services start-ups in the state.

Then next step is to decide how many factors are to be derived based on the Eigen value. We can take factors whose Eigen values are greater than one as rule of thumb. Then to extract factors and rotation of these factors, Principal Component Analysis and Varimax rotation algorithm (Kaiser, 1958) were used. After that component matrix of various factors were located orthogonally. Finally, all of the statements were loaded on the extracted factors after the rotation. The results of total variance explained, Scree Plot diagram, Rotated Component Matrix as well as factor loadings, are presented separately in the tables.

Table 6.38

Total Variance Explained on opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala

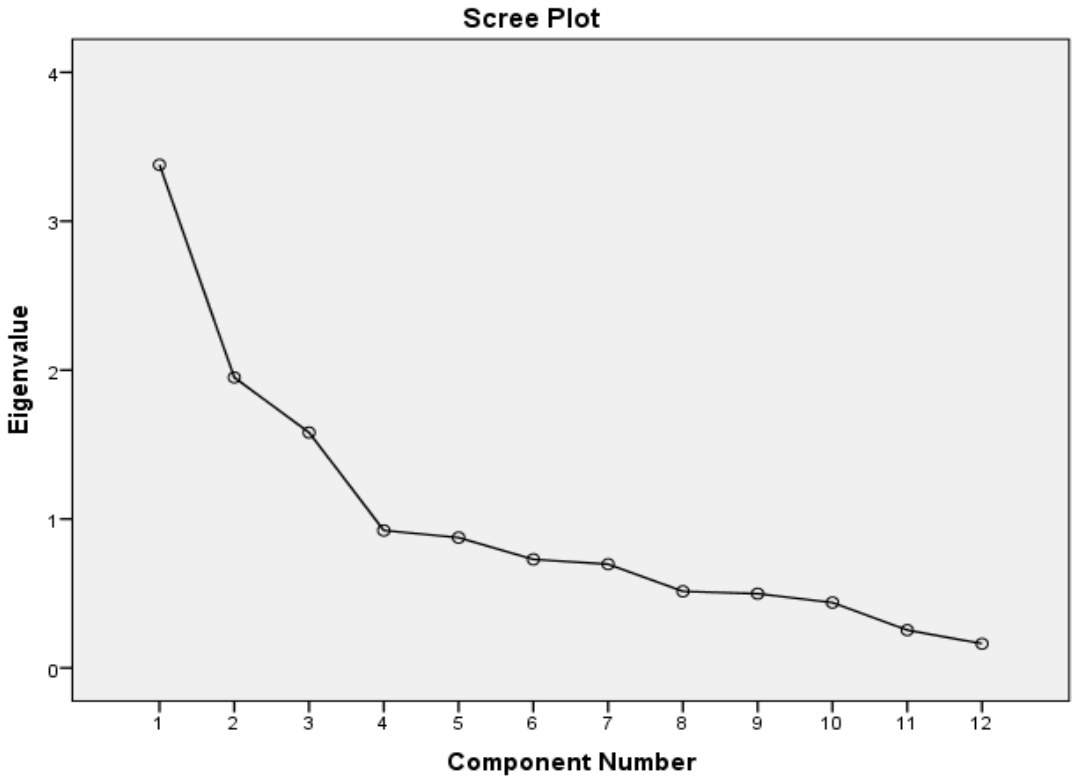
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.379	28.155	28.155	3.379	28.155	28.155	2.806	23.386	23.386
2	1.950	16.254	44.408	1.950	16.254	44.408	2.164	18.032	41.418
3	1.581	13.173	57.581	1.581	13.173	57.581	1.940	16.163	57.581
4	.923	7.690	65.272						
5	.875	7.292	72.564						
6	.729	6.071	78.635						
7	.696	5.804	84.439						
8	.514	4.284	88.722						
9	.499	4.154	92.877						
10	.439	3.656	96.533						
11	.254	2.115	98.647						
12	.162	1.353	100.000						

Extraction Method: Principal Component Analysis.

From the above table 6.38 it can be ascertained that from the 12 items (components), only 3 components having Eigen values more than 1 were selected. This means that these 3 components would be able to explain maximum variance in the characteristics of units. The total variance constitutes by all the nine factors are 57.58% and maximum variance is explained by the three factors alone. Thus, these three variables alone are adequate for further analysis. Among the three factors, first factor accounted 23.86% of variance, second factor accounted 18.03% of variance and third factor accounted 16.16% of variance.

Figure 6.4

Scree Plot of opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala



The figure 6.3 showing the scree plot that explains the eigen values. It suggests that three factors are adequate for extraction and these three factors have eigen values of greater than one. The scree plot diagram clearly shows that only three factors with

eigen value exceeding 1 before the curve becomes approximately a straight line (or before the curve starts to flatten).

Table 6.39

Rotated Component Matrix of opinion of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala

Variables	Component		
	1	2	3
Easing government regulations will boost starting of IT services start-ups in the state.	.890		
The state actively involved in the upliftment of women entrepreneurs in the field of IT services start-up through women entrepreneurs support programme.	.860		
Taxation policies related to IT services start-ups and Angel investors are effective to develop start-up ecosystem in the system.	.682		
Easing FDI norms and various funding initiatives of government will be helpful to start IT services start-ups.	.647		
Technological advancement and technology disruption in the industrial world promotes IT services start-ups in the state.	.511		
The changing axis of international trade and opportunities in export of IT products or services needs to begin more start-ups in IT sector.		.770	
Tremendous potential in market size in future will strengthen the sustainability of IT services start-ups in the state.		.705	
Big companies are looking in search of diversified information, creative people and process at IT services start-ups.		.700	
E-Commerce boom in the online market place provides a wider market to IT services start-ups.		.641	
IT Start-up movement in the present era inculcate the entrepreneurial culture among youth especially technical students			.908
Change in mind set of working class			.880
Digital infrastructure availability and increasing internet users will attract the entrepreneurs to the IT services start-ups.			.565

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 4 iterations.

The above Rotated component Matrix Table 6.39 shows three factors are extracted for the study. By using factor analysis, total dependent variables (12 items) reduced to three factors. In order to identify major problems perceived by IT services start-ups, new labels were provided for these three factors in testing of hypotheses such as Factor 1- Govt. support for entrepreneurial ecosystem, 2 – Increasing entrepreneurial opportunities and 3 – Developing entrepreneurial mindset.

Table 6.40

Factors extracted through EFA regarding opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala and reliability of factors

Prospects in growth of IT Services Start-up	Number of Items	Mean	Std. Deviation	Cronbach Alpha Coefficient
Govt. support for entrepreneurial ecosystem	5	3.99	0.65	.796
Increasing entrepreneurial opportunities	4	4.20	0.58	.714
Developing entrepreneurial mindset	3	4.19	0.63	.706

Source: Survey data

The above table 6.40 discloses the number of items mean, S.D and Cronbach Alpha Coefficient of three factors coming under prospects in growth of IT services start-ups. Among these Increasing entrepreneurial opportunities have higher mean value (4.20) compared to others and concludes that Increasing entrepreneurial opportunities are the important problems prospects in growth of IT services start-ups. The table also clearly shows that Cronbach alpha coefficient of each three factor proved reliable and a strong internal consistency among the items: .796 (factor 1); .714 (factor 2) and .706 (factor 3). So the scales constructed for prospects in growth of IT services start-ups in Kerala by using factor analysis was appropriate for testing of hypotheses.

6.4.2 Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to incubation status of start-ups.

In India, large numbers of incubation centres are being established by the government, private organisation and public private partnership mode for supporting start-ups companies in the country. It is needed to compare the prospects for growth of IT services start-ups in Kerala with incubation status of start-ups and the following hypothesis was set by the researcher.

$H_{6.13}$: There is significant difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to incubation status of start-ups.

Table 6.41

Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to incubation status of start-ups.

Growth prospects	Incubation status	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Govt. support for entrepreneurial ecosystem	Yes	92	3.93	0.73	5.793	0.017	-1.134	0.289
	No	193	4.02	0.61			-1.065	
Increasing entrepreneurial opportunities	Yes	92	4.27	0.54	0.483	0.488	1.252	0.212
	No	193	4.18	0.60			1.304	
Developing entrepreneurial mindset	Yes	92	4.30	0.62	0.039	0.844	1.993	0.047*
	No	193	4.14	0.63			2.007	

Source: Survey data,
* Significant at 5% level of significance

The table 6.41 shows the descriptive statistics and t test along with Levene's test of opinions of IT services start-ups entrepreneurs regarding the growth prospects of IT services start-ups in Kerala with respect to incubation status of start-ups. For the

variable Govt. support for entrepreneurial ecosystem, mean values of incubated status or not are 3.93 and 4.02 and S.D are .73 and .61. Assumption of equality of variance is not followed with p value 0.017 which is <.05. So take T value in the row of equal variances not assumed. Then T value is -1.065 and p value (.289) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Govt. support for entrepreneurial ecosystem.

The variable Increasing entrepreneurial opportunities depicts the mean values of incubated status or not are 4.27 and 4.18 and S.D are 0.54 and 0.60. Assumption of equality of variance is followed with p value .488 which is >.05. T value is 1.252 and p value (.212) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Increasing entrepreneurial opportunities.

As far as Developing entrepreneurial mindset are concerned, mean values of incubated status or not are 4.30 and 4.14 and S.D are 0.62 and 0.63. Assumption of equality of variance is followed with p value .844 which is >.05. T value is 1.993 and p value (.047) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Developing entrepreneurial mindset.

Table 6.42

Summary of Hypotheses Test Results

	Construct	**Hypotheses**	**Result**	**Decision**
H1a	Govt. support for entrepreneurial ecosystem	There is no significant difference in the opinions of IT services start-ups founders regarding Govt. support for entrepreneurial ecosystem with respect to incubation status.	T value = -1.065 p value = (.289) > 0.05.	Fail to Reject Null
H1b	Increasing entrepreneurial opportunities	There is no significant difference in the opinions of IT services start-ups founders regarding Increasing entrepreneurial opportunities with respect to incubation status.	T value = 1.252 p value = (.212) > 0.05	Fail to Reject Null

	Construct	Hypotheses	Result	Decision
H1c	Developing entrepreneurial mindset	There is significant difference in the opinions of IT services start-ups founders regarding Developing entrepreneurial mindset with respect to incubation status.	T value = 1.993 p value = (.047) < 0.05	Reject Null

Source: Survey data

6.4.3 Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to gender of the entrepreneurs.

Recently Indian start-up ecosystem is dramatically changed due to the intervention of government in the implementation of various initiatives and schemes which will be benefited to all sectors of start-ups and individuals especially in Kerala and Kerala is considered as the emerging state in terms of start-up ecosystem. Apart from these specific policies and schemes are also providing to the women founders in the country. Bases on this analysis, the researcher tried to compare the prospects for growth of IT services start-ups in Kerala with gender of the entrepreneurs and the following hypothesis was developed.

$H_{6.14}$: There is significant difference in the opinions of IT services start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to gender of the founders.

Table 6.43

Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to gender of founders

Growth prospects	Gender	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Govt. support for entrepreneurial ecosystem	Male	263	3.98	0.66	3.542	0.061	-1.553	0.122
	Female	22	4.20	0.42			-2.277	
Increasing entrepreneurial opportunities	Male	263	4.20	0.60	9.723	0.002	-0.721	0.193
	Female	22	4.29	0.28			-1.323	
Developing entrepreneurial mindset	Male	263	4.21	0.63	0.064	0.801	2.311	0.022*
	Female	22	3.89	0.65			2.24	

Source: Survey data,
* Significant at 5% level of significance

The table 6.43 shows the descriptive statistics and t test along with Levene's test of opinion of IT services start-ups entrepreneurs regarding the growth prospects of IT services start-ups in Kerala with respect to gender of the entrepreneurs. For the variable Govt. support for entrepreneurial ecosystem, mean values of male or female are 3.98 and 4.20 and S.D are .66 and .42. Assumption of equality of variance is followed with p value 0.061 which is >.05. T value is -1.553 and p value (.122) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Govt. support for entrepreneurial ecosystem.

The variable Increasing entrepreneurial opportunities depicts the mean values of male or female are 4.20 and 4.29 and S.D are 0.60 and 0.28. Assumption of equality of variance is not followed with p value .002 which is <.05. So take T value in the row of equal variances not assumed. Then t value is -0.721 and p value (.193) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to Increasing entrepreneurial opportunities.

As far as Developing entrepreneurial mindset are concerned, mean values of male or female are 4.21 and 3.89 and S.D are 0.63 and 0.65. Assumption of equality of variance is followed with p value .801 which is >.05. T value is 2.311 and p value (.022) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Developing entrepreneurial mindset.

Table 6.44

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Govt. support for entrepreneurial ecosystem	There is no significant difference in the opinions of IT services start-ups founders regarding Govt. support for entrepreneurial ecosystem with respect to gender.	T value = -1.553 p value = (.122) > 0.05	Fail to Reject Null
H1b	Increasing entrepreneurial opportunities	There is no significant difference in the opinions of IT services start-ups founders regarding Increasing entrepreneurial opportunities with respect to gender.	t value = -0.721 p value = (.193) > 0.05	Fail to Reject Null
H1c	Developing entrepreneurial mindset	There is significant difference in the opinions of IT services start-ups founders regarding Developing entrepreneurial mindset with respect to gender.	T value = 2.311 p value = (.022) < 0.05	Reject Null

Source: Survey data

6.4.4 Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to previous experience of the founders.

In order to know the prospect for growth in IT services start-ups based on previous experience of founders, the researcher tried to compare the growth prospects of IT services start-ups in Kerala with previous experience of the founders and the following hypothesis was set.

$H_{6.15}$: There is significant difference in the opinions of IT services start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to previous experience of the founders.

Table 6.45

ANOVA for significant difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with reference to previous experience of founders

Growth prospects	Previous experience	N	Mean	S.D	Levene's Test for Equality of Variances		t	Sig. (2-tailed)
					F	Sig.		
Govt. support for entrepreneurial ecosystem	Yes	118	4.11	0.51	12.8	0.000	2.68	.005*
	No	167	3.90	0.71			2.83	
Increasing entrepreneurial opportunities	Yes	118	4.29	0.58	0.073	0.787	2.18	.030*
	No	167	4.14	0.57			2.18	
Developing entrepreneurial mindset	Yes	118	4.23	0.62	0.029	0.866	1.14	.254
	No	167	4.15	0.63			1.14	

Source: Survey data,
* Significant at 5% level of significance

The table 6.45 shows the descriptive statistics and t test along with Levene's test of opinions of IT services start-ups founders regarding the growth prospects of IT services start-ups in Kerala with respect to previous experience. For the variable Govt. support for entrepreneurial ecosystem, mean values of founders having previous experience and not having previous experience are 4.11 and 3.90 and S.D are .51 and .71. Assumption of equality of variance is not followed with p value .000 which is <.05. Then T value is 2.83 and p value (.005) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Govt. support for entrepreneurial ecosystem.

The variable Increasing entrepreneurial opportunities depicts the mean values of founders having previous experience and not having previous experience are 4.29 and 4.14 and S.D are 0.58 and 0.57. Assumption of equality of variance is not followed with p value .787 which is >.05. Then t value is 2.18 and p value (.030) is less than 0.05, the null hypothesis is rejected at 5% level of significance with regard to Increasing entrepreneurial opportunities.

As far as Developing entrepreneurial mindset are concerned, mean values of founders having previous experience and not having previous experience are 4.23 and 4.15 and S.D are 0.62 and 0.63. Assumption of equality of variance is followed with p value .866 which is >.05. T value is 1.14 and p value (.254) is more than 0.05, the null hypothesis is failed to reject at 5% level of significance with regard to developing entrepreneurial mindset.

Table 6.46

Summary of Hypotheses Test Results

	Construct	Hypotheses	Result	Decision
H1a	Govt. support for entrepreneurial ecosystem	There is significant difference in the opinions of IT services start-ups founders regarding Govt. support for entrepreneurial ecosystem with respect to previous experience.	T value = 2.83 p value = (.005) < 0.05	Reject Null
H1b	Increasing entrepreneurial opportunities	There is significant difference in the opinions of IT services start-ups founders regarding Increasing entrepreneurial opportunities with respect to previous experience.	t value = 2.18 p value = (.030) < 0.05	Reject Null
H1c	Developing entrepreneurial mindset	There is no significant difference in the opinions of IT services start-ups founders regarding Developing entrepreneurial mindset with respect to previous experience.	T value = 1.14 p value = (.254) > 0.05	Fail to Reject Null

Source: Survey data

6.4.5 Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to education level of the founders.

Entrepreneurial aspirants are seeking to identify business opportunities based on their education level. To know this whether there is any difference in prospect for growth in IT services start-ups based on education level of founders, the following hypothesis was developed.

$H_{6.16}$: The opinions of IT services start-ups entrepreneurs regarding prospects for growth of IT services start-ups in Kerala differ based on education level of founders.

Table 6.47

ANOVA for significant difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with reference to education level of founders

Prospects for growth	Education level					F	Sig.
	Below +2	Degree	Diploma	PG	Others		
Govt. support for entrepreneurial ecosystem	4.20 (.24)	4.00 (.59)	4.09 (.60)	3.88 (.69)	3.06 (.16)	5.168	.000*
Increasing entrepreneurial opportunities	3.26 (.75)	3.82 (.74)	4.25 (.59)	4.23 (.50)	4.10 (.15)	5.360	.000*
Developing entrepreneurial mindset	3.74 (.28)	4.70 (.47)	4.05 (.62)	4.29 (.61)	4.90 (.15)	7.774	.000*

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The above table 6.47 reveals the ANOVA for the Educational level and prospects for growth at 5% significant level. It reports that all factors related to prospects for growth such as Govt. support for entrepreneurial ecosystem, increasing entrepreneurial opportunities and developing entrepreneurial mindset have p value less than 0.05 and null hypotheses are rejected. So it can be concluded that the opinion of IT services start-ups entrepreneurs towards Govt. support for entrepreneurial ecosystem, increasing entrepreneurial opportunities and developing entrepreneurial mindset differ based on education level of founders.

Table 6.48

Post hoc: Multiple comparisons between opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala and education level of founders

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
Govt. support for entrepreneruial ecosystem	Below Plus two	Diploma	.20000	.33260	.975
		Graduation	.10066	.28730	.997
		Post graduation	.31091	.28901	.819
		Others	1.13333*	.38271	.027
	Diploma	Below Plus two	-.20000	.33260	.975
		Graduation	-.09934	.18268	.983
		Post graduation	.11091	.18536	.975
		Others	.93333*	.31194	.025
	Graduation	Below Plus two	-.10066	.28730	.997
		Diploma	.09934	.18268	.983
		Post graduation	.21025	.07923	.064
		Others	1.03267*	.26310	.001
	Post graduation	Below Plus two	-.31091	.28901	.819
		Diploma	-.11091	.18536	.975
		Graduation	-.21025	.07923	.064
		Others	.82242*	.26497	.018
	Others	Below Plus two	-1.13333*	.38271	.027
		Diploma	-.93333*	.31194	.025
		Graduation	-1.03267*	.26310	.001
		Post graduation	-.82242*	.26497	.018

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
Increasing entrepreneurial opportunities	Below Plus two	Diploma	-.56308	.29736	.323
		Graduation	-.99033*	.25686	.001
		Post graduation	-.97636*	.25839	.002
		Others	-.84000	.34217	.104
	Diploma	Below Plus two	.56308	.29736	.323
		Graduation	-.42725	.16333	.070
		Post graduation	-.41329	.16573	.095
		Others	-.27692	.27889	.858
	Graduation	Below Plus two	.99033*	.25686	.001
		Diploma	.42725	.16333	.070
		Post graduation	.01397	.07083	1.000
		Others	.15033	.23523	.969
	Post graduation	Below Plus two	.97636*	.25839	.002
		Diploma	.41329	.16573	.095
		Graduation	-.01397	.07083	1.000
		Others	.13636	.23690	.979
	Others	Below Plus two	.84000	.34217	.104
		Diploma	.27692	.27889	.858
		Graduation	-.15033	.23523	.969
		Post graduation	-.13636	.23690	.979
Developing entrepreneurial mindset	Below Plus two	Diploma	-.96000*	.31805	.023
		Graduation	-.31430	.27473	.783
		Post graduation	-.55273	.27637	.269
		Others	-1.16000*	.36598	.015
	Diploma	Below Plus two	.96000*	.31805	.023
		Graduation	.64570*	.17469	.002
		Post graduation	.40727	.17726	.149
		Others	-.20000	.29830	.963
	Graduation	Below Plus two	.31430	.27473	.783
		Diploma	-.64570*	.17469	.002
		Post graduation	-.23842*	.07576	.016
		Others	-.84570*	.25160	.008

Dependent Variable	(I) Educational level	(J) Educational level	Mean Difference (I-J)	Std. Error	Sig.
	Post graduation	Below Plus two	.55273	.27637	.269
		Diploma	-.40727	.17726	.149
		Graduation	.23842*	.07576	.016
		Others	-.60727	.25338	.119
	Others	Below Plus two	1.16000*	.36598	.015
		Diploma	.20000	.29830	.963
		Graduation	.84570*	.25160	.008
		Post graduation	.60727	.25338	.119

Source: Survey data * denotes significant at 5% level

The above table describes the post Hoc – multiple comparisons by using Tukey test to identify which combination of educational level of respondents has more significant in terms of Govt. support for entrepreneurial ecosystem, increasing entrepreneurial opportunities and developing entrepreneurial mindset. The table reveals that there is a significant difference in the graduation and others combination in the case of Govt. support for entrepreneurial ecosystem (p value = .001), below +2 and graduation combination in the case of increasing entrepreneurial opportunities (p value = .001) and diploma and graduation combination in the case of developing entrepreneurial mindset (.002)

6.4.6 Difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with respect to nature of start-ups

It is also reported that found that there is a good prospect for entrepreneurial venture in the country by increasing the consumption of indigenous products, discouraging imports of products and services, regulating the price of the homemade product, adequate infrastructural facilities (Sharma, D. & Gautam, K.P., 2020). Based on this analysis, the researcher tried to analyses whether there is any significant difference in prospects for growth of IT services due to the nature of start-ups. The following hypothesis was developed for the same.

$H_{6.17}$: The opinions of IT services start-ups founders regarding prospects for growth of IT services start-ups in Kerala differ based on nature of start-ups.

Table 6.49

ANOVA for significant difference in the opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala with reference to nature of start-ups

Prospects	Nature of start-ups			F	Sig.
	Product	Services	Mixed		
Govt. support for entrepreneurial ecosystem	3.92 (.65)	4.12 (.52)	3.94 (.71)	2.553	0.080
Increasing entrepreneurial opportunities	4.12 (.69)	4.22 (.48)	4.23 (.58)	0.903	0.406
Developing entrepreneurial mindset	4.32 (.58)	4.01 (.57)	4.24 (.66)	5.475	0.005*

Source: Survey data
Note: 1. The value without the bracket refers to Mean
2. The value within bracket refers to SD
3. * denotes significant at 5% level

The table 6.49 shows the ANOVA for the nature of start-ups and prospects for growth in start-ups at 5% significant level. It is reported that developing entrepreneurial mindset have p value less than 0.05 and null hypothesis is rejected. So it can be interpreted that the opinion of IT services start-ups entrepreneurs towards developing entrepreneurial mindset differ based on nature of start-ups. But the p values of Govt. support for entrepreneurial ecosystem and increasing entrepreneurial opportunities are seen more than 0.05 and hence failed to reject null hypotheses. It can conclude that there is no significant difference in Govt. support for entrepreneurial ecosystem and increasing entrepreneurial opportunities among founders with regard to nature of start-ups.

Table 6.50

Post hoc: Multiple comparisons between opinions of start-ups founders regarding the prospects for growth of IT services start-ups in Kerala and nature of start-ups

Dependent Variable	(I) Nature of start-ups	(J) Nature of start-ups	Mean Difference (I-J)	Std. Error	Sig.
Developing entrepreneurial mindset	Product	Service	.30864*	.10186	.008*
		Mixed	.07909	.09438	.680
	Service	Product	-.30864*	.10186	.008*
		Mixed	-.22955*	.08571	.021*
	Mixed	Product	-.07909	.09438	.680
		Service	.22955*	.08571	.021*

Source: Survey data, * denotes significant at 5% level

The above table 6.50 describes the post Hoc – multiple comparison by using Tukey test to identify which combination of nature of start-ups has more significant in terms of developing entrepreneurial mind set. The table reveals that there is a significant difference in the product and service based start-ups and service and mixed start-ups. Among these combinations, product and service based start-ups has mean difference with high significant difference (p value = .008)

6.5 Conclusion

The present chapter discussed about growth factors that mandate for the growth of IT services start-ups in Kerala, different problems perceived by IT services start-ups founders in Kerala and various prospects for growth of IT services start-ups in Kerala. It is found that entrepreneurial traits are the most important growth factors followed by know-how in technology and supporting factors from their individual perception. It explains that managing skill, leadership skill, problem solving skill, decision making skill and propensity for risk taking are the important factors that mandate the growth of IT services start-ups in Kerala. In the case of problems, management skills problems are the most serious problems experienced by founders such as lack of management skills, failure in leadership, inability to manage risk and

poor knowledge of financial management**.** As far as prospects for growth of IT services start-ups are concerned, increasing entrepreneurial opportunities and promotion from the part of Government both in central and state are the most important prospects expected by IT services start-ups entrepreneurs. They expect a bright future in this field. While measuring growth of IT services start-ups, it is found that growth factors are influenced on the growth of IT services start-ups in Kerala. In a nutshell, based on the founder's perception on the growth performance of IT services start-ups in Kerala, there is not at all a satisfactory opinion about their start-up business.

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CHAPTER 7

FINDINGS AND CONCLUSION

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7.1 Introduction

Growth of start-ups companies leads to speed up of the economic growth of a country through generating employment opportunities, standard of living of people by getting customised quality product etc. This platform is only developed through inculcating a conducive environment and entrepreneurial climate to promote entrepreneurship in the state.

India was able to demonstrate its potentialities and play a dominant role in implementing various initiatives to strengthen the entrepreneurial ecosystem in the world. The Kerala state also an emerging state in developing start-up ecosystem in the country under the active involvement and support of Kerala start-up mission.

Due to the emergence of digital entrepreneurship, software industry has been emerged and growth of technology start-ups and IT services start-ups achieved to a great extent. Now a days success of different sectors of start-ups especially technology start-ups and IT services start-ups motivate and develop entrepreneurial behaviour in the minds of entrepreneurial aspirants. Due to the importance of high profitability and low risk, the importance of IT services start-ups are quite an attractive sector in the industry. Moreover, these start-ups need low entry cost and do not require large investment in plant and machinery and all. The gestation period to get revenue and profit is low compared to other industry segment. But from many past literatures and reports, the research found that majority of the IT services start-ups compelled to stop their business operations in the initial years itself due to various failure and risk factors. These problems need to be addressed in detail and proper solutions to be provided. In this context, the researcher made a humble

attempt to study the problems and prospects of IT services start-ups by answering the following research questions:

1. What is the present status of IT service start-ups in Kerala?
2. What are the focused areas upon which the IT service start-ups concentrate their business in Kerala?
3. Do they pass through different stages of development just like other businesses? If yes, what are the different stages of development through which the IT service start-ups are passing?
4. What are the motivating factors that lead founders to focus on IT services start-ups?
5. Do the founders get any support and services from Kerala Start-up Mission? If yes, what is the perception of founders regarding it?
6. What are the policies and schemes extended by the State government to boost IT services start-ups in Kerala?
7. What is the perception of start-up founders regarding the factors that contribute to the growth of IT services start-ups?
8. Do they face any problems while running IT service start-ups in Kerala? If yes, what are the problems perceived by IT services start-up founders?
9. What are the various prospects for growth in IT services start-ups in Kerala?

This chapter presents the major findings and conclusion of the study. The study found a number valuable finding, which have far reaching implications for the functioning of IT services start-ups in Kerala. Before explaining the major findings and conclusions, the objectives of the study, hypotheses and limitations of the study are listed in the following sections.

7.2 Objectives of the study
7.3 Hypotheses
7.4 Findings
7.5 Conclusions

7.2 Objectives of the study

1. To analyze the present status of IT service start-ups in Kerala in terms of number, focused business areas, business models, and development stages.
2. To identify the motivating factors that lead entrepreneurs to start IT services start-ups in Kerala.
3. To analyze the supports and facilities perceived by the founders of IT services start-ups from the Kerala start-up mission.
4. To know the opinion of entrepreneurs about policies and schemes extended by the government to boost IT services start-ups in Kerala.
5. To measure the perception of IT services start-up entrepreneurs regarding the factors that mandate the growth of IT services start-ups.
6. To identify major problems perceived by IT services start-ups in Kerala
7. To check the prospects for growth of IT services start-ups in Kerala.

7.3 Hypotheses of the study

In respect of the above stated objectives, the following hypothesis were developed and tested by using relevant statistical tools.

1. IT services start-ups founders perceive positively the supports and facilities offered by KSUM.
2. IT services start-ups founders perceive positively the schemes and policies extended by the central and state Government.
3. Financial problem is the key problem faced by IT service start-ups in Kerala.

4. Entrepreneurial traits in individuals are the key factor that mandates the growth of IT start-ups in Kerala.
5. Motivating factors experienced by IT services start-ups founders are same with respect to their individual characteristics.
6. Founders' perception regarding supports and facilities offered by KSUM are same with respect to individual and start-up characteristics.
7. Founders' perception regarding policies and schemes extended by Govt. are same with respect to their individual and start-up characteristics.
8. Founders' perceptions regarding growth factors of IT services start-ups are same with respect to their individual and start-up characteristics.
9. Problems perceived by IT services start-up founders are same with respect to their individual and start-up characteristics.
10. Opinions of founders regarding prospects for the growth of IT services start-ups are same with respect to their individual and start-up characteristics.
11. Motivating factors experienced by founders influence the growth of IT services start-ups to a large extent.
12. Supports and facilities perceived by IT services start-up founders from KSUM influence the growth of IT service start-ups.
13. Founders' perception regarding policies and schemes extended by Govt. influence the growth of IT services start-ups.
14. Founder's experience on factors lead to growth of IT services start-ups influence the real growth of their business.

7.4 Findings of the study

7.4.1 Demographic variables

1. Majority of the IT services start-up founders (43.5%) belongs to the age group of 25- 35 years.
2. Majority of the IT services founders are male (92.3%).

3. In the case of educational level of respondents, majority of the IT services start-up founders belong to the graduation (53%), followed by 38.6% of founders completed their post-graduation.

4. Only 27.7% IT services start-up founders have entrepreneurial family background.

5. It is found that 41.4% of the founders have previous experience.

6. In the case of structure of IT services start-ups, 87% of start-ups incorporated as private limited company.

7. It is observed that only 92 start-ups (32.3%) are incubated in incubation centres in Kerala.

8. Majority of the IT services start-ups (46.3%) focus on mixed based start-ups (both product and service based).

9. It is found that majority of the IT services start-ups are using two or more of business model in their business operations and identified that B2C model of business (74%) is major model used by the IT services start-ups in Kerala.

10. Majority of the start-ups are using two or more sectors of IT services start-ups in their business. Among the total sectors of IT services start-ups, Application development (50.2%) is the most used sector by the start-ups followed by Product development (36.8%).

11. In the case of sources of capital, all IT services start-ups used self-financing capital followed by borrowed capital (29.1%) from friends and relatives.

12. In the case of stage wise IT services start-ups in Kerala, 33% of start-ups come under ideation stage followed by 27.6% of start-ups come under the early traction stage.

13. It shows that stage wise increase in numbers of IT services start-ups in Kerala is parallel to the increase in numbers of IT services start-ups in India.

14. In Kerala, it is seen that 37.1% of increase in the number of total IT services start-ups come under ideation stage in 2022 compared to 2021 followed by 31.3% increase in the IT services start-ups come under scaling stage.

15. In Kerala, it is seen that 29.1% of IT services start-ups come under application development sector followed by 25.1% of IT services start-ups come under product development sector.

16. In the case of sector wise performance of IT services start-ups, it shows that an increase in the number of IT services start-ups in Kerala is not proportionate to the increase in number of IT services start-ups in India.

17. Majority of the male founders have previous experience compared to female founders.

18. The incubation status of the IT services start-ups is irrespective of the previous experience of founders.

19. The previous experience of founders has no significant role in the adoption of B2C model of business.

20. The previous experience of founders has no significant role in the adoption of application development sector.

21. The incubation status of start-ups is irrespective of the entrepreneurial family background of the founders.

22. The incubation status of start-ups is irrespective of the gender of founders.

23. There is a significant association between Gender of founders and nature of start-ups. So the selection of product or service or mixed based is greatly affected the gender of founders in Kerala.

24. The gender of founders has no significant role in the adoption of application development sector.

25. There is a significant association between Entrepreneurial family background of founders and nature of the start-ups.

26. Entrepreneurial family background of founders has no significant role in the adoption of B2C model of business.

27. Entrepreneurial family background of founders has no significant role in the adoption of application development sector.

28. The nature of start-ups has significant role in the adoption of application development sector.

29. There is a significant interaction between Incubation status of start-ups and nature of start-ups.

7.4.2 Motivating factors experienced by IT services start-ups founders in Kerala

30. Individual entrepreneurial traits are the most important motivating factors (Mean value is 4.21) followed by social factors (Mean value 3.57) to start IT services start-ups in Kerala.

31. Desire for independence, need for achievement, to become one's own boss, self-employment etc. are the important motivating factors coming under the individual entrepreneurial traits of motivating factors.

32. Motivating factors experienced by IT services start-ups founders are same with respect to their individual characteristics.

33. There is a statistically significant association between opinions of founders regarding the motivating factors and growth of the IT services start-ups.

34. There is significant variation in the growth of IT services start-ups due to the effect of Entrepreneurial factors, Environmental factors, and Social factors. But there is no significant change in the growth performance due to the effect of Individual factors because the Sig. value is more than the acceptable limit of 0.05.

35. Motivating factors experienced by founders influence the growth of IT services start-ups to a large extent.

7.4.3 Founders' perception regarding supports and facilities offered by KSUM

36. Infrastructure facilities, regulatory support and awareness programs are the important support and facilities perceived by the IT services start-ups from KSUM (Mean value 3.06).

37. Majority of the IT services start-ups opined that they do not get adequate funding support and marketing support from KSUM as they expected.

38. IT services start-ups founders do not perceive positively the supports and facilities offered by KSUM

39. Founders' perception regarding supports and facilities offered by KSUM are not same with respect to individual and start-up characteristics.

40. There is a statistically significant association between founders' perception regarding supports and facilities offered by KSUM and growth performance of start-ups.

41. There is significant variation in the growth of IT services start-ups due to the effect of Mentorship and networking support, Infrastructure and regulatory support financial and marketing support because of the sig. value is less than the acceptable value of 0.05.

42. Founders' perception regarding supports and facilities offered by KSUM influence the growth of the start-ups.

7.4.4 Founders' perception on policies and schemes extended by Governments

43. Among policies and incentives of government, financial and developmental measures are perceived as important one and it has the highest mean value of 3.07.

44. It reveals that single window scheme, infrastructural facilities offered by govt., giving confidence to entrepreneurs etc. are perceived by the entrepreneurs from the govt.

45. IT services start-ups do not perceive positively the schemes and policies extended by the central and state Government.

46. Founders' perception on policies and schemes extended by Govt. are not same with respect to their individual and start-up characteristics.

47. There is a statistically significant association between founders' perception regarding policies and schemes extended by Govt. and growth of IT services start-ups.

48. There is significant variation in the growth of IT services start-ups due to the effect of Protection measures, Financial and developmental measures and Supporting and promoting measures because of the sig. value is less than the acceptable value of 0.05.

49. Founders' perception regarding policies and schemes extended by the Govt. influence the growth IT services start-ups.

7.4.5 Founders' perceptions regarding growth factors of IT services start-ups in Kerala

50. It is found that entrepreneurial traits are the most important growth factors (highest mean of 4.37) followed by know-how in technology and supporting factors (4.33) and marketing factors from their individual perception.

51. Entrepreneurial traits like Managing skill, leadership skill, problem solving skill, decision making skill and propensity for risk taking are the important factors that mandate the growth of IT services start-ups in Kerala.

52. It is concluded that an entrepreneur having enough entrepreneurial traits can success in his venture irrespective of any external shackles.

53. Founders' perceptions regarding growth factors of IT services start-ups are not same with respect to their individual and start-up characteristics.

54. There is a statistically significant association between founder's experience on factors lead to growth of IT services start-ups and the real growth of their business.

55. There is significant variation in the real growth of IT services start-ups due to the effect of Institutional support, Resources availabilities, Team capabilities and environmental factors, Financial factors, marketing factors and entrepreneurial traits because of the sig. value is less than the acceptable value of 0.05.

56. Founder's experience on factors lead to growth of IT services start-ups influence the real growth of their business.

7.4.6 Problems experienced by IT services start-ups founders in Kerala

57. Management skills problems are the most serious problems (highest mean value of 4.03) perceived by IT services start-ups in Kerala followed by financial problems and management of HR problems.

58. Lack of management skills, failure in leadership, inability to manage risk and poor knowledge of financial management are considered as important management skills problems faced by entrepreneurs. Labour turnover is also another important problem faced by start-up entrepreneurs.

59. Problems perceived by IT services start-up founders are not same with respect to their individual and start-up characteristics.

7.4.7 Prospects for growth in IT services start-ups in Kerala

60. It is found that increasing entrepreneurial opportunities and promotion from the part of Government both in central and state are the most important prospects (highest mean of 4.20) expected by IT services start-ups entrepreneurs. They expect a bright future in this field.

61. There is also an ample scope for exports of IT services and products, potential market size in future, e-commerce boom, big companies focus on creative people etc.

62. It is observed that increasing entrepreneurial opportunities are the most important prospects (highest mean of 4.20) expected by IT services start-ups entrepreneurs.

63. Opinions of founders regarding prospects for the growth of IT services start-ups are not same with respect to their individual and start-up characteristics.

7.4.8 Other major findings

1. Majority of the IT services start-ups founders face scarcity of sufficient fund and working capital while running their business and they expect government support and funding scheme.

2. Financial institutions are reluctance to give loan to IT services start-ups for their business development and majority of the capital are raised from internal sources such as self-financing, their friends and family members.

3. Majority of the founders opined that they do not get skilled or talented employees in their business operations.

4. Employees' attrition and switching of employees are one of the serious problems faced by IT services start-ups in Kerala

5. Most of the IT services start-ups founders do not have sufficient expertise and skills in the core areas of their business operations such as accounting, management, marketing and sales even though the start-ups producing their own innovative products and services.

6. IT services start-ups face enormous employee cost in running their business operations.

7. Majority of the entrepreneurs opined that KSUM as a govt. nodal agency promote only product based technology start-ups in the state but not focus more on IT services start-ups.

8. Lack of mentoring support in IT services industry is one of the major problems perceived by IT services start-up entrepreneurs.

9. Lack of patent and copy right mechanism for IT services start-ups is a serious threat to new start-ups and it affects creative idea of their business.

10. Disruption of technologies and frequent technology up gradation is a serious issue to IT services start-ups.

11. The increasing trend of starting new venture daily is the growing interest in entrepreneurship culture in the state.

12. Majority of the founders opined that IT services start-ups can run only in metropolitan cities because of the availabilities of infrastructure and networking facilities and they need enough cost for running their business.

13. Some of the women entrepreneurs opined that IT services start-ups performs their business operations on day or night shift and the society look at these work culture in a negative way.

7.5 Conclusion

Today's digitalised world, IT services start-ups has a vital role in the development of a country. It brings innovative ideas and solutions to the society and corporate world that lead to creation of new industries. This mechanism generates employment opportunities thereby increasing economic development of country. For this a conducive environment is required to develop a start-up ecosystem in the state by initiating and implementing different policies, schemes, supports and facilities on the part of policy makers and society. In Kerala, the government and KSUM are mainly focusing on product based start-ups. So the functioning of IT services start-ups after the initial stages of development is not much satisfactory in the state. In Kerala, many technology start-ups especially IT services start-ups encountered

various problems in their different stages of development of business operations. Major problems faced by them are lack of adequate finance, lack of availability of talented or skilled employees, lack of sufficient management skill, lack of adequate mentoring support etc. In order to overcome these problems, a systematic efforts and interventions will be taken to strengthen the entrepreneurial activities and accessibility of digital infrastructure in the state from part of government and supporting organisations. Individual entrepreneurial traits are the most important factors required for the growth of IT service start-ups followed by technical knowhow and supporting factors. Entrepreneurial traits include founders' managing skill, leadership skill, problem solving skill, decision making skill and propensity for risk taking. Despite having so many challenges found, some good prospect also there behind running IT service start-ups. The increasing trend of starting new venture daily shows the growing interest in developing entrepreneurship culture in the state. Increasing entrepreneurial opportunities and support and promotion of State and Central Government to the start-up especially India expect to become a Trillian Dollar Digital Economy by 2025 are also motivate entrepreneurs to stick on IT service start up in India. Since we have abundant of young minds having entrepreneurial traits, if the Government, KSUM and other supporting organisations promote and mentoring them properly, an effective entrepreneurial eco system can be developed in the sector of IT services start-ups in Kerala.

CHAPTER 8

RECOMMENDATIONS AND SCOPE FOR FURTHER RESEARCH

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8.1 Introduction

The outcome of the study is mainly affects the performance of the IT services start-ups. This chapter presents the important recommendations for the successful operations of IT services start-ups in Kerala based on the finding.

8.2 Recommendations

8.2.1 To the IT services start-ups entrepreneurs

- Hire the right people in the early stages of start-ups and try to include them in the peer team of company to strengthen the full potentialities in the beginning itself.
- In order to reduce employee attrition and switching of employees, design better talented acquisition strategies such as better employee engagement activities and friendly practices.
- The IT services start-ups founders should utilise the options to showcase their products and services in trade fairs, exhibitions, events, idea summits, online promotions, listing in trade directories etc. organised by the KSUM and Government.
- In order to get fund from external investors, founders are to be acquainted with presentation skills while introducing the scalability of their innovative products or services and business models.

- Business plan of new IT services start-ups can be reviewed with experts verification in the light of changes in the business environment and necessary modification can be done based on the nature of business.
- IT companies need to ensure customer loyalty by providing enhanced and customised services by using various digital marketing tool.
- It is better to build a strong brand image through effective public relations by recruiting college students in the way of learning by working mode including internship.

8.2.2 To the Government

- The govt. and KSUM mainly promote product based start-ups in the state but not focus more on IT services start-ups. In this digitalised world, the state should concentrate on IT services start-up too.
- Entrepreneurial education and training programs can also help IT services start-ups to resilient the problems faced during the recession period and training mechanism should be made widely available, accessible and inexpensive.
- Companies under CSR platform can also depute experts to community in improving the start-up and entrepreneurial culture by way of providing internship, workshop or training programme.
- The government should implement special policies, schemes and subsidies to strengthen the IT services start-ups in state and should be properly coordinated and communicated to all needed parties using different digital media by conducting awareness programme through schools, colleges etc. and friendly atmosphere will be entertained with entrepreneurs especially youngsters.
- In order to strengthen the IT start-up services culture in the state, the state has to invest more in R&D like other basic projects of government.

- To bring about improvement in mentoring support, a panel of experts in the field of IT services start-ups will be constituted from the government part. Online mentoring support can also be promoted for the same.
- It is essential to introduce patent filing facilities to IT services start-ups in India to reduce the piracy or copy of start-up ideas of new entrepreneurs.
- The government should focus on the investment in higher education for developing entrepreneurial culture among students by strengthening the linkage of industry, academic institution and government.
- Marketing support should be given to IT services start-ups especially start-ups having below two year experience to promote and stabilize their business operations and can create a separate marketing department for the same under the govt.
- Adequate capital should be arranged to needy IT start-up services start-ups by connecting angel investors, venture capitalists etc.
- It is better to provide regular and systematic counselling through offline and online mode to IT services start-ups founders at the time of facing business operations crisis.
- To redress various issues and problems encountered by IT services start-ups in the state, adequate redressal mechanism should be implemented by the government to revival and sustainability of the IT services start-ups.
- As far as start-up founders are concerned, women participation is very low. But the employment rate is high in IT services start-ups. The government and society should focus on the upliftment of women empowerment by utilising their potentialities in entrepreneurial activities thorough implementation of special schemes and considerations. The government can establish TBI for women founders only for the same.
- The running of business in metropolitan cities is more cost burden to the entrepreneurs' especially new entrepreneurs. So the government should focus

on rural areas too while introducing TBI, accelerators or digital environment etc. in the state.

- ❖ Special schemes can be provided to IT services start-up entrepreneurs in the rural areas.

8.3 Scope for Further Research

The present study is limited to the problems and prospects of IT services start-ups in Kerala. Hence, future research can be carried out in other parts of the country and the objectives of this research can be studied in different dimensions using advanced statistical tools. Further, state-wise and stage-wise comparative studies can also be done to understand the business performance of IT services start-ups. The other important scope for further research as listed below:

- ➢ Talent management in IT services start-ups.
- ➢ Marketing strategies adopted by IT services start-ups.
- ➢ Financial performance of IT services start-ups.
- ➢ Entrepreneurial competencies of IT services start-up entrepreneurs
- ➢ Business strategies adopted by IT services start-ups.
- ➢ Stress management of IT services start-up founders.
- ➢ Human Resource Management in IT services start-ups.

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APPENDIX

Questionnaire Survey
Cover letter

Problems and Prospects of Information Technology services start-ups in Kerala

Dear Sir/Madam,

I am, Muhammed Rafi.P doing research on part time basis leading to Ph.D under the supervision of Dr.Sreesha C.H, HOD and Assistant Professor, PG Department of commerce and Research centre, PSMO College, Tirurangadi (Affiliated to Calicut University).

I intend to conduct a study on Problems and prospects of IT service start-ups in Kerala. I request you to spend your valuable time and knowledge to fill up the attached questionnaire so as to enable me to obtain first -hand information about the Problems and Prospects of IT service start-ups.

Researcher assures you that the data collected will purely be used for academic purposes. The data will be kept confidential and your responses will be combined with those of many others and summarized in a report.

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Questionnaire

PROBLEMS AND PROSPECTS OF INFORMATION TECHNOLOGY SERVICES START-UPS IN KERALA

1. Name of the company: …….

2. Please rate the following **motivating factors that influenced you as an individual to start IT services start-ups** in Kerala.

(5 – Extremely influence, 4 – Highly influence 3 – Moderately influence, 2 – Influence to some extent, 1 – No influence)

Sl. No.	Motivating Factors	Rating				
		5	4	3	2	1
1.1	Desire for independence	☐	☐	☐	☐	☐
1.2	To be my own boss	☐	☐	☐	☐	☐
1.3	Need for achievement	☐	☐	☐	☐	☐
1.4	Self-employment	☐	☐	☐	☐	☐
1.5	Ambition to become an entrepreneur	☐	☐	☐	☐	☐
1.6	Technical qualification / Knowledge	☐	☐	☐	☐	☐
1.7	Use own creative skills	☐	☐	☐	☐	☐
1.8	Financial success	☐	☐	☐	☐	☐
1.9	Infrastructural facilities	☐	☐	☐	☐	☐
1.10	Minimum capital requirements to start IT services start-ups	☐	☐	☐	☐	☐
1.11	University courses	☐	☐	☐	☐	☐
1.12	Availability of financial assistance	☐	☐	☐	☐	☐
1.13	Fiscal incentives and support from Government	☐	☐	☐	☐	☐
1.14	Networking skill	☐	☐	☐	☐	☐
1.15	Social recognition	☐	☐	☐	☐	☐
1.16	Success stories of others	☐	☐	☐	☐	☐
1.17	Contribution to the society	☐	☐	☐	☐	☐
1.18	Marketing opportunities	☐	☐	☐	☐	☐
1.19	Business background	☐	☐	☐	☐	☐
1.20	Take challenges of risk	☐	☐	☐	☐	☐
1.21	Previous experience	☐	☐	☐	☐	☐

2. Please rate your opinion about the following **supports and facilities offered by the Kerala Start-Up Mission to IT services start-ups** in the state as per your perception:

(5 - Strongly agree, 4 - Agree, 3 - Neutral, 2 – Disagree, 1 - Strongly disagree)

Sl. No.	Supports and facilities	Rating				
		5	4	3	2	1
	1.Mentorship and networking supports	☐	☐	☐	☐	☐
1.1	KSUM provides technical mentorships/consultancy to IT services start-ups entrepreneurs.	☐	☐	☐	☐	☐
1.2	KSUM provides business mentorships/consultancy to IT services start-ups entrepreneurs.	☐	☐	☐	☐	☐
1.3	KSUM supports IT service start-ups by connecting with network of corporates and renowned entrepreneurs	☐	☐	☐	☐	☐
1.4	KSUM provides entrepreneurial workshop, training and development facilities to IT services entrepreneurs.	☐	☐	☐	☐	☐
1.5	KSUM supports IT service start-ups by connecting with network academic and research institutions.	☐	☐	☐	☐	☐
1.6	KSUM provides adequate infrastructural facilities to start IT start-ups in the state.	☐	☐	☐	☐	☐
1.7	KSUM provides regulatory support to start IT start-ups in the state.	☐	☐	☐	☐	☐
1.8	Proper awareness programme offered by KSUM to IT services start-ups	☐	☐	☐	☐	☐
1.9	KSUM provides various funding schemes to IT services start-up entrepreneurs.	☐	☐	☐	☐	☐
1.10	KSUM helps to access funds from different sources.	☐	☐	☐	☐	☐
1.11	KSUM provides marketing facilities to IT services start-ups.	☐	☐	☐	☐	☐

3. Give your opinion about the following statement related to the **policies and schemes extended by the central and state government** to boost IT services start-ups in Kerala on a 1-5 scale.

(5 - Strongly agree, 4 - Agree, 3 - Neutral, 2 – Disagree, 1 - Strongly disagree)

Sl. No.	Statements	Rating				
		5	4	3	2	1
1.1	Interventions of academic, educational and industrial institutions	☐	☐	☐	☐	☐
1.2	Start-up schemes and initiatives implemented by the Central government are adequate	☐	☐	☐	☐	☐
1.3	Approach of bureaucracy in the state is a problem in the proper implementation of government policies and support system to promote start-up culture in the state	☐	☐	☐	☐	☐
1.4	The govt provide adequate awareness to IT start-ups regarding concessions, incentives and various initiatives.	☐	☐	☐	☐	☐
1.5	The concessions and incentives offered by the state governments to IT services start-ups are sufficient enough to attract the entrepreneurs to the state	☐	☐	☐	☐	☐
1.6	The government supports IT services start-ups by giving purchasing and marketing opportunities.	☐	☐	☐	☐	☐
1.7	The government's involvement in the upliftment of women entrepreneurs in the field of IT services start-up through women entrepreneurs support programme are as expected.	☐	☐	☐	☐	☐
1.8	Single window scheme and simplified /liberal regulations are supporting to the entrepreneurs.	☐	☐	☐	☐	☐
1.9	Start-up funding implemented by the government through various schemes are adequate to start new venture creation in the state	☐	☐	☐	☐	☐
1.10	The state has succeeded in building confidence in IT services start-up entrepreneurs by giving support as and when required.	☐	☐	☐	☐	☐
1.11	The government brings adequate infrastructure facilities in the state are sufficient for the promotion of start-up.	☐	☐	☐	☐	☐
1.12	Taxation policies related to IT services start-ups are satisfactory	☐	☐	☐	☐	☐

Sl. No.	Statements	Rating				
		5	4	3	2	1
1.13	The role of KSUM as a facilitator between the start-ups and the Government is as expected.	☐	☐	☐	☐	☐
1.14	The government provides IPR protection to the IT services start-ups in the state.	☐	☐	☐	☐	☐

4. Kindly indicate how important the following **major factors that might be affecting the growth of IT services start-ups** in the state as per your perception on a 1-5 scale.

(5 - Extremely Important, 4- Very Important, 3-Important, 2 - Somewhat Important, 1- Not at all Important)

Sl. No.	Major Factors	Rating				
		5	4	3	2	1
1.1	Accelerator's support	☐	☐	☐	☐	☐
1.2	Incubators support	☐	☐	☐	☐	☐
1.3	Good business climate	☐	☐	☐	☐	☐
1.4	Support through Co-working space	☐	☐	☐	☐	☐
1.5	Favourable regulatory environment	☐	☐	☐	☐	☐
1.6	Favourable political environment	☐	☐	☐	☐	☐
1.7	Adapt to customer needs	☐	☐	☐	☐	☐
1.8	Team expertise and their commitment	☐	☐	☐	☐	☐
1.9	Appropriate training	☐	☐	☐	☐	☐
1.10	Ability to exploit business opportunities	☐	☐	☐	☐	☐
1.11	Availability of Government fund	☐	☐	☐	☐	☐
1.12	IPR protection	☐	☐	☐	☐	☐
1.13	Financial assistance from banking institution	☐	☐	☐	☐	☐
1.14	Tax incentives	☐	☐	☐	☐	☐
1.15	Better services quality	☐	☐	☐	☐	☐
1.16	Brand image	☐	☐	☐	☐	☐
1.17	Relationship with customer	☐	☐	☐	☐	☐
1.18	Comfort administrative system for ease of doing business	☐	☐	☐	☐	☐

Sl. No.	Major Factors	Rating				
		5	4	3	2	1
1.19	Digital marketing strategies	☐	☐	☐	☐	☐
1.20	Technical knowledge	☐	☐	☐	☐	☐
1.21	Alliance with another company	☐	☐	☐	☐	☐
1.22	Entrepreneurial competencies	☐	☐	☐	☐	☐
1.23	Idea commercialization capability	☐	☐	☐	☐	☐
1.24	Availability of adequate capital	☐	☐	☐	☐	☐
1.25	Competitive advantage	☐	☐	☐	☐	☐
1.26	Availability of Talent employees	☐	☐	☐	☐	☐
1.27	Availability of infrastructure	☐	☐	☐	☐	☐
1.28	Managerial skills of entrepreneurs	☐	☐	☐	☐	☐
1.29	Leadership skill of entrepreneurs	☐	☐	☐	☐	☐
1.30	Problem solving and decision making skill	☐	☐	☐	☐	☐
1.31	Ownership structure of the firm	☐	☐	☐	☐	☐
1.32	Propensity for risk taking of entrepreneur	☐	☐	☐	☐	☐
1.33	Creative and up to date technology utilization	☐	☐	☐	☐	☐
1.34	Innovative IT product/ Service features	☐	☐	☐	☐	☐
1.35	Mentoring support	☐	☐	☐	☐	☐

5. Give your **perception on the problems experienced by IT services start-ups** running in Kerala. Please rate the following Problems as per least (1) to highest (5) as per you experienced:

(5 – Very serious problem, 4 – Serious problem, 3 – Moderate problem, 2 – Minor problem, 1 – Not at all a problem)

Sl. No.	Problems	Rating				
		5	4	3	2	1
1.1	Socio-cultural problems related to the basic ethics of the society, language, religion etc.	☐	☐	☐	☐	☐
1.2	Unstable political and social conditions	☐	☐	☐	☐	☐
1.3	Co-founder misalignment	☐	☐	☐	☐	☐
1.4	Complicated administrative procedures to acquire permit, licence etc.	☐	☐	☐	☐	☐

Sl. No.	Problems	Rating				
		5	4	3	2	1
1.5	Restrictive labour regulations	☐	☐	☐	☐	☐
1.6	Lack of team commitment	☐	☐	☐	☐	☐
1.7	Unfaithful customers	☐	☐	☐	☐	☐
1.8	Services offered did not evolve with the market	☐	☐	☐	☐	☐
1.9	Wrong price of the services	☐	☐	☐	☐	☐
1.10	Unable to build brand image	☐	☐	☐	☐	☐
1.11	Bad marketing strategies	☐	☐	☐	☐	☐
1.12	Loss of original vision and mission of idea	☐	☐	☐	☐	☐
1.13	No / wrong business model	☐	☐	☐	☐	☐
1.14	Problems with newness and smallness	☐	☐	☐	☐	☐
1.15	Asymmetric information	☐	☐	☐	☐	☐
1.16	Lack of proper guidance and mentoring	☐	☐	☐	☐	☐
1.17	Employee attrition	☐	☐	☐	☐	☐
1.18	Difficulty in hiring and retaining high quality talent	☐	☐	☐	☐	☐
1.19	Lack of entrepreneurial development training	☐	☐	☐	☐	☐
1.20	Inexperienced management	☐	☐	☐	☐	☐
1.21	Lack/ unavailability of adequate capital	☐	☐	☐	☐	☐
1.22	High credit and collateral requirement	☐	☐	☐	☐	☐
1.23	Inadequate disbursement of loan	☐	☐	☐	☐	☐
1.24	Less return on capital	☐	☐	☐	☐	☐
1.25	Change of customer taste	☐	☐	☐	☐	☐
1.26	Inadequate customer feedback or ratings	☐	☐	☐	☐	☐
1.27	In ability to compete with big brands	☐	☐	☐	☐	☐
1.28	Not keeping pace with disruptive technology	☐	☐	☐	☐	☐
1.29	High cost of customer acquisition	☐	☐	☐	☐	☐
1.30	Lack of business management skill	☐	☐	☐	☐	☐
1.31	Inability to manage risk	☐	☐	☐	☐	☐
1.32	Lack of leadership skill	☐	☐	☐	☐	☐
1.33	Poor knowledge of financial management	☐	☐	☐	☐	☐
1.34	Difficult to find investors	☐	☐	☐	☐	☐

Sl. No.	Problems	Rating				
		5	4	3	2	1
1.35	High cost of technological acquisition	☐	☐	☐	☐	☐
1.36	Difficulty in getting continuous investment	☐	☐	☐	☐	☐
1.37	Inadequate technology infrastructure	☐	☐	☐	☐	☐
1.38	Lack of protection of Patent, copy right and IPR issue	☐	☐	☐	☐	☐
1.39	Lack of supporting networks	☐	☐	☐	☐	☐
1.40	Tax burden to IT services start-ups	☐	☐	☐	☐	☐
1.41	Lack of support from government	☐	☐	☐	☐	☐

6. Give your opinion about the following **prospects for growth in IT services start-ups in Kerala** as per least (1) to highest (5) based on your expectation.

(5 - Strongly agree, 4 - Agree, 3 - Neutral, 2 – Disagree, 1 - Strongly disagree)

Sl. No	Prospects	Rating				
		5	4	3	2	1
1.1	Easing government regulations will boost starting of IT services start-ups in the state.	☐	☐	☐	☐	☐
1.2	The state actively involved in the upliftment of women entrepreneurs in the field of IT services start-up through women entrepreneurs support programme.	☐	☐	☐	☐	☐
1.3	Taxation policies related to IT services start-ups and Angel investors are effective to develop start-up ecosystem in the system.	☐	☐	☐	☐	☐
1.4	Easing FDI norms and various funding initiatives of government will be helpful to start IT services start-ups.	☐	☐	☐	☐	☐
1.5	Technological advancement and technology disruption in the industrial world promotes IT services start-ups in the state.	☐	☐	☐	☐	☐
1.6	The changing axis of international trade and opportunities in export of IT products or services needs to begin more start-ups in IT sector.	☐	☐	☐	☐	☐
1.7	Tremendous potential in market size in future will strengthen the sustainability of IT services start-ups in the state.	☐	☐	☐	☐	☐

Sl. No	Prospects	Rating				
		5	4	3	2	1
1.8	Big companies are looking in search of diversified information, creative people and process at IT services start-ups.	☐	☐	☐	☐	☐
1.9	E-Commerce boom in the online market place provides a wider market to IT services start-ups.	☐	☐	☐	☐	☐
1.10	IT Start-up movement in the present era inculcate the entrepreneurial culture among youth especially technical students	☐	☐	☐	☐	☐
1.11	Changing mind set of working class leads to starting of large number of IT start-ups in the state.	☐	☐	☐	☐	☐
1.12	Digital infrastructure availability and increasing internet users will attract the entrepreneurs to the IT services start-ups.	☐	☐	☐	☐	☐

Demographic Characteristics:

7. Age of the respondent (years) : ……..

8. Gender : Male ☐ Female ☐

9. Highest Educational Qualification.

   SSLC ☐ HSE ☐ Diploma ☐

   Graduation ☐ Post-Graduation ☐

   Others (Please specify) …….

10. Do you belong to an entrepreneurial family: Yes ☐ No ☐

11. Do you have previous start up experience Yes ☐ No ☐

12. Is your company incubated in any incubation centre. Yes ☐ No ☐

13. Your company focuses on.

    Product ☐ Service ☐ Both product and services ☐

14. Sectors of IT services start-ups your company mainly adopted

    (You can have multiple ticks):

    Application development ☐ Web development ☐

    IT Consulting ☐ IT Management ☐

    Product development ☐ Others: Please specify……..

15. Structure of your start-ups business

Partnership Firm ☐ Limited Liability Partnership ☐

Private Limited Company ☐

16. Category of business models adopted by your company(You can have multiple ticks):

B2B ☐ B2C ☐ B2B2C ☐ B2G ☐ Others ☐

17. Sources of capital for starting the business (You can have multiple ticks):

Self- financing ☐ Borrowed from relatives/Friends ☐

Bank loan ☐ Bootstrapping ☐

Angel investors ☐ Venture capital ☐

Government fund ☐ Crowd funding ☐

Others(Please specify)……..

18. Give your opinion about the following growth parameters as per least (1) to highest (5) based on your expectation.

(5 – Very high, 4 - High, 3 - Moderate, 2 – Low, 1 – Very low)

Sl. No.	Growth parameters	Rating				
		5	4	3	2	1
17.1	The degree to which your company's revenue has grown.	☐	☐	☐	☐	☐
17.2	The degree to which your company's profit has grown.	☐	☐	☐	☐	☐
17.3	The degree to which your company's return on assets has grown.	☐	☐	☐	☐	☐

Thank you for your kind cooperation

Your time and contribution to this study on the 'Growth of IT services start-ups entrepreneurs in Kerala' is highly appreciated.