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Understanding the Dynamics of Business Incubators and Their Influence on Startup Performance in India

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Abstract

Business Incubation Centers (BICs) are vital in supporting new entrepreneurs by providing essential infrastructure, mentorship, and funding to help them build successful businesses. This study examines how BICs contribute to the growth and sustainability of startups, particularly in India, where they are essential for economic development. Through initiatives like the Make in India and Start-up India schemes, the Indian government has bolstered the startup ecosystem, promoting job creation and economic growth. These government-supported programs empower BICs, which foster innovation, entrepreneurial skills, and knowledge in a supportive environment. Focusing on startups in Hyderabad, Chennai, and Bangalore, this study explores the impact of BICs on business performance and success, highlighting the need for policies that adapt to new challenges and market changes. By nurturing startups, India aims to reduce unemployment and poverty while enhancing productivity and global competitiveness. With an ever-evolving approach to entrepreneurship, the country is positioning itself as a significant player in the global startup landscape, leveraging BICs to accelerate economic growth and build a robust, sustainable economy.

Keywords: *Entrepreneurship, Business Incubators, Start-up Ecosystem, Government Schemes, Unemployment, Sustainable Growth and Development.*

Introduction

The growth of a knowledge-based economy has increased the attention of Micro, Small, and medium Enterprises (MSMEs) as this helps them to concentrate on their innovation and integrate information and knowledge effectively and efficiently to create value for stakeholders (Duncombe & Heeks, 2005). Due to the wave of globalization and the knowledge economy, the needs and habits of the customers, society, and economy are ever-changing, and this has to be addressed by innovation and commercialization. So, many start-ups are coming up to address customer needs and untapped markets. Thus, the Central and state governments are introducing new industrial policies and schemes to develop the economy and generate employment opportunities by paving the way for New MSMEs. Therefore, creative thoughts, ideas, and Innovations drive the development and create value for firms (Lokhande, 2011). As the Indian government has seen changes in the Social and Economic environment, it has decided to construct a knowledge-based entrepreneurial society that helps enterprises focus on innovation, makes their products unique from others, and leads to more excellent value and commercialization (Baporikar, 2020). Business incubation and entrepreneurship platforms are essential policies of the governments as they help MSMEs and Startups innovate technology, share knowledge on entrepreneurial activities, and provide access to funds. This policy is built on three parameters: Business incubation center services, Skill Development, and Funding Support (Lala & Sinha, 2018). Business Incubation Centers provide a platform to new entrepreneurs to create and develop business enterprises. These business incubator centers help nurture start-ups and young entrepreneurs to innovate new products and services. Business Incubator Centers help MSMEs access resources for innovation and entrepreneurship, enhancing their capabilities in Research and Development

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and starting up a new business (Nagayya & Rao, 2017). This is mainly done to ease extra competitiveness among MSMEs and stimulate the country's economic development. Hence, innovation and entrepreneurship are two primary functions of Business Incubators Centers and play a vital role in the creation of MSME value (Khandekar & Phani, 2017).

There is a drastic change, and sustainable growth of Business incubation centers all over the world. Incubation services are creating a path and have become a route cause for a stable economy's sustainable growth and development. The primary and most attractive sector for Business incubation services is Information Technology and Communication Technologies, which depends mainly on Personnel and less infrastructural facilities (Grondeau, 2007). The critical goal is to enhance the incubation centers' service quality and incubation services. Therefore, the Government of India has introduced the "Start-up India, Stand-up India" Scheme for strengthening the Start-up ecosystem and Business Incubators (Mansoor et al., 2022). This can be achieved by following the strategies such as building up fine quality incubating centers by creating a healthy environment, expanding specific service functions of incubators, training the managers of Incubators, marketing the incubation information and service, facilitating the cooperation and coordination among the incubators and at last evaluating the performance of incubation services (Radhakrishna & Goud, 2019) & (Gadkar, 2020; Khalil et al., 2022).

A Start-Up Business Is Defined as An Organization

A firm can be recognized as a Start-up by DPIIT based on the following parameters. This will help the firms to avail the tax benefits, easy access to compliance, Patent filing, etc.

- The duration of presence and operations should not exceed ten years from the date the business was started or the business was incorporated.
- Should be incorporated as a Registered Partnership Firm, Limited Liability Partnership, or Private Limited Company.
- Annual Revenue or turnover of the firm should not surpass more than Rs.100 crores in any financial year since the date of the incorporation or commencement of business.
- The entity should not be formed by bifurcating the existing business or reforming the existing organization.
- The firm should work towards innovation, research, and development of products, processes, and services. And/or the firm should have a Scalable business model with a high potential for wealth creation and generating employment (The Gazette of India, 2019) & (Godha et al., 2020).

Start-up India Scheme

This Scheme is a flagship initiative of the Government of India and was launched by the Honorable Prime Minister on January 16, 2016, in New Delhi to build a robust start-up ecosystem in the country. The government of India, through this scheme, aims to empower and encourage Start-ups to focus on innovation and commercialize the untapped markets and would like to speed up the diffusion of the Start-up movement **(Government of India, 2018) & (Singh, 2019).**

State Government Initiatives: Technology Hub (T-Hub)

T-Hub is one of the prominent and promising initiatives of the government of Telangana and is India's largest incubator for Start-ups firms and early-stage companies. This technology Business incubation center is at the IIIT-Hyderabad campus in Hyderabad, Telangana. T-Hub is an innovative step of the Telangana government to encourage and support entrepreneurship in the Telangana State **(Government of Telangana, 2016a) & (Birudavolu & Nag, 2019).**

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India is a nation with 1.4 billion people; it is the most populous in the world and a significant force and strength to the nation. To provide this large pool of the population with employment opportunities, the excellent possibility of a job market exists in India. To eliminate this unemployment problem and shortage of job market, Honorable Prime Minister Narendra Modi announced the "Start-Up India, Stand Up India" Scheme on 15th of August 2015 and launched on 16th January 2016 "to encourage and promote entrepreneurship and entrepreneurs by providing Bank Financing for starting up the firms and offering benefits and incentives to boost up entrepreneurship and generate employment opportunities (Chauhan, 2020). The current study primarily focuses on start-up businesses' difficulties, issues, and bottlenecks. To overcome the issues and challenges, how do business incubators facilitate services for start-ups' sustainable growth and development?

The study aims to examine the existence of start-ups in India and to know to what extent governments support start-ups and entrepreneurs in generating employment opportunities for building businesses and the nation. To encourage Business Incubators and the Start-up ecosystem in India, the government has launched programs such as the Start-up India Scheme and the T-Hub Scheme. This study aims to understand the key challenges that start-ups perceive and experience early in their start-up initiatives. The research study's second goal is to determine how business incubator Centers in India contribute to the growth of entrepreneurship, creativity, and the creation of new company ventures by offering various services.

Research Objectives

This research mainly focuses on the Business Incubation Centers' services offered to the start-up's performance for their success. The objectives of the study are

To evaluate the infrastructure services provided by Business Incubation Centers **to startups.**

RO1: To assess the mentoring services offered by Business Incubation Centers.

RO2: To analyze the funding services available through Business Incubation Centers.

RO3: To examine the relationship between the respondents' age and their companies' legal status.

Review of Literature

This chapter reviews the different streams of Start-up and Business Incubation theories and their literature, especially regarding Entrepreneur's innovations, ideas, and starting a firm. First, the literature review starts with the role of the start-up and business incubation center and its importance, which is clearly defined by various authors in the specific period. The reviews of different authors are briefly explained, and then, the focus is on past research on these related industries. Finally, this chapter reviews all the theories based on past studies and finds the research gaps that provide a theoretical and conceptual foundation. The research gap is used to frame the objectives and hypothesis of the study.

A country's capacity to advance new Science and transform the same into innovative technology and making them successful, commercialize which generates revenue by

providing high-end quality goods and services with good jobs and promoting overall development is vital in today's world. These can be achieved by establishing Start-ups (Baporikar, 2015; Gazi et al., 2024). With more than 1.35 billion inhabitants, India is the second most populous nation on earth. India is a big market mainly because of its population. Nevertheless, it also leads to heavy employment pressure on the government and as well as in Indian society. Now, the youth are focusing on grabbing opportunities with new ideas and innovations to set up an enterprise or start-up company (Sharifi & Hossein, 2015). India is improving its entrepreneurial performance and is considered the next Asian miracle. India has developed an open and explicit policy to become one of the leading business-friendly economies in the world to attract foreign and domestic business players. Most remarkable, in January 2016, the government of India launched

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the "Start-up India Stand-up India" program to encourage start-ups in India. This program initiates policy measures and incentives for start-ups mainly to foster the start-up ecosystem in the country (Kshetri, 2016). The Make in India Era mainly focused on innovation rather than Inventions. Technological Institutions will play a key role by initiating start-ups at in-house Incubators to provide services or to launch products in the market (Gaikwad & Patil, 2016).

"Start-up incubation Ecosystem has many schemes supported by public policies that appear to nurture the high growth firms and bring Balanced Regional development" (Theodoraki & Messeghem, 2020). Business Incubators accelerate economic growth and support new start-ups struggling with innovative ideas and comprehended mainly by first-generation entrepreneurs (Sharma & Vohra, 2020). Thus, new start-ups are not prevented in capital-intensive industries and where Research & Development expenses play a significant role (Audretsch & Acs, 1994). "Broad Planning strategy is used less often by the founders in a fastmoving flexible environment and frequently in rigid environs. Use of the Opportunistic Strategy is adversely associated with the complexity of the environment, while the Reactive Strategy is used more often in a non-considerate environment" (Von Gelderen, Frese & Thurik, 2000). A suitable start-up ecosystem needs to be built to assist startups and new entrepreneurs in their early stages to overcome these challenges and avoid failures (Tripathi & Oivo, 2020). The research also highlights the motto of Making Telangana and the vision for Telangana Industrialization: "Exploration to Innovation through Research and Development, Development to Industry for commercialization, Industry to success by profit and wealth maximization." The research also dealt with the new industrial policy structure of the Telangana state, which is motivated mainly by the trademark "In Telangana Innovate, Incubate, and Incorporate" (Saroja, 2016). The establishment of T-hub and how it is helping new entrepreneurs overcome problems and motivating them to start a new venture is highly commendable (Vankamamidi, 2017). "The sustainable growth and development of Telangana State require good infrastructure and fair governance system like infrastructure, technology-based E-governance, decentralization of administration, digitalization, infrastructure finance which helps the government in progressing towards the sustainable growth and development of the economy" (Chinthalapalli & Rao, 2017). De Bem Machado, Catapan, and Sousa, 2020 carried out a comprehensive study of business incubator management frameworks. Three fundamental pillars are the foundation of management models: individuals, processes, and technology. Therefore, one of the issues described in these models was that most market incubator management models identify a business incubator as a method of transformation yet do not detail the incubation phase or models and best practices for business incubators and the management of incubated companies for quality improvement.

(Nicholls-Nixon et al., 2020) University Business Incubators (UBIs) are a significant part of the environment, promoting entrepreneurship practices and economic growth. The research study focused on analyzing UBI operations at a single time. However, theoretical and methodological analysis aimed at studying the forces that describe why and how UBIs shift over time is inadequate. This is a significant void because it would not guarantee the creation and growth of setting up a university business incubator. This dilemma was explored by drawing the concept of the Identity-Legitimacy-Life Cycle to illustrate how the quest for capital and corporate legitimacy forms the growth of UBIs along with critical strategic and operational dimensions, which have consequences over time for success assessment. (Schumpeter, Becker & Knudsen, 2003) stated that the economic process is always a unified phenomenon, the contours of which can be deduced from the interdependence of its parts. However, social totality, be it a contemporary nation or a "culturally poor" horde, does not necessarily function linearly, according to a thorough, deliberate plan carried out for the whole. Even if the manifestation of economic life has not attained any form, there are still clearly delineated tasks, facilities, etc., in a community where this is the case, and the purest example of this would be a socialist one. Conversely, suppose the social whole is delegating economic activity to smaller groups or individuals. In that case, the collective production process is broken down into units that appear independent, autonomous, in principle left to themselves, and only oriented towards their concern for survival - enterprises. Ismail (2022) investigated the role of personality characteristics as a moderator between the initial impetus to establish a business and the subsequent success of such a business. There is a lack of information in the literature, particularly about the indirect association of crucial aspects that may be helpful to the expansion of SMEs. The research shows that small and medium-sized enterprises (SMEs) growth is positively and significantly associated with entrepreneurial start-up motives such as a desire for

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achievement, financial incentives, social recognition, and independence. Startup founders' personalities are shaped meaningfully and positively by their original goals. The growth of small and medium-sized enterprises (SMEs) was found to be significantly correlated with individual personality qualities. The results also show that the connection between startup entrepreneurs' personality features and the development of small and medium-sized enterprises (SMEs) is mediated by personality traits.

The literature review from various sources published in national and international journals has given an idea to identify the gap and frame the variables for drafting the questionnaire. As per the literature review, most startups faced problems raising initial investment for their business. Once the firms get into operations, working capital, and managing day-to-day activities, hiring talents is the problem Startups face. Business Incubation Centers provide basic facilities, mentoring services, and legal, marketing, financial, and other services. The Start-up ecosystem in India needs to be fostered rapidly by setting up Business Incubation Centers and empowering Startups. So, a model must be built to foster the Start-up ecosystem in India.

The Conceptual Framework gives valuable information about Business Incubators and Start-up ecosystems regarding evolution, definition, characteristics, categories, models, and success factors. The conceptual framework chapter will give a detailed description of policies and strategies adopted by Business incubation Centers, like the selection of Start-up companies and the role of business plans and business models, entry, exist and exit policies, duration of occupancy, and other managerial and service-related issues.

Business incubation Centers support start-up companies and early stage of new business undertakings by providing them with the services like training and development, workspace, mentoring, funding resources in which these Start-ups can flourish and grow up" (Somsuk et al., 2012). "Generally, a business incubation Center is a corporal manifestation of the above practices and involves the establishment of a "with-walls" facility through which focused incubation support practices can be executed" (Gertner, 2013).

Supporting startup incubators is crucial to fostering economic growth and innovation. To speed up incubating new technological businesses, many nations worldwide promote "innovation orchards" in which government, industry, and university work together. This study examines how collaboration between the public, private, and academic sectors in launching new R&D institutions affects the business incubation process. The study's overarching goal is to learn how government, businesses, universities, and public institutions all play a part in incubating new R&D institutions and what role collaboration among governments, businesses, and universities plays in this process (Zhou & Wang (2023). Cooperation between newly founded R&D institutions is more beneficial for company incubation than either institution's existence alone. Business incubation is aided when governments and universities work together to create new research and development institutions but are otherwise unaffected by government-industry, industry-university, or government-industry-university collaborations.

A Start-up Ecosystem is formed by Start-ups, Entrepreneurs, Investors, Business Incubators, people, early and later companies in their different stages and different types of establishments in a place (physical or virtual), networking as a system to build new Start-up companies (Acs et al., 2017). These Organizations can be further classified into various types, such as Colleges, Universities, institutes, Funding Organizations, Business Support Groups (like Business incubation Centers, accelerators, co-working office spaces, etc.), Research and Development Organizations, Management Consultancy firms, Service Providers (like legal, Manpower Services, financial services, etc.) & Large Companies/organizations (Hudáková, 2019). The Indian startup ecosystem is persuaded toward digital technologies and focuses on people, the planet, and profit, with available resources and information considered crucial to success. The study classifies the emotions of tweets into positive, neutral, and hostile. It was found that the Indian startup ecosystem has more positive sentiments than negative sentiments (Singh, Chauhan, & Dhir, 2020).

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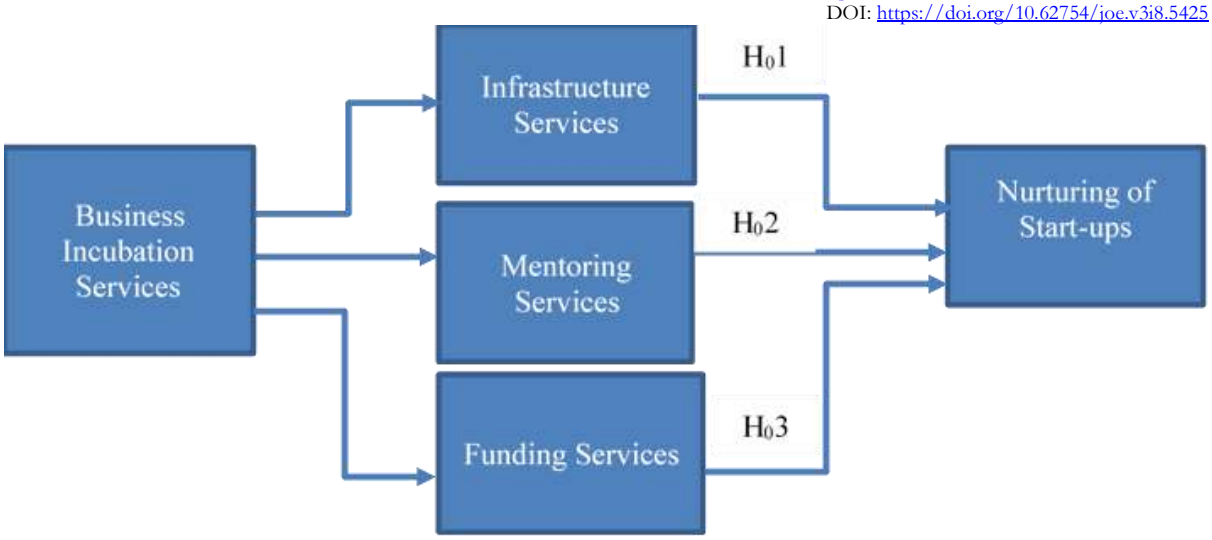

Figure 1. Business Incubation Services for Nurturing Start-ups

Figure 1 depicts the above framework and how different business incubation services, such as Infrastructure Services, Mentoring Services, and Funding Services, are used to nurture start-ups.

Research Hypotheses

H1: Business Incubation Centers offer a range of infrastructure services that positively impact the operational capabilities of startups.

H2: The mentoring services provided by Business Incubation Centers contribute to the growth and success of startups.

H3: The funding services offered by Business Incubation Centers significantly contribute to the financial stability and growth of startups.

H4: There is a significant association between the age of respondents and the legal status of their companies, indicating that older companies are more likely to have a formal legal structure in place.

Research Methodology

In this study, researchers employed a descriptive research methodology to investigate the role of business incubators in supporting startup growth. This method was selected for its ability to capture a specific phenomenon within a particular context. Data was gathered using a structured questionnaire targeted at individuals in top management roles, including founders, CEOs, and managing directors of startups across Hyderabad, Chennai, and Bangalore in India. Given the challenges of obtaining the population's standard deviation and mean, convenience sampling was used, resulting in a sample size of 300 respondents. The questionnaire was divided into three parts to provide a holistic understanding of the respondents' profiles and perspectives. The first section captured demographic information, such as gender, age, income, and qualifications. The second part focused on assessing the role of business incubators in supporting startup growth and entrepreneurship. In contrast, the third part gathered additional insights regarding the assistance and challenges encountered with business incubators. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS), applying statistical techniques such as the T-Test and Discriminant Analysis. The T-test evaluated the mean differences in each parameter, helping determine their relevance for further investigation. On the other hand, Discriminant Analysis assessed the contribution level of startups in response to services provided by business incubators. F-values were used to test hypotheses, identifying which factors were statistically significant.

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Data Analysis and Interpretation

The study emphasized identifying the services offered by the Business Incubator Center to start-up companies. The study considered a few factors: Infrastructure, Mentoring, Funding, Talent, Marketing, Legal / Accounting / Intellectual Property Services, and other related business services. Statistical techniques like the T-Test and Discriminant Analysis have been applied to determine the most extraordinary and least significant contributions through each factor parameter. The T-test is used to both explain the mean difference of each individual parameter and to choose whether parameters are eligible for further study. The Discriminate Score is used to evaluate the startup companies' suitable contribution level to the services provided by the Business Incubator Center.

A chi-square analysis was carried out to find the association between age and the legal status of the organization.

Table-1. Demographic Profile of the Respondents

Cross tabulation between age and legal status of the organization							
Count							
		Legal Status of the Organization					Total
		Sole Proprietorship	Partnership	Co-operative	LLP	Private Limited	
Age	Below 20	16	18	6	15	10	65
	21-30	28	40	4	24	9	105
	31-40	26	28	7	21	3	85
	41-50	14	16	4	9	2	45
Total		84	102	21	69	24	300

Source: Primary Data

Table 1 shows that the total number of respondents is 300. Among the respondents, there are 65 individuals below the age of 20. Regarding legal status, 16 respondents below 20 years old are associated with sole proprietorship, 18 with partnership, 6 with cooperatives, 15 with LLP (Limited Liability Partnership), and 10 with private limited organizations. Moving to the age group of 21-30, there are 105 respondents in total. Among them, 28 are associated with sole proprietorship, 40 with partnership, 4 with cooperatives, 24 with LLP, and 9 with private limited organizations. Similarly, for the age groups of 31-40 and 41-50, the table provides counts for each legal status category. The last row and column in the table represent the totals for each legal status category and age group, respectively.

Table-2. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.027	12	.444
Likelihood Ratio	12.052	12	.442
Linear-by-Linear Association	3.789	1	.052
N of Valid Cases	300		

Source: Primary Data

Chi-square = Σ [(observed value - expected value) ^{2} / expected value]

The degrees of freedom for the test are calculated as (r - 1) x (c - 1), where r is the number of rows and c

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is the number of columns.

From Table 2, the chi-square test statistic is 0.444 with 12 degrees of freedom, and the p-value is more significant than 0.05, which shows that accept Ho4. This indicates no significant association between age and the legal status of the organizations.

Table-3. Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.010	.014	.731	.465
		Age-Dependent	.021	.028	.731	.465
		Legal Status of the Organization Dependent	.000	.000	.[c]	.
	Goodman and Kruskal tau	Age-Dependent	.014	.008		.425
		Legal Status of the Organization Dependent	.007	.005		.794

Source: Primary Data

Table 3 infers that there is a 2.8% error which can be reduced in predicting the legal status of the organization when the researchers know the age group of respondents.

Table-4. Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.200	.444
	Cramer's V	.116	.444
N of Valid Cases		300	

Source: Primary Data

Table 4 shows the Cramer's value is 0.116, which indicates that there is no association between the respondents' age and the organization's legal status since the Cramer's value lies between 0 to 0.25.

Table-5. T-Test Regarding the Infrastructure Services

	Test Value = 2					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Access to product development facilities.	14.665	299	.000	1.16667	1.0101	1.3232
Access to testing and validation facilities	12.096	299	.000	.97667	.8178	1.1356
Access to Training facilities.	11.660	299	.000	.97000	.8063	1.1337
Low or subsidized Cost for access the other facilities like Library/ Conference.	10.037	299	.000	.81000	.6512	.9688

Source: Primary Data

Table 5 illustrates the infrastructure services offered by Business Incubation Centers (BIC) to start-up companies. It includes some of the parameters which describe the infrastructural contribution to the success

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of startup companies. The T-test table's outcome reveals that the parameters displayed substantial mean differences, as "Access to product development facilities" (1.1666) was declared the highest among all. "Access to testing and validation facilities" and "Access to Training facilities" remain the significant holding mean differences with 0.9766 and 0.9700. The least mean difference was gained by "Low or subsidized Cost for access the other facilities like Library / Conference/to the above facilities" (0.8100). From Table 1, the significant value for different infrastructure facilities is 0.000, which reveals that the null hypothesis is rejected and more discriminant analysis needs to be done to get the right result.

Table 6. Tests of Equality of Group Means for Infrastructure Services

	Wilks' Lambda	F	df1	df2	Sig.
Access to product development facilities	.979	3.107	4	206	.034
Access to testing/validation facilities	.967	2.767	4	206	.017
Access to Training facilities	.983	2.866	4	206	.045
Low or subsidized Cost for access the other facilities like Library/ Conference	.979	1.085	4	206	.350

Source: Primary Data

The infrastructure factor that contributes to the success of startup enterprises is shown in Table 6, together with the F-statistics and Wilks's lambda test. The analysis result shows that the F-statistics calculated value is greater than the critical value (2.447) for each infrastructure parameter except "Low or subsidized Cost for access the other facilities like Library/ Conference." (1.085). The results of this research show that infrastructure parameters are regularly distributed for subsequent discriminant analysis, and the Wilks lambda was found to be close to 1, which denotes the fitness of the system. Wilk's lambda shows a low discriminant power for infrastructure facilities since the discriminant score is closer to 1. Also, from Table 6, the significant values show that "Access to product development facilities", "Access to testing/validation facilities", and "Access to Training Facilities" are significant and "Low or subsidized Cost for access the other facilities like Library/ Conference" are not significant since the F value is minimal for this service when compared to other services. These infrastructure access characteristics have been demonstrated at a significant level because the values are less than 0.05.

Table 7. T-Test for Access to Mentoring Services

	Test Value = 2					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Mentoring support from the team members	11.066	299	.000	.89333	.7345	1.0522
Accessibility of Mentors to direct the Technological requirements	11.480	299	.000	.92000	.7623	1.0777
Accessibility of Mentors to direct the Business requirements.	10.834	299	.000	.85667	.7011	1.0123
Ease of access to Mentoring.	14.178	299	.000	1.09333	.9416	1.2451
Low / Subsidised cost of access to Mentoring.	12.455	299	.000	1.06333	.8953	1.2313

Source: Primary Data

Table 7 examines the mean difference with respect to the mentoring services offered by the Business Incubator Center for start-up companies. The results of the T-test analysis show that there is a substantial mean difference between the lower and higher 95% confidence intervals for each mentoring service. With

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regards to every single mentoring parameter, the highest mean was gained by "Ease of access to Mentoring" and "Low / Subsidized cost of access to Mentoring," with respective values of 1.093 and 1.063. While other services also played a crucial role in this analysis, namely "Accessibility of Mentors to direct the Technological requirements" (0.9200), "Mentoring support from team members" (0.8933), and "Accessibility of Mentors to direct the Business requirements" (0.8566). The alternative hypothesis, which assumes the presence of a mean difference between the Mentoring services provided by the Business Incubator Services, is thus accepted, and the null hypothesis is rejected. From Table 7, the researchers found a significant difference in the mentoring services offered by Business Incubators for startups, and hence null hypothesis is rejected.

Table 8. Tests of Equality of Group Means for Mentoring Services

	Wilks' Lambda	F	df1	df2	Sig.
Mentoring support from the team members	.968	2.680	3	243	.048
Accessibility of Mentors to direct the Technological requirements	.998	3.153	3	243	.028
Accessibility of Mentors to direct the Business requirements.	.985	4.269	3	243	.026
Ease of access to Mentoring.	.953	4.026	3	243	.008
Low / Subsidized cost of access to Mentoring.	.994	3.530	3	243	.002

Source: Primary Data

The above test of equality of group means examines the F-Statistics value, Wilks Lambda, and Significance value in accessing to mentoring factor whose contribution leads to the success of the startup firms. The result indicates that the critical value (2.680) is less than the F statistics calculated value for each mentoring parameter, which signifies that all parameters are normally distributed. The Wilks lambda values are approximately 1, which indicates the goodness of fitness. From Table 8, the significant values are less than the hypothetical value of 0.05, and it also reveals that there is a significant difference in the mentoring services offered by Business Incubators since there is a more excellent value of F.

Tablem9. T-Test for Funding Services

	Test Value = 2					
					95% Confidence Interval of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Availability of Seed Funding support	12.641	299	.000	.97333	.8218	1.1249
Providing assistance to raise Grants from Govt. and other agencies.	10.020	299	.000	.82333	.6616	.9850
Offering assistance to raise funds through Angel Investors / Angel Networks.	13.587	299	.000	1.07667	.9207	1.2326
Providing access to raise Early-stage Venture Capital funds	13.012	299	.000	1.03333	.8771	1.1896
Providing access /Facilitation to raise Bank Loans.	11.983	299	.000	.97333	.8135	1.1332

Source: Primary Data

The above table represents the mean difference with respect to funding services offered by the Business Incubator Center for start-up companies. The study considered the primary data and carried out the survey

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2024
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using a Likert scale-based questionnaire. One sample t-test was used to determine the proper outcome after the respondents provided their comments on the Funding services. The study shows that "Offering assistance to raise funds through Angel Investors / Angel Networks." (1.076) and "Providing access to raise Early-stage Venture Capital funds" (1.033) have the highest mean difference among others. Whereas the major mean difference has been shown by the parameters "Availability of Seed Funding" (0.9733) and "Facilitation to raise Bank Loans" (0.9733). While "Facilitation to raise Grants from Govt. and other agencies" is the parameter with the least mean difference (0.8233). An alternative hypothesis is therefore accepted and supports the presence of mean differences among financial options available to start-up businesses. The significant values are 0.000, which shows a significant difference in funding services offered by Business incubators since the T value is more significant when compared to other services and rejects the null hypothesis.

Table 10. Tests of Equality of Group Means for Funding Services

	Wilks' Lambda	F	df1	df2	Sig.
Availability of Seed Funding support	1.000	3.039	3	258	.029
Providing assistance to raise Grants from Govt. and other agencies.	.983	1.478	3	258	.321
Offering assistance to raise funds through Angel Investors / Angel Networks.	.989	3.975	3	258	.045
Providing access to raise Early-stage Venture Capital funds	.972	2.936	3	258	.025
Providing access /Facilitation to raise Bank Loans.	.983	2.784	3	258	.019

Source: Primary Data

The F-statistics and Wilks lambda test are shown in Table 10 in relation to the funding services provided by the BIC. The analysis's findings demonstrate that the computed F-statistics value exceeds the crucial value (2.680) for each funding parameter except "Providing assistance to raise Grants from Govt. and other agencies." and it has less F value when compared to other services (1.478). As a result, this study shows that the funding parameters are normally distributed for subsequent discriminant analysis, and the Wilks lambda was found to be close to 1, which denotes the goodness of fitness of the data. The relationship between these parameters and funding has been significant and shown at a significance level because the values are under 0.05. Table 10 shows no significant difference in the funding service of "Assisting to raise Grants from Govt. and other agencies" compared to other funding services.

Table 11. Discriminant Score for Factors Contributing Success of Start-Up Firms

	Discriminant Score	Mean Difference	TDS
Infrastructure Services			
Access to product development facilities.	0.242	1.16667	17.39
Access to testing/validation facilities	0.716	0.97667	34.14
Access to Training facilities.	0.455	0.97	19.02
Low or subsidized Cost for access the other facilities like Library/ Conference.	0.631	0.81	29.45
			100
Mentoring Services			
Mentoring support from team members	0.555	0.89333	12.13
Accessibility of Mentors to direct the Technological requirements	0.716	0.92	30.32
Accessibility of Mentors to direct the Business requirements.	0.643	0.85667	22.01
Ease of access to Mentoring.	0.716	1.09333	19.21

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Low / Subsidized cost of access to Mentoring.	0.452	1.06333	16.33
			100
Funding			
Availability of Seed Funding support	0.134	0.97333	10.31
Providing assistance to raise Grants from Govt. and other agencies.	0.373	0.82333	31.14
Offering assistance to raise funds through Angel Investors / Angel Networks.	0.554	1.07667	25.33
Providing access to raise Early-stage Venture Capital funds	0.435	1.03333	14.21
Providing access /Facilitation to raise Bank Loans.	0.493	0.97333	19.01
			100

Source: Primary Data

The above discriminant score table depicts the Factors contributing to the success of startup firms, factors such as Infrastructure, Mentoring, Funding, Talent, Markets, Legal/Accounting/Intellectual Property, and other allied Business Services. The results of the above analysis are described below:

Regarding **Infrastructure services**, the highest discriminant score was given to "Access to testing/validation facilities" (0.716), as this parameter contributes more to the success of the Startup Company. Whereas "Low or subsidized Cost for access the other facilities like Library/ Conference" and "Access to Training facilities" also significantly contribute towards the success with a score of 0.631 and 0.455. The least discriminant score has shown to be "Access to product development facilities" (0.242).

With reference to **Mentoring Services**, the result indicates that "Accessibility of Mentors to Direct the Technological Requirements" and "Ease of Access to Mentoring" are the parameters that contribute more to the success of startup firms, with their respective scores of 0.716 and 0.716. "Low / Subsidized cost of access to Mentoring" is the mentoring parameter that contributes less, among others, to the success of startup firms.

Regarding **Funding**, the discriminant score which has resulted in high contribution for the respondents is "Offering assistance to raise funds through Angel Investors / Angel Networks" (0.554). Whereas other funding parameters, namely "Providing access /Facilitation to raise Bank Loans" (0.493), "Providing access to raise Early-stage Venture Capital funds" (0.435), and "Providing assistance to raise Grants from Govt. and other agencies" (0.373) has given a significant contribution towards the success of startup firms. The least discriminant score has shown to be "Availability of Seed funding support from the Incubator and its Network" (0.134).

Conclusion

Business Incubation Centers and Startups are part and parcel of the Start-up ecosystem. This research mainly concentrated on Business Incubators (BICs) and Start-up firms in enhancing the sustainable growth and development of the Indian Economy. Business incubators provide a wide range of services such as infrastructure, mentoring, and funding services, enhancing an appropriate environment to support Start-up and early-stage firm entrepreneurs in developing entrepreneurial skills, ideas, and knowledge. So, the relationship between Business Incubation Centers and startups is crucial as it lays the foundation for the Start-up ecosystem and develops the same accordingly. The government of India and various State governments in India have taken initiatives to empower Business Incubations Centers and Start-ups and foster Start-up Ecosystem in India. On January 16, 2016, the Honorable Prime Minister of India unveiled the "Start-up India, Stand-up India" Program to support India's startup community. "Simplification and handholding," "financial support and incentives," and "Industry-Academia Partnership and Incubation" are the three pillars of the action plan. The National Investment Promotion and Facilitation Agency was established to promote this program.

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India retains its position as the world's third-largest innovative Start-up ecosystem. More than 45% of the startups are from Tier-2 and Tier-3 cities of India. Each Start-up provides an average of 12 job opportunities, and over 32,500 start-ups are established. The state governments of different states in India have drafted 29 State Start-up policies at par with the Central Government Start-up India Scheme. From the analysis, researchers found a significant difference in the infrastructure facilities rendered by Business Incubators for startups. It further reveals that the Business incubators are providing significant infrastructure services such as "Access to product development facilities," "Access to testing/validation facilities," and "Access to Training Facilities" to the startups and not providing the significant difference in "Low or subsidized Cost for access the other facilities like Library/ Conference."

From the analysis, researchers identified a significant difference in mentoring services offered by Business Incubators for start-ups. When it comes to providing funding services by Business Incubation Centers, there is no significant difference in the funding service concerning "Providing assistance to raise Grants from Govt. and other agencies" compared to other funding services.

At the outset, the research study concludes that business incubators are not rendering excellent infrastructure, mentoring, and funding services. However, they provide excellent infrastructure facilities such as "Low or subsidized Cost for access the other facilities like Library/ Conference" and funding services such as "Providing assistance to raise Grants from Govt. and other agencies" to all startups. Also, the study reveals that all the business incubators show differences in infrastructure, mentoring, and funding services. Therefore, Business incubators should walk the extra mile in providing the same mentoring services to all startups for sustainable growth and development.

The present study shows the key trends enabling the Indian Start-ups ecosystem's growth. The major trends are the sustainable growth and development of new Start-ups, increased number of business incubators and accelerators, increasing tendency of different sectors which is going deeper and longer, diffusion of deep-tech, uplifting the potential sectors and aiding the underrated sectors, building India's exceptional digital infrastructure, strengthening academy-government-Corporate/Industry participation, Developing investor network, Solidifying channel of potential unicorns, Make and made in

India and branded globally. It also witnessed increased growth of Start-up activities all over the country's evolving and emerging start-up hubs. All the State governments, along with the Central government, came up with unique Start-up policies to attract and benefit the startups taking from Strengthened policy provision, advancement of institutional support, formation of local groups to support start-ups, and sustainable cost support.

Scope for Further Research

The present study is a never-ending process, as the market will face new problems, solutions, challenges, and opportunities every day. Innovations and ideas will emerge based on the requirement, and new start-ups will emerge. The researchers, policymakers, policy seekers, and other stakeholders must amend and adopt the policies based on the nation's requirements. This will help to increase India's national income, productivity, and self-sufficiency, which will make India a global leader.

There is much scope for further research on making the Indian economy a global power. This purpose can be achieved only through continuous research and finding the needs and requirements of every stakeholder, including startups, Business Incubators, corporations, State and central governments, the public, foreign investors/ companies, and others. This will help policymakers make decisions according to the Nation's interest.

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References

Audretsch, D. B., Acs, Z. J. (1994). New-firm startups, technology, and macroeconomic fluctuations. Small Business Economics, 6(6), 439-449.

Baporikar, N. (2015). Framework for social change through startups in India. International Journal of Civic Engagement and Social Change (IJCESC), 2(1), 30- 42

Baporikar, N. (2020). Understanding knowledge management spectrum for SMEs in global scenario. In Start-Ups and SMEs: Concepts, Methodologies, Tools, and Applications (pp. 1589-1605). IGI Global.

Birudavolu, S., Nag, B. (2019). Fostering Innovation Culture and Exploiting Social Capital: The Cases of T-Hub and RICH. In Business Innovation and ICT Strategies (pp. 339-349). Palgrave Macmillan, Singapore.

Chauhan, M. (2020). Narendra Modi's Performance on the Indian Economy: Assessment of Major Policies. Our Heritage, 68(63), 64-68.

de Bem Machado, A., Catapan, A. H., & Sousa, M. J. (2020). Management Models for Business Incubators: A Systematic Review. International Journal of Technology Diffusion (IJTD), 11(2), 33-44.

ICTs), Poverty Reduction and Micro, Small & Medium-scale Enterprises (MSMEs). A framework for understanding ICT applications for MSMEs in developing countries.

Gadkar, P. S. (2020). The challenges and opportunities of start-up India". Our Heritage, 68(36), 239-248.

Gaikwad, M. S., Patil, S. B. (2016). Make in India: start-ups and Incubators Software start-ups at SGI Incubator for Open-Source Software System Design, Development, Deployment Services and Training., 2(3), 667-675

Gazi M.A.I., Rahman M.K.H., Yusof M.F., Masud M.A.A., Islam M.A., Senathirajah A.R.B.S., & Hossain M.A. (2024). Mediating role of entrepreneurial intention on the relationship between entrepreneurship education and employability: a study on university students from a developing country. Cogent Business & Management, 1(1), 1-21.

Gertner, D. (2013). Unpacking Incubation: Factors affecting incubation processes and their effects on new venture creation (Doctoral dissertation, Newcastle University).

Godha, A., Sharma, P. K., Godaraa, R. L. (2020). Notion of Start-up India Initiative Policy Framework: Insights for Start-up to Scale-Up. Economic Policy & Research, 16.

Government of India. (2018). States' Startup Ranking 2018. Ministry of Commerce & Industry Department of Industrial Policy and Promotion. https://www.startupindia.gov.in/content/dam/investindia/compendium/Startup%20India% 20-%20National%20report_Final%20Version_web.pdf

Government of Telangana. 2016a. Innovation Policy 2016. Department of Information Technology, Electronics and Communications, Hyderabad, Telangana, India.

Government of Telangana. 2016b. ICT Policy Framework 2016. Department of Information Technology, Electronics and Communications, Hyderabad, Telangana, India.

Grondeau, A. (2007). Formation and emergence of ICT clusters in India: The case of Bangalore and Hyderabad. GeoJournal, 68(1), 31-40.

Hudáková, J. (2019). Startups Support in Slovak Republic. Management, 7(1), 63-69.

Khalil, M. I., Haque, R., Senathirajah, A. R. B. S., Binoy Chowdhury, Ahmed, S. (2022). Modeling Factors Affecting SME Performance in Malaysia. International Journal of Operations and Quantitative Management, 28(2), 506-524.

Kshetri, N. (2016). Fostering Startup Ecosystems in India. Asian Research Policy, 7(1), 94-103

Lala, K., & Sinha, K. (2018). Incubation and development: an overview of technology incubation innovation system of India. World Journal of Science, Technology and Sustainable Development.

Lokhande, M. A. (2011). Financial Inclusion: Options for Micro, Small and Medium Enterprises. Synergy (0973-8819), 9(2).

Mansoor, M., & Paul, J. (2022). Impact of energy efficiency-based ICT adoptions on prosumers and consumers. Journal of Cleaner Production, 331, 130008.

Nicholls-Nixon, C. L., Valliere, D., Gedeon, S. A., & Wise, S. (2020). Entrepreneurial ecosystems and the lifecycle of university business incubators: An integrative case study. International Entrepreneurship and Management Journal, 1-29.

Radhakrishna, M. H., & Goud, P. N. (2019). A study on Understanding the Recent Trends in Indian Start-Up Ecosystem. Journal of the Gujarat Research Society, 21(5), 191-203.

Singh, S., Chauhan, A., Dhir, S. (2020). Analyzing the startup ecosystem of India: a Twitter analytics perspective. Journal of Advances in Management Research, 17(2), 262-281.

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DOI: https://doi.org/10.62754/joe.v3i8.5425

Saroja, G. (2016). Make in Telangana-The New Industrial Policy of TS Government. Splint International Journal of Professionals, 3(4), 119.

Schumpeter, J. A., Becker, M. C., Knudsen, T. (2003). Entrepreneur. In Austrian Economics and Entrepreneurial Studies (Vol. 6, pp. 235-265). Emerald Group Publishing Limited..

Singh, L. (2019). Startup India initiative–A comparative study of selected states. Pranjana: The Journal of Management Awareness, 22(1), 1-10..

Somsuk, N., Wonglimpiyarat, J., & Laosirihongthong, T. (2012). Technology business incubators and industrial development: resource- based view. Industrial Management & Data Systems.

Theodoraki, C., Messeghem, K. (2020). Incubators' coopetition strategy in the start-up incubation ecosystem. In Research Handbook on Start-Up Incubation Ecosystems. Edward Elgar Publishing.

Vankamamidi, V. K. (2017). Startup, T-Hub, Scalable Business Model, Minimum Viable Product, Catalyst. A Conceptual Study on Start-ups and T-Hubs., (185).

Von Gelderen, M., Frese, M., & Thurik, R. (2000). Strategies, uncertainty, and performance of small business startups. Small Business Economics, 15(3), 165-181.