Role of Business Incubators in Creating Entrepreneurial Eco-System: A Case Study

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"The challenge is not just to build a company that can endure;
But to build one that is worthy of enduring" ***- Jim Collins***

Abstract- Today, India is redefining its journey of economy from a service oriented sector to a manufacturing-based sector. In this transition, Incubation, Innovation and Entrepreneurship have been identified as critical areas in the creation of innovative enterprises in all segments like; Micro, Small, and Medium Enterprises. In this regard, Business Incubator (BI) mechanisms are being promoted by the Government of India to support Incubation, Innovation, and Entrepreneurship in Academia, Research, and Industry. Business incubators have emerged as very popular methods for promoting social and economic development among the existing mechanisms. Business incubators offer a range of resources for young businesses, such as; features, services, and networks. India has approximately 300 incubation centers and science parks that have nurtured more than 4000 entrepreneurs until 2023. NSTEDB has so far created 127 TBIs in collaboration with premier academic and research institutions with an investment of Rs. 100 crores, and the cumulative revenue generated by these enterprises stands at Rs. 1595 crores.

The present study explores how business incubators function and their impact on incubations, innovations, and start-ups. The research is alienated into two major parts. The primary part, the literature review, explores the association between business incubators and innovations, and then the study presents an analysis of the role of business incubators on innovations and start-ups in the Rayalaseema Region of Andhra Pradesh. Further, the study also investigates the critical role of business incubators in promoting Incubation, Innovation and Entrepreneurship and its impact on the social and economic development of the region. Moreover, this study was engaged in structured interviews with incubatees, cofounders of start-ups and other eco-system authorities to draw a conclusion.

Keywords: Incubation, Innovation, Entrepreneurship, Start-ups and other Eco-system

INTRODUCTION

Today, the development of the Indian economy merely relay on industrialization and entrepreneurship development. India has a huge potential youth force in the world but lacks job opportunities. This is the time, and there is an obligation to develop entrepreneurial nature among the students from the early stage of education to make them job makers, not job seekers. As well as aspiring entrepreneurs also be educated and equipped with the requisite entrepreneurial knowledge and skills. The government of India and various public and private partners like; NSTEDB, MSMEDIs, DICs, EDI, TCOs, Research Centers, and Business Incubators started to design and implement many programmes like; EACs, EDPs, FDPs, TEDPs, and WEDPs.

Indeed Business incubators are playing to nurture the development of newly formed entrepreneurial companies by providing them with an array of targeted business support services and resources, which include: management guidance, technical advice, consulting, appropriate rental space, shared basic business services, and equipment, networking support, marketing assistance, and financing necessary for company growth. The most common goals of incubation programs are to substantially improve the survival and growth of new start-up firms, create jobs and wealth, enhance the entrepreneurial climate, create and retain businesses, commercialize new technologies, and build or accelerate growth in local industry and diversify economies.

ROLE OF BUSINESS INCUBATORS IN INDIA

As for as the Indian scenario is concerned, the National Science and Technology Entrepreneurship Development

Board (NSTEDB) launched the Science and Technology Entrepreneurs Parks (STEP) in the early 1980's, and the Technology Business Incubators (TBI) in the beginning of 2000. India has approximately 300 incubation centers and science parks that have nurtured more than 4000 entrepreneurs until 2023. Although no comprehensive study has been carried out to measure the impact of these mechanisms put together, the estimates are that all these incubators help to graduate about 500 enterprises every year, and out of these, 60 percent are technology-based start-ups. The report of the Working Group on science and technology for small and medium-scale enterprises for the 13th Five Year Plan (2017-2022) recommends that a total of 170 Technology Business Incubators and 50 Technology Innovation Centers should be set up with a total outlay of Rs. 1100 Crore. Though the origin of Incubation Centers in India is recent, they have played a significant role in promoting entrepreneurship which could be reviewed from the unique contribution of a few Business Incubation Centers.

Why Andhra Pradesh?

"A state that is progressive and highly industrialized… A State that is a centre of technology and innovation...and, a joyous population confident of its bright future..."

- Shri Nara Chandrababu Naidu

Chief Minister, Andhra Pradesh

The State of Andhra Pradesh shares a collective dream of a new India where new-generation technology products would be manufactured, creating multiplier effects in the growth of the State and nation, employment creation, and social transformation.

The State of Andhra Pradesh requires world-class scientific and technologically advanced eco-systems that could empower and enable youth to carry out the fundamental duties for the country. To develop innovation, entrepreneurship, and start-up culture within the State, the Government of Andhra Pradesh has proposed to set up an Innovation and Capacity Building mission.

Moreover, the Government of Andhra Pradesh accords high priority to industrial growth to mitigate poverty and reduce unemployment. In this regard Andhra Pradesh Industrial Development Policy (2015-20) & AP Innovation & Start-up Policy (2014-2020) are initiated by the Government of AP, aiming to establish state-of-the-art infrastructure, promote manufacturing, and enhance inclusivity, foster innovation and create employment opportunities across sectors. Through the Innovation and Start-up Policy, the government intends to create an eco-system producing entrepreneurs in every family.

The new policy for innovation would base itself on the 5 pillars, namely;

1. Shared infrastructure,
2. Accelerators / Incubators,
3. Human Capital,
4. Funding-State Innovation Fund,
5. Good Governance (State Support).

The targets lay out for Andhra Pradesh through this Policy by June 30, 2019, was:

- 100 Incubators / Accelerators to be established
- 5,000 Companies & Start-Ups to be incubated
- 1 million sq ft of Incubation Space to be developed
- Venture Capital of Rs 1000 Cr to be mobilized for innovation
- Foster Innovation Culture
- Create at least one homegrown billion-dollar technology start-up.

Why in Rayalaseema Region?

Rayalaseema is a geographic region in the State of Andhra Pradesh. It comprises 4 southern districts of the State, namely, Anantapur, Chittoor, Kadapa, and Kurnool. As of the 2011 census of India, the region with four districts had a population of 15,184,908 and covered an area of 67,526 km^2 (26,072 sq mi). Rayalaseema is located in the southern region of the State of Andhra Pradesh. The region borders the State of Karnataka to the west, Tamil Nadu to the south, Telangana to the north, and east to the coastal Andhra Pradesh.

Rayalaseema Region-Advantage

Rayalaseema region is rich with minerals – Asbestos, Barytes, China clay, Calcite, Dolomite, Diamonds, Green Quartz, Iron ore, Limestone, and Silica sand. It also has 15.5 lakh Ha of forest, which covers rich forest wealth like the 2600 hectares of rare Red Sandalwood. Each District of the region has own advantage, particularly in Minerals, Agriculture, Horticulture,

Chemical, Cement, Rubber, Textile, Non-metallic, Electricity, Tourism & Hospitality.

Start-up Potentials

Although this region is enriched with many advantages, it has been neglected for many years due to the centralization of development in and around Hyderabad (in the united Andhra Pradesh). However, now the Government of Andhra Pradesh has initiated decentralizing industrial development by emphasizing backward districts of Andhra Pradesh. The new Government policies like APIDP-2015-20, AP MSME Policy, AP Innovation and Start-up Policy 2014-20, and AP IT Policy will inspire aspiring entrepreneurs to establish new ventures. Hence, there is huge scope to establish new ventures and provide employment opportunities using local resources.

Employment Generation

The region also includes famous educational institutions, such as IIT-Tirupathi, IISER-Tirupathi, IIIT-Kurnool, JNTUA-Ananthapuramu, Sri Venkateswara University, Rayalaseema University, and RGUKT–Idupulapaya. So, there is a huge scope to do experiments, invent and develop new technology-based enterprises (Start-ups) with the collaboration of these Institutions to fulfill Industry requirements in the areas of-Mining Industry, Agriculture and Food Processing, Chemical, Cement, and Non-metallic Industry, Forestry, and Irrigation Sector.

Statement of Problem

Rayalaseema is an economically backward region, and often this region has been accorded the status of drought-prone. There is no good variety of industries in this region. Poverty and unemployment are the two harsh realities faced by the Rayalaseema region for the last 50 years. These issues are closely interlinked with each other. In addition to the unemployment problem of about 1 Lakh or even more every year, the agricultural sector in Rayalaseema cannot absorb the huge unemployed rural population because it doesn't have water resources or cultivation lands.

Also, large enterprises on a large scale could not be set up due to the absence of intense infrastructure of power, water, transport, and communication.

Thus, the only hope for the people of Rayalaseema is the establishment of new Enterprises.

Need for the Study

The Rayalaseema region is enriched with huge advantages like; the availability of natural resources and famous educational institutions. Although for so many years the region has suffered from poverty and unemployment due to the centralization of industrial development in and around Hyderabad (in united Andhra Pradesh). Nevertheless, after the bifurcation Government of Andhra Pradesh has initiated decentralizing the development of industries by emphasizing backward districts of Andhra Pradesh.

Hence, the present study offers new insights to the policy makers to initiate, prepare and provide more flexible, suitable, and adaptable schemes/policies for promoting incubation, innovation, and entrepreneurship in the backward region to overcome regional imbalances. The establishment of new ventures by using local resources can provide employment opportunities for the local literates.

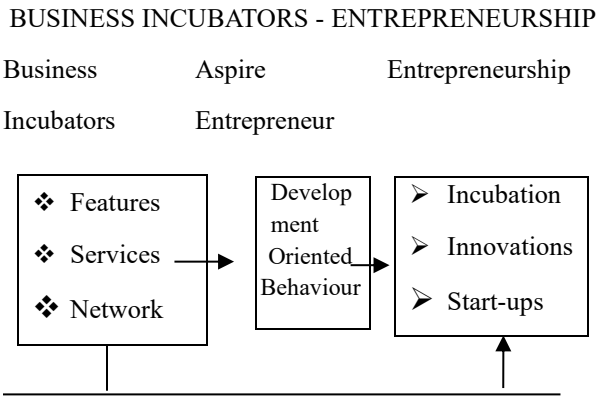
Significance of the Study

Despite the significant investment in resources of incubation centers by government and private organizations, their impact on entrepreneurs is not well documented, especially in the Rayalaseema region of Andhra Pradesh. The region includes famous educational institutions, such as IIT-Tirupathi, IISER-Tirupathi, IIITDM-Kurnool, JNTUA-Ananthapuramu, SV University, Rayalaseema University, and RGUKT–Idupulapaya. So, there is a huge scope to do experiments, create and develop new technology-based enterprises (Start-ups) with the collaboration of these Institutions to fulfill Industry requirements in the areas of-Mining Industry, Agriculture and Food Processing, Chemical, Cement and Non-metallic Industry, Forestry, and Irrigation Sector.

Hence, the study is quite useful to understand the present scenario of this backward region and also to design, develop and implement appropriate regional development policies to transform the youth from job seeker to job providers.

Scope of the Study

The scope of the research is confined to exploring the degree of interrelation between Business Incubators and Entrepreneurship and their impact on regional development, especially in the Rayalaseema region.



Source: *Develop by the Researcher*

Objectives of the Study

The main objective of this study is to study the role of Business Incubators in creating Entrepreneurial Eco-System in the Rayalaseema region of Andhra Pradesh.

However, the specific objectives of the present study are:

1. To study the origin, role, and impact of business incubators in the development of entrepreneurship eco-system on societal and economical development.
2. To examine the services offered by the business incubators in the region.
3. To identify the problems faced by the business incubators in the region.
4. To analyze the role of business incubators in promoting Incubation, Innovation, and Start-ups.

Research Hypotheses

Based on the objectives of the study, the following hypotheses are formulated:

H_1: There is a significant correlation between Business Incubators and Innovations.

H_2: There is a significant correlation between Innovations and Start-ups.

Review of Literature

Vaishali Dhiman, and Manpreet Arora (2023)[1] in their research article entitled "Exploring the linkage between business incubation and entrepreneurship: understanding trends, themes and future research agenda" try to establish relation between incubation and entreprensurhip. The study's findings reveal that business incubators through their best services can enhance the competitiveness of small and medium projects and the economy. They can also adopt effective business strategies for nurturing startups by focusing on mentorship programs, providing supportive ecosystems, providing training programs and establishing a culture of managing and facing risk in times of uncertainty. Further, this research highlights that managers should spend constructive time on entrepreneurship education and its peculiarities to apprise budding managers about the entrepreneurial ecosystems.

Ali, Sabah Neama Nazmi, and Dalia Omar (2021)[2] in their research article entitled "The role of business incubators in supporting and developing the international competitiveness of small projects in Iraq" try to address the economic and social problems and challenges; unemployment and the role of business incubators in overcoming those obstacles. The study's findings reveal that business incubators through their best services can enhance the competitiveness of small and medium projects and the economy.

Breivik Meyer et al., (2020)[3] in their inclusive research "The role of incubator support in new firms accumulation of resources and capabilities" try to explore the role of incubators support in developing enterprises. Their research disclosed two types of buffering mechanisms in business incubation: sheltering and building, which plays a major role in entrepreneurial capacity building.

Baskaran et al., (2019)[4] in their exploratory study "Inclusive Entrepreneurship, Innovation and Sustainable Growth: Role of Business Incubators, Academia and Social Enterprises in Asia" try to investigate the role of BIs, academia and social enterprises towards achieving inclusive entrepreneurship, innovation and sustainable growth. They found a positive relation among Asian Govts policies, social entrepreneurship and inclusive growth of the nations.

Shouvik Sanyal & Mohammed Wamique Hisam (2018)[5] in their research paper "The Role of Business Incubators in Creating an Entrepreneurial Eco-system: A Study of the Sultanate of Oman" try to throw light on the present State of the incubation industry in Oman. The study's findings portray that the right kind of planning, support and implementation of BIs plays a great role in the development of entrepreneurial eco-system which leads in sustainable development, growth and employment opportunities.

Aimal Mirza & Meena Rahmani (2017)[6] in their research article titled "Role of Incubation Centers in Growth of Small-Scaled Businesses in Afghanistan" tried to evaluate the role of Business Incubation Centers in promoting entrepreneurship, job creation and economic development. The study results illustrate that most start-up companies require physical infrastructure facilities, which is a great hassle for new start-ups. The business plan development, business counselling, conducting feasibility analysis, and providing business ideas facilities are quite significant, and the business incubation centers provide facilities like communication, library and laboratory are helpful.

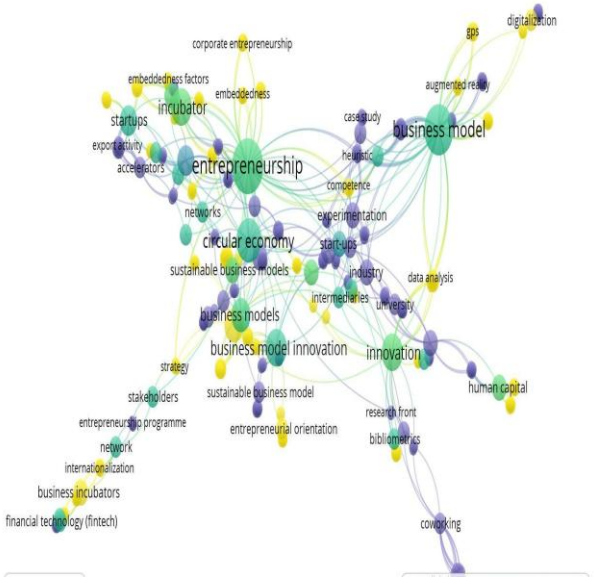
Gema Albort-Morant, Domingo Ribeiro-Soriano (2016)[7] in their study "A bibliometric analysis of the international impact of business incubators," seeks to observe trends in the literature on business incubators. This analysis provides insight into the nature and trends of research on business incubators. The analysis results reveal the lack of articles on business incubators and highlight the fragmented nature of the topics these articles cover.

Dr. Balvinder Shukla, et al., (2015)[8] in their research entitled "Can Business Incubators impact Start-up success? India Perspective," seeks to evaluate the role and impact of Business Incubators in the success of start-ups. From the overall analysis, it has been concluded that Indian Incubators have positively impacted India's economic growth.

Mohamed Imam Salem (2014)[9] in his evolution research "The Role of Business Incubators in the Economic Development of Saudi Arabia" tried to find out how business incubators function and their impact on national development and growth of a developing nation. Findings showed that BI initiatives are supporting new entrepreneurs and promoting emerging SMEs and also focused on capital, and training, to empower minority groups.

Omer Cargi Ozdemir & Yasin Sehitoglu (2013)[10] in their inquisitive research work titled "Assessing the Impacts of Technology Business Incubators: A framework for Technology Development Centers in Turkey". In this study, they have taken measures like job creation, graduation rates or the growth performance of the tenant firms. The overall analysis shows that in developing countries, patents or R&D capacity is lower in tenant firms.

Bibliometric Analysis



The above bibliometric analysis portrays year wise research and key areas of study in field of incubators, innovations, entrepreneurship, business models and circular of economy.

Study Design & Methodology

The present research is an exploratory study in nature. The descriptive research method has been used to describe the present services of incubation, innovation and entrepreneurship in the Rayalaseema region.

Sources of Data

For the present study, the data is collected from both primary and secondary sources. The primary data is collected by administrate a structured questionnaire and personal interviews.

The secondary data was gathered from the Internet, books, research articles, survey reports, newsletters, various journals, and magazines.

Sample Size and Design

As on December 2024, altogether, there are a total of 7 BIs are working in the Rayalaseema Region. For the present study, all BIs and 70 incubatees (120 questionnaires were distributed and received back 70 complete and valid responses) were selected.

Sampling Technique

For the present study non-probability purposive sampling method has been applied to collect primary data from the incubatees.

Hence, all the available incubatees were selected purposefully and their responses were the basis for the analysis, interpretation, and empirical findings.

Table-1

Total No. of Incubators in Rayalaseema Region

Name of the District	*No. of Incubators*	*No. of Incubatees*
Ananthapuramu	*02*	*27*
Chittoor	*04*	*40*
YSR Kadapa	*00*	*00*
Kurnool	*01*	*03*
Total	07	70

Source: www.nstedb.com

Data Collection Instruments

The questionnaire method was adopted to collect the primary data from the respondents. A structured questionnaire in Doc/Google Form was designed and administered among the incubatees. All questions in the questionnaire have been measured on a 5-point Likert Scale ranging from "Strongly Agree to Disagree".

Table-2

Business Incubators Services and Measurement Techniques

S.No	Parameter	No. of statements included	Techniques adopted for measurement
A	Dependent Variable		
	Incubates		
B	Independent Variable		*Scale developed*
1	*Infrastructure Facilities*	05	,,
2	*Marketing Facilities*	03	,,
3	*Training Facilities*	05	,,
4	*Network Facilities*	03	,,
5	*Consultancy Services*	05	,,

Source: Designed by the Researcher

Data Processing

The gathered data were processed, analyzed, and tabulated using suitable Quantitative Techniques such as Reliability, Frequency, Mean, and Standard Deviation values to draw meaningful inferences.

Limitations of the Study

1. The present study is limited to Business Incubators in the Rayalaseema region of Andhra Pradesh.
2. The present research is limited to select incubatees only.
3. The study's results cannot be generalized to areas of Andhra Pradesh.
4. The accuracy of information may owe to change from time, place, and individual factors.

DATA ANALYSIS

Reliability of Instrument

This study has adopted a questionnaire used in earlier research, proving its reliability and validity. Although, a test of Cronbach's alpha has been run on gathered data and has obtained the following results.

Table-3: Reliability of Scale used

Cronbach's Alpha	No of Items
.907	21

Source: Primary Data

The Cronbach's Alpha of the scale for all 21 items is 0.907 which is greater than 0.7, thus the scale is highly reliable.

Table-4: Frequencies and Mean scores of items to measure effectiveness of incubators

S.No	Item	Strongly Agree	Agree	Neutral	Mean	S.D
	Infrastructure Facilities				2.890	0.963
1	BI provides affordable infrastructure and office facilities	0	49	21	3.43	0.947
2	BI helps to establish the business at prime locations	0	45	25	3.21	0.879
3	BI helps to obtain the best quality office equipment	0	44	26	3.15	0.897
4	BI facilitates sharing office facilities	0	36	34	2.53	1.056
5	BI provides a hassle-free workplace environment	0	30	40	2.13	1.038
	Marketing Services				2.663	0.983

6	BI provides both local and international market opportunities	0	39	21	2.76	0.907
7	BI provides display centers	0	36	34	2.52	1.065
8	BI offers a platform for participation in exhibition/Business fairs	0	38	32	2.71	0.977
	Training Program				2.908	1.014
9	BI helps in improve the capacity building skills	0	39	31	2.84	1.165
10	BI helps in improve skills of product development	6	39	25	3.20	1.042
11	BI helps in improve skills of business management	0	38	32	2.72	0.978
12	BI helps in improve skills of marketing	0	37	33	2.62	1.035
13	BI helps in provide customized training skills	0	44	26	3.16	0.852
	Networking				3.416	1.230
14	BI provides the latest information on exhibition regulations and specific sectors	0	46	24	3.27	1.235
15	BI helps in networking with chambers and associations	15	32	23	3.36	1.470
16	BI provides the latest information on technological advancement	15	36	19	3.62	0.987
	Consultancy Services				3.314	1.123
17	BI provides consultancy services for right project identification	18	35	17	3.81	0.969
18	BI helps in the development of management and marketing facilities	07	37	26	3.14	0.843
19	BI provides consultancy services in designing brochures, websites, and business cards	19	30	21	3.51	1.074
20	BI provides consultancy services on cash management and raising money by banks	9	40	21	3.51	1.072
21	BI helps businesses use different accounting software	9	27	34	2.60	1.657

Source: Primary Data

Table-5: Major problems faced by the business incubators in the region

S. No	Major Problems	Frequency	Distribution
1	R & D /Technology related	12	17.14
2	Investment/ Credit/ Financial related	14	20.00
3	Infrastructure/Work Space/Production related	07	10.00
4	Administration/ Organisational related	04	5.71
5	Human Resource related	05	7.14
6	Sustainability/Market/ related	17	24.28
7	IPR related	03	4.28
8	Legal/Consultancy related	02	2.85
9	Other; Office Space/ Rent/ Supplier/ Network	06	8.60
Total		70	100%

Source: Primary Data

Table-6: Correlation between Incubations and Innovations

	Variables	Incubates	Start-up
Incubations	Pearson Correlation	1	0.072**
	Sig. (2-Tailed)		0.000
	N	70	70
Innovations	Pearson Correlation	0.072**	1
	Sig. (2-Tailed)	0.000	
	N	70	70

Source: Primary Data

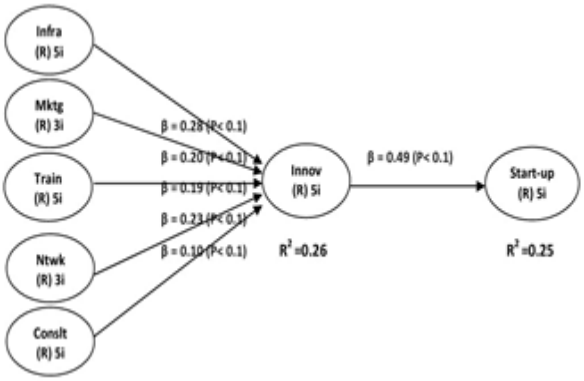
Table-7: Correlation between Innovations and Start-ups

	Variables	Incubates	Start-up
Innovations	Pearson Correlation	1	0.087**
	Sig. (2-Tailed)		0.000
	N	70	70
Start-ups	Pearson Correlation	0.087**	1
	Sig. (2-Tailed)	0.000	
	N	70	70

**. *Correlation is significant at the 0.01 Level (2-Tailed).*

Source: Primary Data

PLS-SEM Model



CONCLUSION

The present study offers new insights to the policy makers to initiate, prepare and provide more flexible, suitable, and adaptable schemes/policies for promoting incubation, innovation, and start-up eco-system in the backward region of Andhra Pradesh, i.e., Rayalaseema to overcome the regional imbalances.

The review of literature has discovered and explored the important role played by BIs in and around the world. The present study also unveils that business incubators are playing an essential role in incubations, innovations and start-ups in the region. The findings of the study also established the significant relationship among BI's facilities, innovations, and start-up.

The facilities offering by the BIs' to the aspire incubators such as Infrastructure facilities, Marketing, Training, Network, and Consultation are not satisfactory in the region.

However, the aspiring entrepreneurs in this research are unhappy due to lack Marketing, Network and Consultancy services, and the emerging competition. Despite its significance, the business incubators are unable to fulfill the requirements of aspiring entrepreneurs and the economy of the Rayalaseema region of Andhra Pradesh.

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