

PROJECT COMPLETION REPORT

A 360° Comprehensive Assessment of Technology
Business Incubators (TBIs) and Accelerators Primarily
in the Area of Life Sciences in India

December 2016

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A 360° Comprehensive Assessment of Technology Business Incubators (TBIs)
and Accelerators Primarily in the Area of Life Sciences in India

2015-2016

Implemented by

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DST Project No: DST/NSTMIS/05/185/2014-15

Sponsored by

National Science and Technology Management Information System (NSTMIS)

Department of Science & Technology (DST)

Ministry of Science & Technology

Govt. of India

December 2016

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Department of Science & Technology (DST), Ministry of Science & Technology, GOI

Acknowledgment

I am highly indebted to **National Science and Technology Management Information System (NSTMIS)**, Division of Department of Science and Technology (DST), Govt. of India for giving us this great opportunity and providing us funds for the completion of the project. We are thankful for the overall guidance of **Dr. Praveen Arora and Ms. Namita Gupta** for their valuable suggestions. I am grateful to our **Local Project Advisory Committee (LPAC)** for the support, suggestions and valuable time towards completion of project and finalizing the report.

I am thankful to the institutes and organizations that have provided their full support regarding the study of the project.

I am also thankful to BIORx team members for putting their wholehearted efforts in fruitfully completing the project.

Executive Summary

India is growing into a global innovation hub, along with launching incubators in India is a great initiative by **National Science and Technology Entrepreneurship Development Board (NSTEDB), Department of Science & Technology, Govt. of India** to help innovative Startups and also companies from early to mid-stage entrepreneurial development stage to rapidly transfer their ideas into competitive businesses by giving them mentorship, funding, resources, knowledge, and access to business networks.

This project titled “**A 360° Comprehensive Assessment of Technology Business Incubators (TBIs) and Accelerators primarily in the area of Life Sciences in India**” was successfully implemented by **BIORx Venture Advisors Private Limited** sponsored by **NSTMIS, DST** which was aimed to inclusively assess such incubators which are chiefly helping Life Science industries in India. For achieving the same, questionnaire was developed which broadly covers the nature of incubators, their profile and along with details relating to the investment strategies, break-up of funds, and financial projections of their business. Further, based on the data collected from the targeted respondents the analysis was carried out and key findings are summarized below.

This research report has shown clearly after 2000, the growth of establishment was observed as ecosystem for Startups took the lead and majority of them were institutional incubators coming from non-profit category. Mainly, government was involved in funding where research commercialization and entrepreneurs development were the most important objectives for standalone as well as institutional incubators but in a reverse manner covering northern and southern parts of the country.

Moreover, the companies were taking long time to graduate from the incubators and none of the incubators in our sample set up any equity/debt fund currently where 90% of incubators did not hold international exposure. However some were in a process of doing so. For example: c-camp. However, SIDBI Kanpur was the only incubator that was found not promoting themselves through any of the marketing medium. This was may be because of their high credentials.

Targeted population covered in the study aspired to become one of the top three incubators in the country by providing quality support system in order to translate knowledge and innovation into successful enterprises. Attaining self-sufficiency in operations and up gradation to an accelerator was found to be a vision many looked forward to. Diversifying in other sectors beyond life-sciences and healthcare was also being explored by some in the sample.

From one of our findings, it was observed that the people generally look forward to avail a service tax exemption only which is another area of concern that needs to be addressed by the government. It can either via a plan which can provide more fiscal benefits to promote such establishments, like in US and other developed countries, or the incubators should be made aware of all the benefits that they could currently avail. In this regards, within a similar timeframe, could propel the Startup economy and mid-size industries in India forward.

Considering the challenges faced by the incubator community, they had some expectations from the Government. In addition to making basic infrastructure available, the Government both at the State and Central level was expected to provide some venture capital funds for the start-up companies. It was observed that greater number of incubates approach those incubators where facilities in addition to the monetary support from Government is higher.

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1. Introduction

The US-based National Business Incubation Association (NBIA) defines business incubation as: “A business support process that accelerates the successful development of start-up and fledging companies by providing entrepreneurs with an array of targeted resources and services.” Others have provided more specific definitions and limit incubators to organizations that provide physical space or broader definition that include all organizations that facilitate business: “A business incubator is a business unit that specializes in providing space, services, advice and support designed to assist new and growing businesses to become established and profitable.”

The need for Technology Business Incubators (TBIs) has been recognized the world over for initiating nurturing and supporting technology led and knowledge driven enterprises. The world has witnessed that such mechanism has not only accelerated the growth of technology based start-ups but also enhanced their survival rate during their incubation and acceleration cycle. In addition to providing a host of services to such enterprises, TBI's also facilitate a congenial atmosphere for their survival.

So, the scope of this report is to locate the performance of technology business incubators and accelerators limited to life sciences and related industry available in India.

2. Literature Study

2.1 Business Incubators

Business incubation is an essential part in fostering young firms through the most vulnerable start-up phase. A business incubator is an interface between a business idea and the real time market. It acts as a facilitator for aspiring entrepreneurs by providing them capital, infrastructure and expertise at initial stage of development. Business incubators aim to promote creation of enterprises and inculcate entrepreneurship by utilizing the ability and creativity of incubates.

They are important instruments for promoting entrepreneurship; development and technological innovation not only for small enterprises but a few are also known to have extended their services to medium enterprises as well. Business Incubators, for technology driven start-ups, provide services such as business and management guidance to the entrepreneurs on a 'one-stop-shop' basis. They also enable them to reduce their costs through other services.

Business incubators are programs created by governments, business alliances, or academic groups through a variety of services and training. They provide many resources including office space, office services, entrepreneurial advice and mentoring, business planning, contacts and networking to the member companies. In essence, incubators will nurture a business in its start-up phase and allow it to develop at its own pace, making them ideal for entrepreneurs who want to grow their company steadily over time.

Majority of the business incubators are typically run by non-profit organizations. However, with their success overtime some private players have also entered the scene in exchange for equity in the success of the firm. Some universities also offer incubation centers where entrepreneurs can tap into the research activities on the campus or take existing research and turn it into a commercial business.

2.1.1 Literature Review Source

Year of Publication	Researchers	Title	Findings
1997	OECD	Technology Incubators: Nurturing small firms	<ul style="list-style-type: none">▪ In several countries the lack of clear objectives of some incubators resulted in a conflict between economic/technology development

			<p>and the need for economic self-sufficiency and stakeholder revenue.</p> <ul style="list-style-type: none"> ▪ Focusing on technology clusters such as software, information technologies etc. can help incubators achieve critical mass and enhance synergies between firms.
2002	Eric Harwit	High-technology incubators: Fuel for China's new entrepreneurship?	<ul style="list-style-type: none"> ▪ Government incubators take little or no equity stake in the incubated companies and thus having little motivation to generate profits. ▪ Some government incubators have started to take financial interest in hosted companies on an experimental basis.
2004	Aernoudt, Rudy	Incubators: Tool for Entrepreneurship?	<ul style="list-style-type: none"> ▪ Lack of entrepreneurship and the underdevelopment of seed financing are the biggest barriers for the development of incubators in Europe. ▪ Targeted subsidies focused both on real incubators and business angel network especially in the launching phase should be avoid.
2004	Sean M. Hackett David M. Dilts	A Real Options-Driven Theory of Business Incubation	
2005	Amnon Frenkel, Daniel Shefer, Michal Miller	Public vs. Private Technological Incubator Programs: Privatizing the Technological Incubators in Israel	<ul style="list-style-type: none"> ▪ Private incubators cannot substitute fully for the role served by the public Incubator program. ▪ Private incubators tend to concentrate in selected fields while public incubators sponsor a large variety of

			<p>fields.</p> <ul style="list-style-type: none"> ▪ Public sector is a source of stability and can be a reliable anchor for long-term planning.
2008	Michael Schwartz	Beyond incubation: an analysis of firm survival and exit dynamics in the post-graduation period	<ul style="list-style-type: none"> ▪ For the majority of incubates the support mechanisms of the BIs seem to provide a basis for long-term survival after Leaving the incubator facilities. ▪ Incubator management should prepare the leaving graduates for the process of graduation much better, as well as early enough, and maybe should perhaps arrange a follow-up mentoring for a certain time
2009	Chandra, Aruna Fealey, Tim	Business incubation in the United States, China and Brazil: a comparison of role of government, incubator funding and financial services.	<ul style="list-style-type: none"> ▪ At the macro level incubation was very much influenced by the nature of the institutional and cultural context. Incubators in all three countries facilitated access to a range of financial services to their incubatees by serving as an intermediary, but very few had the resources to make direct investments in their incubatees firms.
2009	Aruna Chandra ¹ , Maria Alejandra Medrano Silva	Business Incubation in Chile: Development, Financing and Financial Services	<ul style="list-style-type: none"> ▪ Not enough emphasis was placed on developing country level entrepreneurial capability. ▪ Incubators may need to be more selective in their resource allocation to favor the high potential incubatees to help amplify the initial investment, as

			<ul style="list-style-type: none"> ▪ Opposed to spreading the wealth among all incubatees equitably.
2010	E & Y	Challenges and solutions: business incubators and techno parks in Russia	<ul style="list-style-type: none"> ▪ Strict selection and use of appropriate criteria therein assigning resident Status only to companies or projects that initially demonstrate high potential. ▪ The expert council should be formed in a way that the work does not become a mere formality. ▪ A wide range of services, including those that may be impossible or difficult to provide for the team that operates the facility. It is not necessary to provide these services free of charge.
2010	Hanadi Mubarak Al-Mubarak ; Michael Busler	Business Incubators Models Of The USA and UK: A swot analysis	<ul style="list-style-type: none"> ▪ Business incubators are being used as economic development tools by nearly every country. ▪ Business incubators contribute to the economy and play active roles in the local, regional and national economic development.
2011	Tang, Mingfeng; Baskaran, Angathevar; Pancholi, Jatin; Muchie, Mammo	Technology Business Incubators in China and India	<ul style="list-style-type: none"> ▪ In India government support to incubators is less as compared to China. ▪ India is far behind China in number of TBIs. ▪ Universities plays a major role in TBI's in China, selected institutions play pivotal role as host institutions in TBI's in India.
2011	Dr.	The Role of IT-	<ul style="list-style-type: none"> ▪ Most theoretical and empirical

	Dimitrios Lagos ¹ , Dr. Konstadinos Kutsikos ²	focused business incubators in managing regional development and innovation	findings refer to incubation outcomes, often drawn independently from the incubator model. <ul style="list-style-type: none"> ▪ Bulk of research findings on the incubation process refer to selection strategies but little else is recorded and analyzed about the details of the overall incubation process.
	Jacques Arlotto ^a , Jean-Michel Sahut ^b , Frédéric Teulon ^c	What is the Performance of Incubators? The Point of View of Coached Entrepreneurs	<ul style="list-style-type: none"> ▪ Graduates (having more than one degree) are more likely to seek help in the first developmental stages of their company. ▪ Entrepreneurship education does not have any impact on the turnover, nor on the number of employees of the companies whose entrepreneur followed this type of program.
2013	Dr. Sandeep Vij Hitesh Jhanji	Business Incubation: A Review of Research Orientations, Impacts and Determinants of Success	
2015	N. O. Obaji ¹ , M. U. Olugu ² , B. C. Obiekwe	Business incubation adaptation and success factors in Nigerian context of a developing country: a literature review	<ul style="list-style-type: none"> ▪ Technology importation or technology transfer from the technologically advanced nations has played a very significant role in developing countries economies including Nigeria in the past. ▪ It is essentially appropriate for countries in the developing world to make sure that the technology they

			<p>import from the developed nations fit within their socio-economic environment.</p> <ul style="list-style-type: none"> ▪ The business incubation theory and model from developed countries should not just be grabbed by the developing countries; local context adaptation needs to be integrated to the foreign technology in order to suit the country's technological needs.
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2.1.2 Technology Incubation in India

The National Science & Technology Entrepreneurship Development Board (NSTEDB), established in 1982 by the Government of India under the aegis of Department of Science & Technology (DST), is an institutional mechanism for promoting knowledge-driven and technology-intensive enterprises. The Board, having representations from socio-economic and scientific Ministries/Departments, aims to convert "job-seekers" into "job-generators" through Science & Technology (S&T) interventions.

The National Science & Technology Entrepreneurship Development Board (NSTEDB) launched the Science and Technology Entrepreneurs Parks (STEP) in the early 1980's, and the Technology Business Incubators (TBIs) in the beginning of 2000.

The key objectives of NSTEDB are to:

- To promote knowledge based and innovation driven enterprises.
- To facilitate generation of entrepreneurship and self-employment opportunities for S & T persons.
- To facilitate the information dissemination.
- To network with various Central & State Government agencies for S&T based entrepreneurship development.
- To act as a policy advisory body to the Government agencies for S&T based entrepreneurship development.
- Generating employment through technical skill development using S&T infrastructure.

These objectives have been fulfilled by NSTEDB through two major interventions; namely, the scheme for Science & Technology Entrepreneurs Parks (STEP), which was started in the

early 1980's, and the Technology Business Incubators (TBIs) program launched in early 2000, both of which have been successful in increasing the number of start-up companies engaging in innovation as well as fostering a conducive environment of risk taking while contributing to the regional and national economy. (www.nstedb.com).

2.1.3 Current Scenario of Technology Business Incubators (TBIs) in India

Technology Business Incubators in India have existed since the 1980s, under the Government of India and since the late 1990s under the private industry. They have played a critical role in encouraging risk taking and public research in the Information Technology industry. Their success led to a massive increase in the number of incubators being setup in the country, with over 300 registered incubators operating in the country as of early 2014. The TBI program in India has been fairly successful and has even given rise to private incubators that operate under a very similar model but focus more on creating private capital than tangible public research.

Each TBI promoted by NSTEDB does not focus on more than 2-3 thrust areas. NSTEDB is currently promoting TBIs in the following select thrust areas which have potential for faster growth Information & Communication Technology (ICT):

- Information & Communication Technology (ICT)/Internet of Things (IOT)
- Healthcare
- Manufacturing
- Agriculture and allied fields
- Clean-Tech
- Energy
- Water
- Services

In addition, TBIs are usually associated with universities, public research institutes, local government & private institutions to promote & bolster a new technology intensive enterprise. TBI refers to the type of incubation where the focus group consists of innovative, mostly technology-oriented, or knowledge- intensive service sector enterprises and interactions with the academic sphere giving a substantive element of the incubation process. The growth of TBI occurred in conjecture with the vigorous transformation of today's spatial economic processes, it can be interpreted *as a reply for the challenges of the learning – based economy*.

While the Goals of Business incubators and accelerators throughout the world are similar, the environments in which they operate and the specifics of their implementation may vary according to geography.

2.1.4 United States and China – A Comparative Analysis

For comparative purposes, a brief analysis of the business incubation and acceleration efforts of two countries; United States and China was conducted which is as follows: ⁷

U.S	CHINA
World's largest economy.	Second largest economy.
GDP of USD \$ 17.95 trillion (2015)	GDP of USD \$ 10.87 trillion (2015)
Per capita income is largest in the world.	Per capita income is ranked 91 st overall.
Programs established to encourage innovation: <ul style="list-style-type: none"> ✓ Small Business Innovation Research program ✓ The Start-up America Initiative ✓ Kauffman Foundation 	Programs established to encourage innovation: <ul style="list-style-type: none"> ✓ Innovation 2010 ✓ Mass Entrepreneurship and Innovation in 2015 ✓ Innovation Ecosystem

The United States

The US economy is the world's largest, with an estimated 2015 nominal GDP of USD \$17.95 trillion. Its per capita income is the largest in the world. It is a leading economic, political and cultural force and has long been considered the forerunner in scientific innovation. The US has a strong science base and public R&D expenditures are above the median of other OECD countries. In 2015, gross domestic expenditure on R&D (GERD) as a percentage of GDP was 2.78.

In 2011, the Strategy of American Innovation: Driving towards Sustainable Growth and Quality Jobs was updated to further the innovation-based economy of the US. Traditionally, the US has provided relatively high levels of direct support for Business R&D. However, the government is moving towards a more indirect approach due to the current concerns over the federal budget. This can be seen in the Research and Experimentation (R&E) Tax Credit that is being streamlined, enhanced and extended to more enterprises. Additionally, numerous organizations and programs encourage entrepreneurship and innovation in the private sector.

These include the Small Business Innovation Research program (which provides government R&D funding to SMEs), the Start-up America Initiative (which provides access to capital, mentors, government contracts, and facilities other market opportunities for SMEs), and the Kauffman Foundation (which promotes entrepreneurship and research on entrepreneurship).

The Economic Development Administration (EDA) is responsible for the promotion of incubators in the US. In 2009, the addition of the Office of Innovation and Entrepreneurship (OIE) was key to the government's initiative to promote innovation in the economy.

China

China is the world's second largest economy in terms of nominal GDP, with an estimated GDP of USD \$10.87 trillion in 2015. However in 2015, China launched a pioneering programme called Mass Entrepreneurship and Innovation. This is in line with the country's goal to shift from labor-intensive manufacturing to growth driven by innovation. The country also has an enormous and valuable internal consumer base, which is hungry for new technology.

In 2011 alone, China spent over USD 100 billion on scientific research and development, helping to secure it as one of the world's leading technological powers. Science and technology is a source of national pride and is seen as a vital factor in achieving its economic and political goals. Since 2009, China has the world's second largest R&D expenditure after the US and GERD as a percentage of GDP reached 1.77 in 2010.

In 2010, the Chinese Academy of Sciences (CAS) launched Innovation 2010, which is designed to improve China's R&D capability and contribution to an innovation-driven economy by setting up a series of research centres in these larger research parks, and are seen as a way of promoting new technology-based firms within the rapidly emerging private sector. Their growth however has basically been a top-down initiative from the government, in which science parks have been instructed to build and run incubators to help construct an innovation-based economy.

While China's innovation system has moved to a more firm-centred science-based R&D system in recent years, there are still marked regional disparities. Some areas in particular such as Beijing, Shenzhen, Shanghai and those with a more developed high-tech industry, have a far greater density of incubators. This is particularly evident in Shenzhen and Beijing, where capital has been redirected from Hong Kong at an increasing rate. Further, innovative entrepreneurial activities continue to appear constrained by regulatory and administrative burdens; the dominance of state-owned enterprises, especially in public facilities, tends to reduce innovation initiatives.

China's innovation system is influenced heavily by their central government. The government plays a large role in setting strategic directions, objectives and policy frameworks, while provincial governments play a minor role in adapting the national innovation strategy to local conditions for implementation. While direct funding support to business R&D is limited, 4.3% of BERD in 2009, a new tax incentive program has been initiated to help support the private sector development through access to R&D tax credits. Further, corporate tax and the value added tax (VAT) have been decreased significantly for high tech firms to support development and technology transfer.

The main areas of focus for innovation support include manufacturing, agriculture, ICT, energy resources and the environment, pharmaceuticals and health sciences. Notable incubators in China include:

- Shenzhen High-tech industrial Park (Incubator: SHIP has numerous business incubators offering a wide range of services to private, technology-based start-up enterprises. Its focus is on companies developing large scale integrated circuits, high tech computers and parts, network communications, ICT, Software and photoelectrons).
- Wuhan Donghu Innovation Centre (Incubator: located in Hong Kong, it is the leading centre for international film professionals in China) and
- Zizhu Hi-tech Industrial Development Zone (Incubator: Supports new ventures in high tech industries).

2.2 Accelerators

Acceleration is a process of advancing early stage start-ups to the next level where they are ready for growth and expansion that is going from the stage of validated technology to a stage of clear product/service offerings with well-defined value propositions. So, accelerators provide support services and funding opportunities and hence, such programs assist start-ups to graduate within three to four months.

2.2.1 Accelerators for Life Science Startups

Life Sciences and related industries startups, which are often knowledge intensive, are often so focused on demonstrating and validating their technology platforms, that they often ignore or under-emphasize the need to define products and service offerings of value to customers that leverage the technology platform. So, domain like life sciences can only survive through inter-disciplinary excellence. An accelerator needs to be the platform that brings together skills sets and competencies from across the disciplines of Biotech Engineering/IT/Big-Data and mobility. An accelerator also needs to be the umbrella that brings together seasoned mentors, infrastructure including wet labs, computing and engineering, in an integrated modality.

Elements of acceleration are:

- Mentorship that involves direct, deep and highly hands- on involvement with the companies: Since Mentors are scarce in the Life-sciences space, the only model that will work is one that allows for ‘Clustered Mentoring’ to happen in a campus like environment that houses multiple
- Startups under one roof. Each company within the clustered environment can benefit from interacting with each other and from ‘Mentors in Residence’.
- Seed/Early-Stage Capital – Immediate need for ‘patient capital’ that needs to work for at least 5 years and have ticket sizes in the Rs 2-5 Crores per company, in order to take companies to higher orbits that are of interest to VC/PE firms.
- Market Access including a keen understanding of the global problem being addressed and the global market being served.
- Support for company structuring to make them investable and exitable.
- PPP between Government & accelerators.
- IP & Regulatory frameworks.

2.2.2 Comparison between TBIs and Accelerators

Incubators and accelerators are terms commonly used interchangeably. Both aim to help launch and grow early-stage startups in various industries. Also, they provide service like training, mentoring, office space, management & administration. Besides they have few dissimilarities, as discuss below;

	Incubator	Accelerator
Purpose	Build Foundation	Accelerate Growth
Stage of technology	Idea Development	Mentorship focus
	Discover Stage	Execution stage
Requirement	Business Plan	Business Model
Amount of time	Indefinite	Definite (3-4 months)
Business Model	Rent/Non-profit	Investment; can be non-profit
Cohort	No	Yes

2.3 Transition of Incubators to Accelerators!

In general, incubator is defined as idea development platform whereas accelerator has the ability to execute and implement the idea. Sometimes, these two terms get misunderstood and assumed that they represent same thing. But, they are two different processes with the key differences (as discussed in 2.2.2) which every entrepreneur and startup should take care off. However, it has been observed that incubators are entering into the pipeline of accelerators. The reason behind such transition could be to provide hassle free and all solutions at one place to entrepreneurs and the individuals with an idea. Nowadays, in technology driven world, it is significant to take care few factors at the early stage especially to gauge life sciences and Healthcare Startups. Firstly, factors like early stage approval from funding agencies. Secondly, strategically protection and management of IP assets and also, performing diligence of technology at each step till the idea get implemented. So, it is realized that there should be one encouragement resource to support the entrepreneur, Startups or the one with early-stage idea with an ability to provide support throughout their journey from concept to commercialization.

2.4 Special Characteristics of Life Sciences/Biotech Incubators

Technology Business Incubators (TBI), aims to look after early-stage Startups and also, to one which are facing some difficulties in growth of their company. However, there are a certain differences between the incubators belongs to the field of Life Science, Information Technology and any other sector. So, it has been observed that Life Science / Biotech incubators face off challenges as follows to overcome the need of an individual;

1. Research & Development (R&D) issues
2. Intellectual Property Protection
3. Regulatory Issues
4. Financing and Investment capital
5. Infrastructure
6. Business Development and Strategic advisory
7. Sales, Marketing and Commercialization

The crucial and essential part of Life Science/Biotech Startups is establishment of well-equipped in-house R&D, which is costly and required large number of investment. This step is very complex, time consuming and involves lots of risk to investors as well as Startups. Secondly, dealing with regulatory issues and meets the R&D with the government policies (such as DSIR), which is again complex and essential part for long term business planning. Thirdly, protection of their Intellectual Property (IP) is significant for the survival, growth and also, raising funds from investors. Despite the fact that Startups work with limited resources, mentioned points are complex and equally important.

Apart from this, marketing and commercialization, technology transfer, and technology licensing in or out are major pipelines to be considered as part /of business development and strategic cooperation. So, The process for setup of Startups in life science and related sector is time consuming and involves large risk for investors, which may hinder the success of entrepreneur and Startup.

3. Objectives

- To investigate the comprehensive assessment of TBIs in Life Sciences and related Industry in India.
- To provide snapshot on available TBIs in India, focusing on Life Sciences.
- To locate possible gaps in the existing TBIs and accelerators ecosystem.

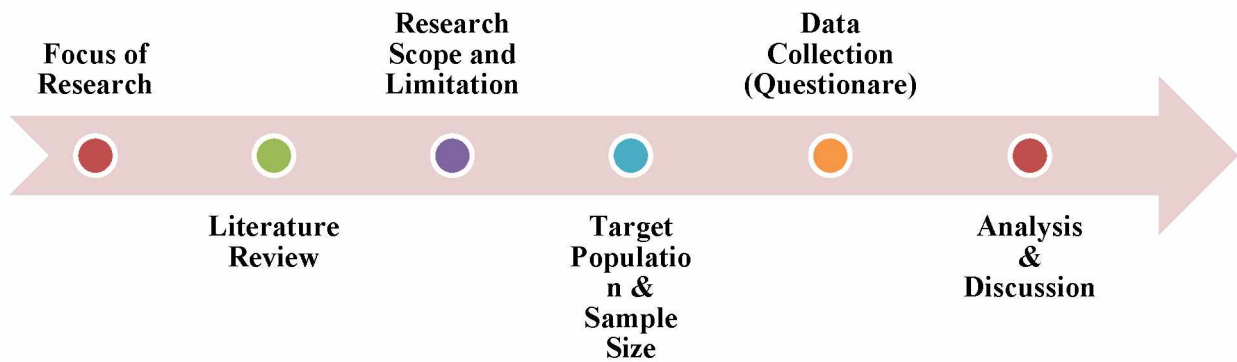
3.1 Limitations of Study

- The findings will only be limited to project executed in India and cannot be generalized to other nationalities.
- The honesty of the respondents while giving replies is assumed. However, possibility of bias cannot be altogether eliminated. It is known that individuals at time give replies, which are socially desirable.
- Negligible amount of academic literature to support the research methodology.
- The wholesome key findings of research depend on the availability of data collected via questionnaire. In case of absence of meaningful data, analysis could not be conducted.
- Most of the incubators have already transformed, their business module as accelerator in last 2-4 year, hence there is not much difference between these two general and now new term has updated called escalators.

4. Methodology

The scope of project was to understand the various crucial factors and their importance across Technology Business Incubators where the research was limited to Life Science and related Industry.

The analysis follows the following approach,



4.1 Target population and sample size to be covered

Overall, we observed ~300 incubators and accelerators but approximately 100 were approved by Department of Science and Technology. However, target population was ~60 working for life science industry as one of the thrust areas.

A Sample Size of ~20 incubators which are exclusively focusing on the Life Sciences and the related technology sectors were responded and thus, selected as the sample for the study.

4.2 Method of Data Collection

On the basis of literature review and practical knowledge, survey method is most appropriate for the present research. Survey is the most popular data collection method which involves a questionnaire. Following are the advantages of survey method: First, Survey method helps to better understand the underlying motives, beliefs, attitudes and preferences of the target consumers. Second, the questionnaire is simple to administer. Third, data obtained are reliable because the use of fixed response questions reduces the variability in the results. Finally, coding, analysis, interpretation of data are relatively simple.

4.2.1 Sources of the Data

In addition to the primary data/information gathered from the target respondents, additional secondary data was also collected from a variety of sources such as Websites of Incubators, Published Literature, Reports of Funding Agencies, Journals et.al.

4.3 Reference time period of Data

Data pertaining to the activities undertaken by the TBIs during the past 3 financial years (FY 2011 – 2014) was gathered through questionnaire. The questionnaire was administered through email followed by personal interviews with selected ~20 target respondents.

Copy of the questionnaire is provided in Appendix A.

4.4 Method of Processing and Analyzing

Once the data has been generated, SPSS will be used to check for inconsistencies and cleaning of data. Appropriate techniques for data analysis will be selected, keeping in mind the research objectives, nature of the data and the underlying properties of the statistical techniques. Data collected through questionnaire survey will be systematically analyzed and the hypothesis testing would help in empirical validation of the proposed research framework. The SPSS statistical software will be used for data analysis.

The study will try to find a significant relationship between different variables and to test hypotheses of association. The ‘Pearson Correlation’ will help in providing information about the relationship between two variables. The ‘Linear Regression’ will help in finding association of more than one variable.

4.4.1 Difficulties in Analysing the Data

The analysis was totally based on the responses received over the question asked during the survey. Overall 13, favourable responses were received which covers the respondents profile, nature of incubator, and also, details relating to investment, fund raiser, financial projections which aims on thorough investigation over their entrepreneurial journey. Amongst all many respondents did not response to couple of questions which includes granular data. For example, only 26% were able to comment on financial projections which could put light on profit margin of a respective company and couple of could not comeback over their break up of funds raised into their business which could replicate upon their investment strategy. Likewise, the details about their portfolio in generating Intellectual Property Rights (IPR), commercialising the technologies and also the benefits from them were only responded by 20% of the total population. Lastly, approximately 10% of the sample shared their strategic ways to evaluate the performance.

5. Analysis and Discussion

Data and information gathered through questioners and personal interviews with the respondents was analyzed to draw insights and conclusions. Though the oldest TBIs were established during 1985-90 period whereas between 2006 and 2010 a sudden spurt in establishing TBIs (~15) was observed. Wherein, the majority of incubators were concentrated in the Northern and Southern region. Furthermore, other findings and insights are being discussed below:

5.1 Technology Business Incubators (TBIs) in India; Quantitative analysis

The study observed ~300 incubators and accelerators, currently available in India. Where, the Sampling Frame consisted of about ~60 incubators covering both government and private sector with their focus of thrust area is Life Sciences as shown in Figure 5.1 (a).

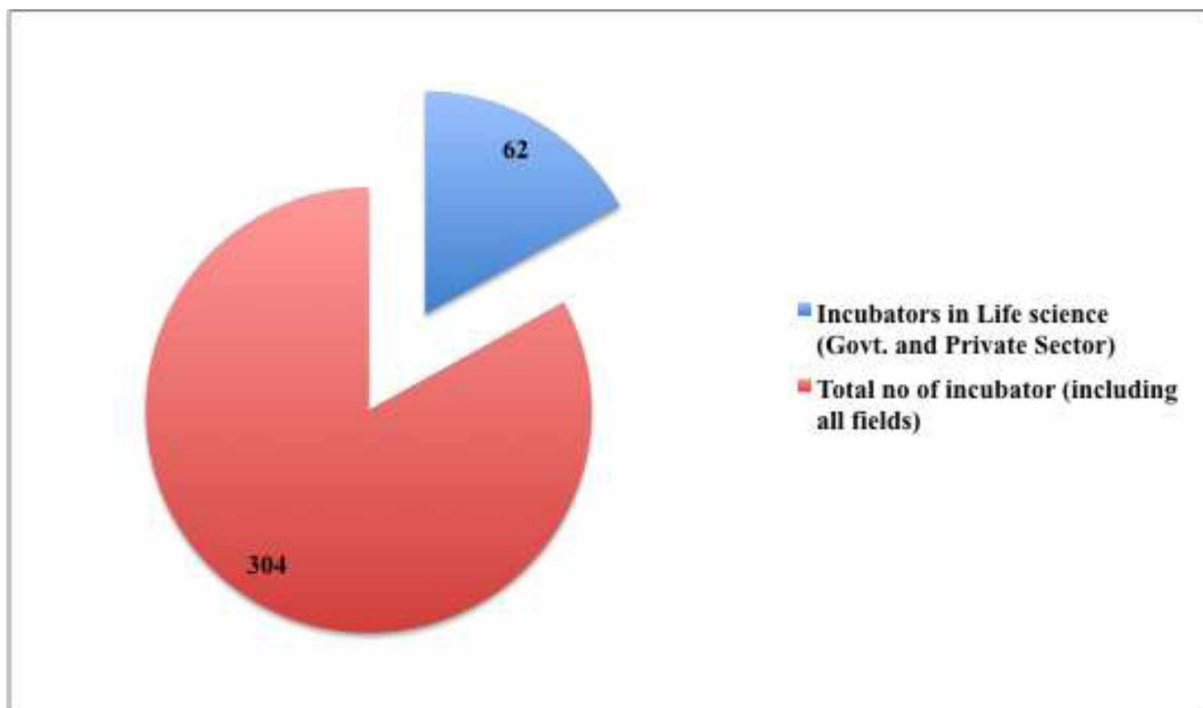


Figure 5.1 (a): Count of TBIs in India (Govt. and Private)

A Sample Size of ~20 incubators which are exclusively focusing on the Life Sciences and the related technology sectors were identified and selected as the sample for the study as shown in Figure 5.2 (b).

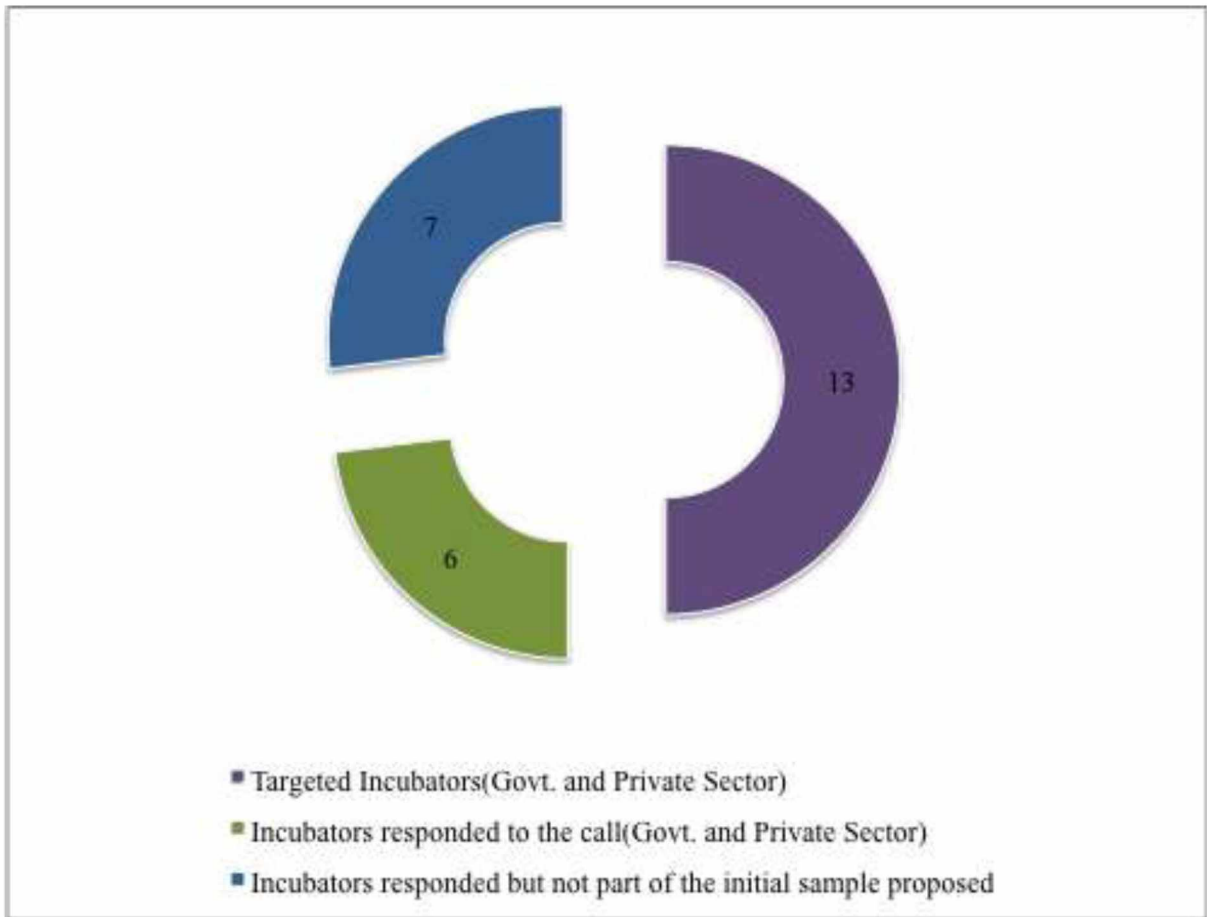


Figure 5.1 (b): Incubators targetted for survey (count)

5.2 Incubators Focused Area

The major concerned area of targeted respondents was analyzed, which consists approximate six objectives ranked in Figure 5.2.

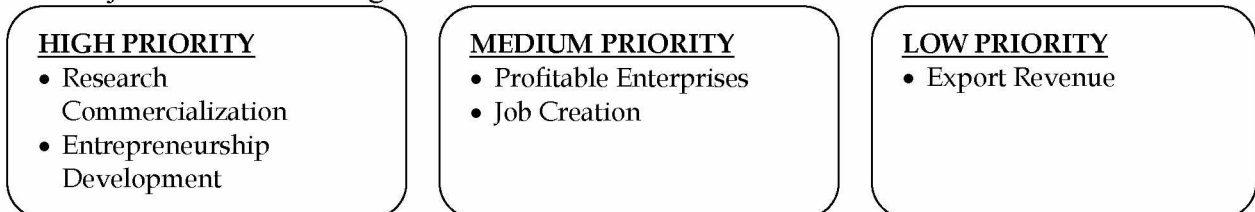




Figure 5.2 Overall ranking of objectives by different types of Incubators (in %)

5.3 Nature of Incubator

As shown in figure 5.3, majority of incubators (64%) were Not-for-Profit organisations followed by institutional types (21%). It was perceived that India requires active participation of more private for profit players in this arena.

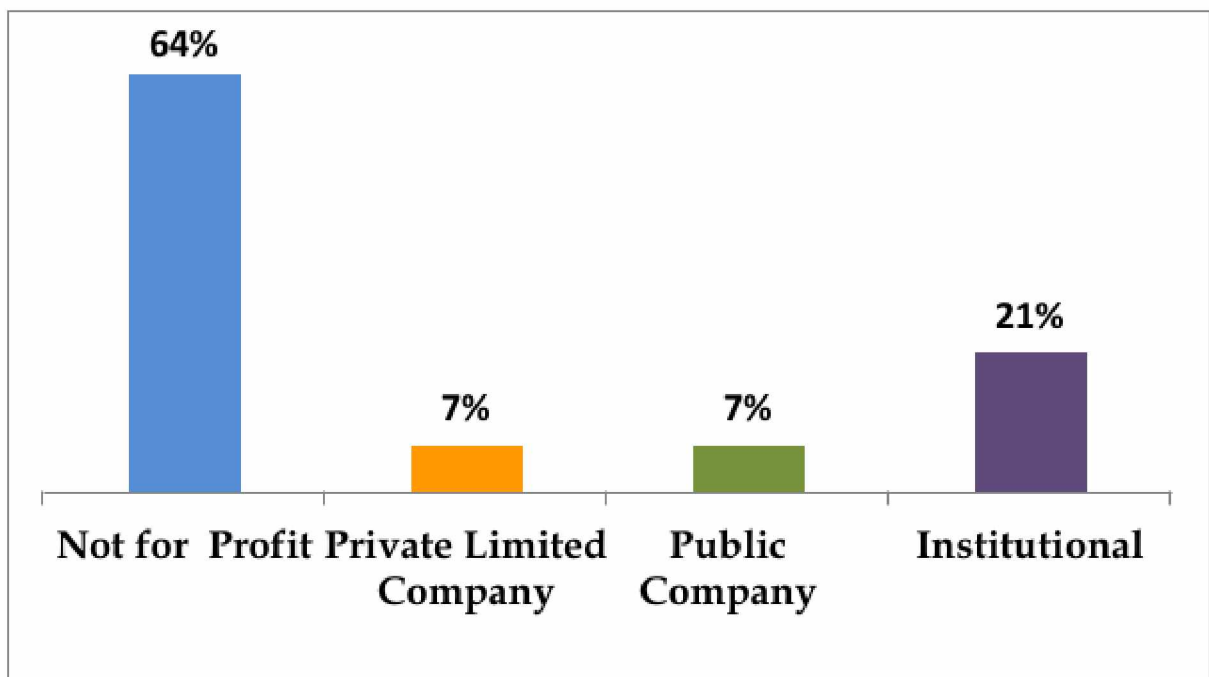


Figure 5.3 Nature of Incubators

5.4 Source of Funding

For 64% of the Portfolio Companies the funding was from Government sources whereas funding from other sources like Angel Investors/HNIs (14%) and Venture Capital funds (7%). In addition, sweat equity and Debt was not used as source funders.

5.5 Portfolio Study of Targeted Respondents

The parameters to assess the performance were covered in the study to understand their performance at broader level. Such parameters were Number of Entrepreneurs Supported, Companies Graduated, Protection of IP rights (Patent/Copyright Granted), count of employee's employed by Incubates, Technologies Transferred, Companies with 3 more years in residency etc. The detail of portfolio is shown in Figure 5.5.

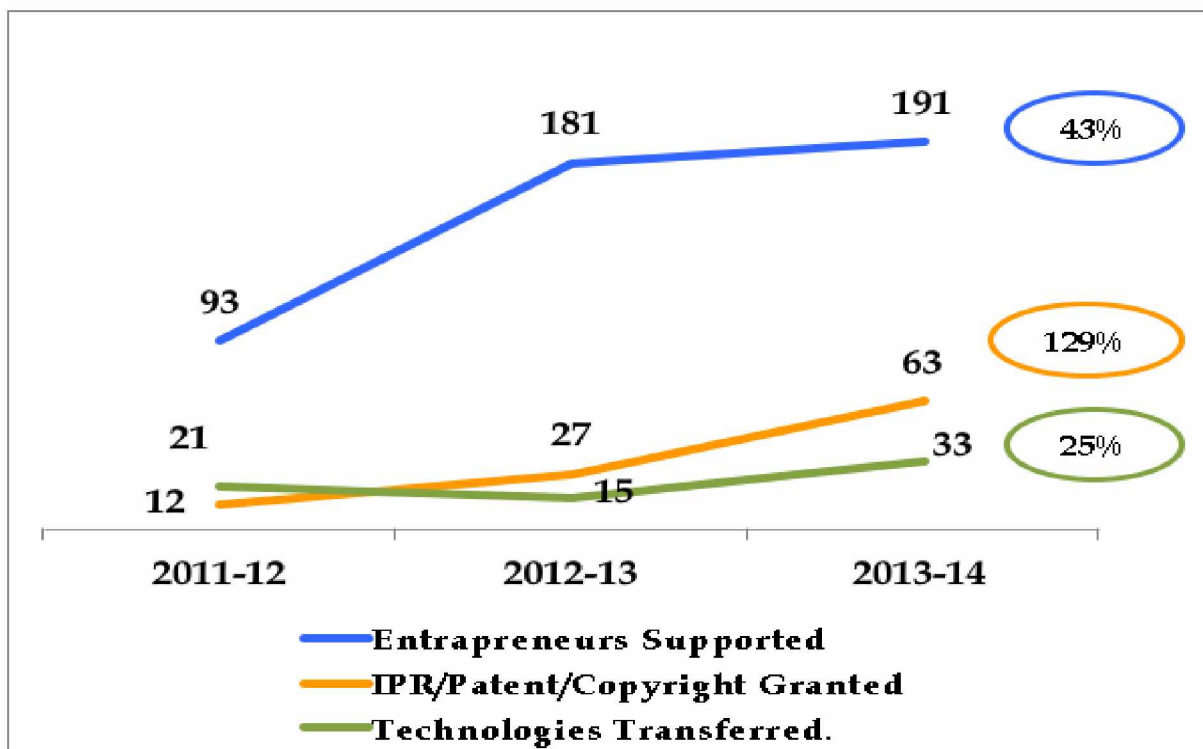


Figure 5.5(a) Year-wise distribution of performance parameters

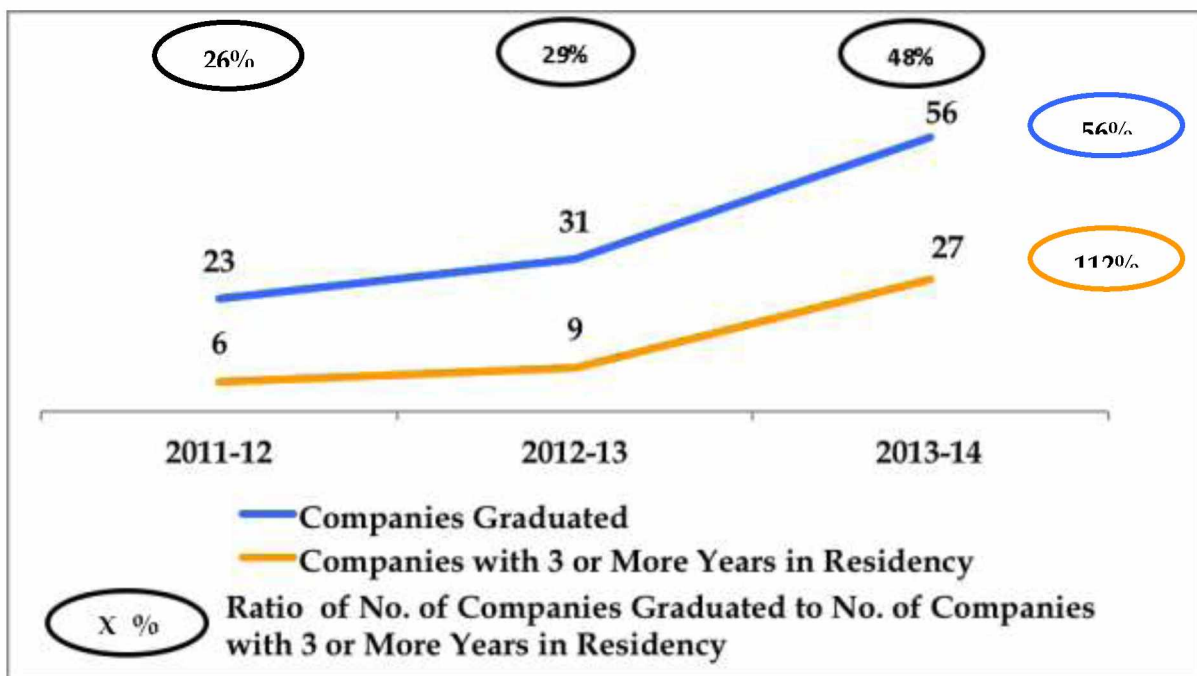


Figure 5.5(b) Year wise trend on Companies Graduated from Incubator

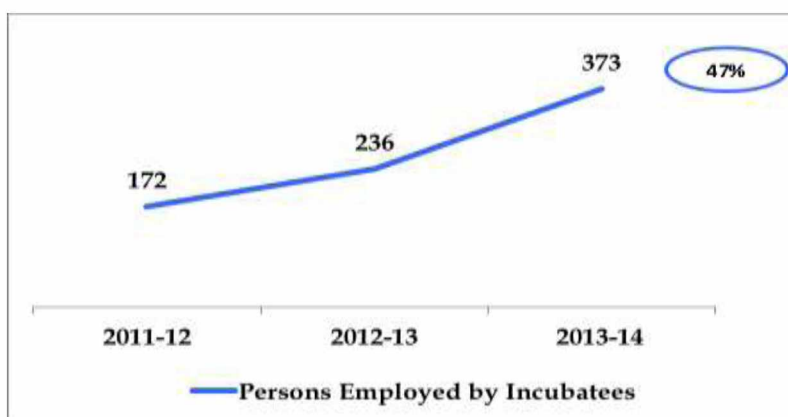


Figure 5.5 (c) Employment by Incubates

5.6 Sector-Wise Distribution of Ideas

The analysis of information pertaining to Sector-wise Distribution of Ideas for portfolio companies under the incubator support shown in Figure 5.6.

From a share of 23% during 2011-12, but ideas related to Life Sciences none of them have shown much growth.

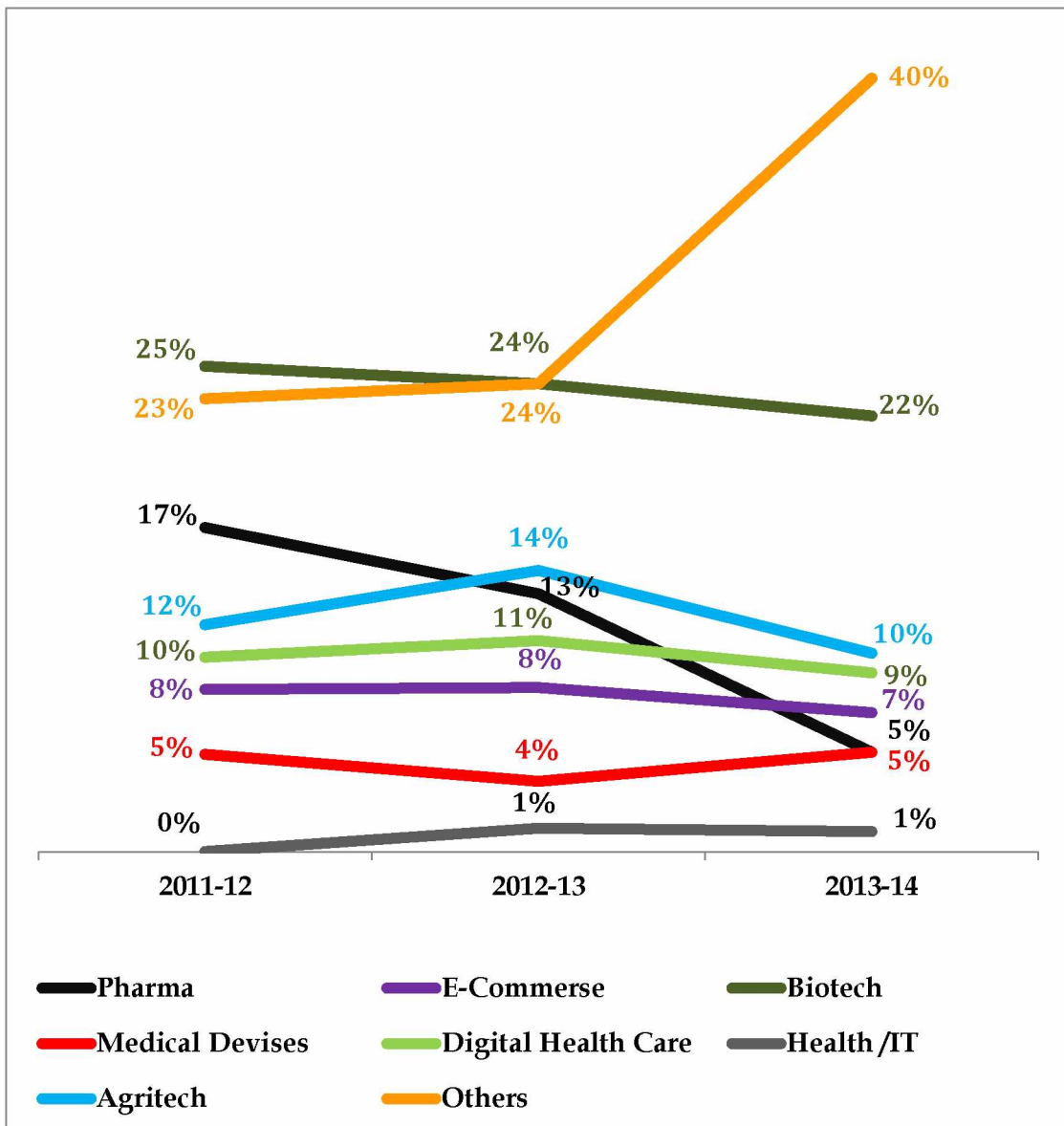


Figure 5.6 Annual Sector-wise distributions of Ideas in Life Science and related Industry

6. Summary and Discussion

The aim of this study was to investigate the Technology Business Incubators (TBIs) and Accelerators in Life Science and related industries that could serve as basis for systematic view over current scenarios, difficulties and limitations faced by TBIs and Accelerators in the country. The investigation was through questionnaire and personal interview (Appendix A) with the respondents to analyze and draw the insights and conclusions, where the research was limited to India and so, cannot be generalized to other nationalities. The aggregate of about 300-sample size for TBIs and accelerators were approached which was undertaken for the past 3 financial years 2011 to 2014. Along with, about 50 focused on Life Sciences as one of the thrust areas and 20 exclusively in life sciences such as IKP Knowledge Park-Life Science Incubator, Centre for Cellular and Molecular Platforms (C-CAMP), KIIT-Technology Business Incubator and so on. The geographic spread of targeted respondents was observed in metropolitans. The details of targeted respondents are listed in Appendix B-E. Moreover, the during the survey the data sought specifically for questionnaire 8, seems very granular to the respondent and they had never collated the data in the desired format hence the data was not provided further. In absence of the meaningful data, analysis couldn't be conducted.

Further, the Stand Alone and Institutional incubators ranking of objectives were analyzed individually. Where, the analysis reflected barring two objectives namely Research Commercialization and Export Revenues. For the Stand Alone Incubators, Research Commercialization (29.3%) and Entrepreneurship Development (24%) are the most important objectives. These two objectives are also the most significant ones for the Institutional Incubators too, however the importance attached to these objectives is in the reverse order – Entrepreneurship Development (25%) and Research Commercialization (22.5%). Also, the majority of incubators are Not-for-Profit organizations and it has presumed that India need active participation of more private for Profit players in this area. The study indicated government as main source of funding such as Department of Science & Technology (DST), Technology Business Incubator, National Science & Technology Entrepreneurship Development Board and Ministry Of Micro, Small & Medium Enterprises were found to be the key sources of funding for the incubator who participated in the study. Some illustrations like C-CAMP (Bangalore) have been successful in sourcing funds from Government Sources, Angel Investors as well as Venture Capital Funds. Shriram Institute Technology Business Incubator (Delhi) secured funding from Government Sources and

AICTE EDC. SIDBI Innovation & Incubation Centre (IIT Kanpur) is the only Incubator which received funding from Angel Investors. On the other hand, Ayurker Products Pvt. Ltd. (Hyderabad) and Bannari Amman Institute of Technology TBI (Erode) have not received any external funding.

As per the survey, year wise information about performance parameters covered information on the numbers of Entrepreneurs Supported, Companies Graduated, IPR/Patent/Copyright Granted, Persons Employed by Incubates, Technologies Transferred, Companies with 3 or More Years in Residency, etc. Overall there was significant growth in the mentioned road parameters particularly evident in the area of IPR development (129% CAGR). As compared to 2011-12, 43% (CAGR) more Entrepreneurs were supported in 2013-14. Similarly, the number of Technologies transferred also grew by 25% (CAGR) during this period. It implied that overall ecosystem for the promotion of entrepreneurship is maturing. Another parameter Companies Graduated from incubator revealed that companies taking longer to graduate from the incubators. Yet another parameter showed 47% growth (CAGR) in the number of persons employed by incubates during the three-year period covered under the study, which is a healthy sign. Lastly viewing industry wise distribution of Ideas, Life Sciences and related industry showed a drop in trend whereas growth observed in key areas such as IT Enabled Services, IT/Game Development, Internet Mobile Technology, and Big Data Analytics. The reason behind the huge difference is huge amount of cost and lack of investors to support Life Science/Biotech Startups. The survey also implicate that to monitoring the performance majority of incubator goes for the periodic and annual progress review based on the stage of the incubation and moreover look for informal discussion on problem, issues and progress on daily basis.

Nowadays, the TBIs and accelerators face off certain challenges in regards to develop well-equipped R&D environment, Regulatory issues, and protection of IP to overcome the observed gap. In addition, the shift from accelerators business model had been transforming to TBIs was noticed in two to four years. Thus, there is not much difference between both and hence, generally the two terms are used interchangeably. Though new term has been updated and called as escalators.

Finally to sum up, the research has also taken respondents experience, and repeated comments are presented under SWOT categories.

<p><u>STRENGTHS</u></p> <ul style="list-style-type: none"> ✓ Location: Most of the incubators were favorably located ✓ Infrastructure; Most incubatees felt that the incubators satisfied their current needs ✓ Commitment to R&D and innovation ✓ Mentorship & a strong alumni network ✓ Technology commercialization opportunities ✓ Recognition of the respective incubators 	<p><u>WEAKNESS</u></p> <ul style="list-style-type: none"> ✓ Space Constraints ✓ Infrastructure: Incubators may not be able to support their future needs ✓ Delays in receiving grants ✓ Limited international outreach & exposure ✓ Not self-sufficient or self-sustaining
<p><u>OPPORTUNITY</u></p> <ul style="list-style-type: none"> ✓ CSR funding for start-ups ✓ Introduction of policies to promote a start-up culture in India ✓ Availability of highly experienced faculty and scientists, affiliated to university campus ✓ Collaboration with the VC's, Angel investors for early stage funding ✓ Technology scouting and incubating, etc. 	<p><u>CHALLENGES</u></p> <ul style="list-style-type: none"> ✓ Low motivation amongst students towards innovation ✓ Growth of incubators not consistent with future needs ✓ Insecurity regarding subsequent stage funding ✓ Accreditation from reputed government bodies ✓ Faster growth of similar programs internationally

7. Conclusion and Scope of Further Research

7.1 Conclusion

With a fruitful growth in biotechnology industry and ample of eminence research, bio incubators are established to support and nurture the technology and knowledge of entrepreneurs. In the technology driven era, the need of channel called Technology Business Incubators required for researchers to incubate their innovation and support the discovery till its commercialization. Such channel is important for many researchers who move ahead to become entrepreneurs to realize the potential of their discovery. In addition, such researchers require thorough knowledge of business strategy, market study, regulatory requirements, IP issues, infrastructure, funding and investment. So, the bio-incubators targeted life science and related industry for effective development of life science related startups and early-stage companies.

The findings of the study conclude that in India, government support through various policies and schemes has motivated Startups specifically in Life Science and related sector like Biotechnology Ignition Grant (BIG), Small Business Innovation Research Initiative (SBIRI), Contract Research Scheme (CRS), to name a few are different schemes provided by BIRAC as funding source for bio based entrepreneurs. On the other side, TBIs in Life Sciences are facing few difficulties in certain areas which has obtain hurdles in the entrepreneurial journey of such startups like absence of venture capitalists and investors due to long time for product to commercialize and risk involved, inadequate protection and awareness of intellectual property (IP). Such limitations has forced many of Startups to outsourced their R&D activities where huge number of cost has been spent to develop and commercialize the product. Another, important factor includes availability of incubators is in metropolitans like Delhi, Bangalore, Mumbai and Hyderabad.

Besides the life science/biotech incubators, huge number of incubators exists whose thrust areas are IT, Electronics & Communication etc. named as sector specific incubators and the requirement for each sector vary. It infers that incubates look forward for support to develop and get commercialize their business idea whereas sector specific incubators will be additional benefits to incubates like researchers, entrepreneurs and person with innovative business idea.

7.2 Scope of Further Research

The present research developed the framework for Technology Business Incubators (TBIs) and Accelerators focusing on Life Science Industries. The Technology Business Incubator's represents a dynamic model of sustainable business operation and generate revenue as well as profit.

However, still numerous key factors can further be researched to measure meaningful impact across not limited to Life Sciences but also studying hi-tech sectors, BIORx Venture Advisors Pvt. Ltd. can provide similar kind of research study on related concerned areas. Firstly, to study the sustainability of incubators as critical factors like funds, incubation pipeline, human resources, operational scale and diversity and so on are involved in sustaining the incubators. Secondly, establishment of incubator for academia based research and further technology transfer to industry. Lastly, can locate and investigate the scale of incubators and/or transforming the scope of operations.

8. References

1. Sun, Hongyi; Ni, Wenbin; Leung, “Critical Success Factors for Technological Incubation” *Joseph International Journal of Management*; Jun 2007; 24, 2; ABI/INFORM Global.
2. Harwitt E (2002), “High technology incubators: Fuel for China’s new entrepreneurship?”, *China Business Review*, 29(4), pp.26-29, as quoted in Chandra A and Fealey T (2009), “Business Incubation in the United States, China and Brazil: A Comparison of Role of Government, Incubator Funding and Financial Services”, *International Journal of Entrepreneurship*, Vol. 13, pp. 67-86.
3. “Technology Incubators: Nurturing small firms” OECD 1997.
4. Amnon Frenkel, Daniel Shefer, Michal Miller “Public vs. Private Technological Incubator Programs: Privatizing the Technological Incubators in Israel.
5. “Challenges and solutions: business incubators and techno parks in Russia” E&Y.
6. Dr Sandeep Vij*Hitesh Jhanji “Business Incubation: A Review of Research Orientations, Impacts and Determinants of Success.
7. N. O. Obaji¹, M. U. Olugu², B. C. Obiekwe “Business incubation adaptation and success factors in Nigerian context of a developing country: a literature review. *International Journal of Science Technology & Management*. Volume No.04, Special Issue No.01, February 2015
8. Jacques Arlotto, Jean-Michel Sahut, Frederic Teulon. What is the Performance of Incubators? The Point of View of Coached Entrepreneurs. *International Journal of Business*, 2011, 16 (4), pp.341-352.
9. Tang, Mingfeng and Baskaran, Angathevar and Pancholi, Jatin and Muchie, Mammo (2011) *Technology business incubators in China and India: a comparative case study*. *African Journal of Science, Technology, Innovation and Development*, 3 (2). pp. 248-290. ISSN 2042-1338
10. Aernoudt, R (2004), “Incubator: Tool for entrepreneurship? *Small Business Economics*”, Vol. 23, pp. 127-135 as quoted in Schwartz M (2009), “Beyond incubation: an analysis of firm survival and exit dynamics in the post-graduation period”, *Journal of Technology Transfer*, 34, pp. 403-421.
11. Chandra A and Fealey T (2009), “Business Incubation in the United States, China and Brazil: A Comparison of Role of Government, Incubator Funding and

- Financial Services”, *International Journal of Entrepreneurship*, Vol. 13, pp. 67-86.
12. Lagos D and Kutsikos K (2011), “The Role of IT-Focused Business Incubators in Managing Regional Development and Innovation”, *European Research Studies*, Vol. No. 14, No. 3, pp. 33-49.
 13. Aruna Chandra A and Silva M A M (2012), “Business Incubation in Chile: Development, Financing and Financial Services”, *Journal of Technology Management and Innovation*, Vol. 7, No. 2, pp. 1-12.
 14. Beyond incubation: an analysis of firm survival and exit dynamics in the post-graduation period Michael Schwartz (michael.schwartz@kfw.de) *The Journal of Technology Transfer*, 2009, vol. 34, issue 4, pages 403-421.
 15. Arlotto J, Sahut M J and Teulon F (2011), “What is the Performance of Incubators? The point of view of coached entrepreneurs”, *International Journal of Business*, Vol. 16, No.4, pp. 341-352.
 16. Arlotto J, Sahut M J and Teulon F (2011), “What is the Performance of Incubators? The point of view of coached entrepreneurs”, *International Journal of Business*, Vol. 16, No.4, pp. 341-352.
 17. Bowman U N, Seaman S L and Sexton D L (1989), “Innovation Evaluation Programs: Do they Help the Inventors?”, *Journal of Small Business Management*, Vol. 27 (3), pp. 23–30, as quoted in Hackett S M and Dilts D M (2004), “A Systematic Review of Business Incubation Research”, *Journal of Technology Transfer*, Vol. 29, pp. 55–82 .
 18. Chandra A and Fealey T (2009), “Business Incubation in the United States, China and Brazil: A Comparison of Role of Government, Incubator Funding and Financial Services”, *International Journal of Entrepreneurship*, Vol. 13, pp. 67-86.
 19. Chandra A and Chao A C (2011), “Growth and Evolution of high technology business incubation in China”, *Human Management System*, Vol. 30, pp. 55-69.
 20. Chung K H (1987) “*Management: Critical success factors*”, Boston: Allyn and Bacon, as quoted in Lumpkin J R and Ireland R D (1988), “Screening Practices of New Business Incubators: The Evaluation of Critical Success Factors”, *American Journal of Small Business*, Vol.12 (4), pp. 59–81.

21. Cooper A C (1985) “The Role of Incubator Organizations in the Founding of Growth Oriented Firms”, *Journal of Business Venturing*, Vol. (1), pp. 75-86, as quoted in Hongyi S, Wenbin N and Leung J (2007), “ Critical Success Factors for Technological Incubation: Case Study of Hong Kong Science and Technology Parks”, *International Journal of Management*, Vol. 24, No. 2, pp. 346-363.
22. Hackett S M and Dilts D M (2004a), “A Real Options- Driven Theory of Business Incubation”, *Journal of Technology Transfer*, Vol. 29, No. 1, pp. 41-54.
23. Hanadi A M M and Busler M (2010), “Business Incubator Models of the USA and UK: A Swot Analysis”, *World Journal of Entrepreneurship, Management and Sustainable Development*, Vol. 6, No. 4, pp-335-354.
24. Hansen M T, Chesbrough H W, Nohria N, and Sull D N (2000), “Networked Incubators: Hot houses of the New Economy”, *Harvard Business Review*, Vol. 78, No. 5, pp. 74–84.
25. Hongyi S, Wenbin N and Joseph L (2007), “Critical Success Factors for Technological Incubation: Case Study of Hong Kong Science and Technology Parks”, *International Journal of Management*, Vol. 24, No. 2, pp. 346-363.
26. Lalkaka R (2001), “Best Practices in Business Incubation: Lessons (yet to be) Learned”, International Conference on Business Centres: Actors for Economic and Social Development. Brussels, November 14-15.
27. Lee S S and Osteryoung J S (2004), “A Comparison of Critical Success Factors for Effective Operations of University Business Incubators in the United States and Korea”, *Journal of Small Business Management*, Vol. 42, No. 4, pp. 418-426.
28. Park K, Shin G K, and Flan S T (1999). "A Study on the Present Conditions of Technology Business Incubator and its Efficient Operation ," *The Korean Small Business Review*, Vol.21, No.2, pp. 111-138, as quoted in Lee S S and Osteryoung J S (2004), “ A Comparison of Critical Success Factors for Effective Operations of University Business Incubators in the United States and Korea”, *Journal of Small Business Management*, Vol. 42, No. 4, pp. 418-426.
29. Reed D (1991), “Incubator Program: Factors in a Profile of Success”, *Journal of Business and Entrepreneurship*, Vol 3, pp. 61-72.
30. Schwartz M (2009), “Beyond Incubation: An Analysis of Firm Survival and Exit Dynamics in the Post-graduation Period”, *Journal of Technology Transfer*, Vol. 34, pp. 403-421.

Appendix

A. Questionnaire

Project Titled

“A 360⁰ comprehensive assessment of Technology Business Incubators (TBIs) and accelerators primarily in the area of Life Sciences in India*

(Please read the instructions before filling the questionnaire)

- 1. Please give adequate information on all the items. If the space provided in the questionnaire is inadequate, please use additional sheets.*
- 2. Fill only those points relevant to the incubator/accelerator.*
- 3. Please contact the Principal Investigator, Mr. Vishal Gandhi for seeking any clarification. He can be contacted at 09810702334, 0120 – 4116548 vg@biorxventures.com*



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DEPARTMENT OF SCIENCE & TECHNOLOGY
NEW DELHI – 110016

1. Please share general information about the incubator?

- a) Full Company Name (as registered with Govt.)
- b) Corporate Office Address:
- c) Site Address:
- d) Email Address:
- e) Name of CEO:
- f) Name of the Head Incubation Services:
- g) Contact No.
- h) Year of Establishment:
- i) Nature: Incubator/Accelerator
- j) Type of Incubator: Institutional/ Stand alone
- k) Total number of Full time Employees:
- l) Any Other information (Please Specify):
- m) Location
- n) Sustainable Business model
- o) Current Financial Status

2. Rank the specific objectives of the incubator? (1 for highest 6 for lowest priority)

S. No.	Objectives	Rank
a)	Research Commercialization.	
b)	Job Creation.	
c)	Profitable Enterprises.	
d)	Entrepreneurship Development.	
e)	Export Revenues.	
f)	Income Generation.	
g)	Any other information (please specify)	

3. How best your incubator is defined as:

- a) Not for Profit (Section 25 / Society)
- b) Private Limited Company
- c) Public Company
- d) Trust
- e) Any Other (Please Specify)

4. Details on:

- a) Promoters
- b) Incubator's Board Composition
- c) Operating Team
 - Chief Executive Officer (CEO)
 - Chief Operating Officer (COO)
 - Chief Technical Officer (CTO)
 - Any Other (Please Specify)

5. Are you a member of any industry associations? If yes, please specify
(For example IAN, TIE, ISBA etc.)

6. How do you promote your services?

- Electronically
- Events
- Any Other (Please Specify)

7. No. of deals concluded in terms of investment in incubator portfolio companies?

Linkage with	FY 2011-12	FY 2012-13	FY 2013-14
Govt. Sources (TDB, MSME, DBT, DST etc.)			
HNI & Angel Investor			
Venture Capital			
Sweat Equity			
Debt			
Any other (Please Specify)			

8. Please share a break-up of funds in terms of amount raised by your incubator portfolio companies?

9. (Rs. in Millions)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Raised from Government Source (For example TBD, etc.)			
Raised from Financial Institution (For example SIDBI, etc.)			
Raised from Angel Investor			
Raised from HNIs			
Raised from VCs			
Any Other (Please Specify)			

9. Please share a broad detail of your incubator portfolio

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
No. of entrepreneurs supported			
No. of companies graduated			
No. of IPR/ Copyright/ Trade Mark/Patent filed (nationally/inter-nationally)			
No. of persons employed by your portfolio companies			
No. of companies with 3 years and above in residency			
No. of Technologies transferred			
Royalty generation (in Millions)			
Any Other (Please Specify)			

10. **Sector wise Distribution of ideas**
(Count)

Particulars	FY 2011-12	FY 2012-13	FY 2013-14
Pharma			
E-Commerce			
Biotech			
Medical Device			
CRO			
Clinical			
Digital Healthcare			
Health IT			
Agritech			
Any Other (Please Specify)			
Total			

11. **Brief summary of mentor's linkage with your incubator (Indian or International) and their contribution?**

Particulars	FY 2011-12		FY 2012-13		FY 2013-14	
	India	Int	India	Int	India	Int
No. of Mentors associated						
<u>Mentor's Contribution</u>						
a) Financially						
b) Technically						
c) Branding (Marketing)						
d) Business Development						
e) Any Other (Please Specify)						

12. **How many ideas have been received/accepted by your incubator or your partners from across the country or outside country (if any)?**

Particulars	FY 2011-12		FY 2012-13		FY 2013-14	
	India	Int	India	Int	India	Int
Application Received						
Application Accepted						
Any Other (Please Specify)						

13. **Summarized information (sub-sector wise) related to the sub-sector ideation?**
(Count/Percentage)

Sectors	FY 2011-12	FY 2012-13	FY 2013-14
Biotech			
Pharma			

Medical			
CRO			
Clinical			
Digital Healthcare			
Health IT			

14. How many entrepreneurs have been provided support through residential and outside programs? (Count)

Years	India	International
FY 2011-12		
FY 2012-13		
FY 2013-14		

15. Is there any fund (Equity or Debt) set up by the incubator? If yes, provide details.

16. Provide details of support to your ventures, virtually and/or physically to succeed on following parameters.

a) Acceleration Support

b) Mentoring Support

c) Investment

d) Fund-raising support

17. List criteria on which your incubator admits member companies?

18. List available resources at incubator's disposal?

S. No.	Resources	Yes	No
a)	Internet access		
b)	Product development		
c)	Face time with key mentor		
d)	Compliance Support (Secretarial, Legal)		
e)	Go to the Market		
f)	Funding Support		
g)	Business Development Support		
h)	HR Support		
i)	Any other (please specify)		

(Make this list as more exhaustive so that nos. will go to gaps)

19. What are the mechanisms your incubator is adopting in terms of monitoring its Incubatees performance?

20. Any Financial/ Fiscal concession being availed by incubator/its incubatees?

21. Provide (at least 5 each) Strength, Weaknesses, Opportunities and Challenges of your Incubator

a) Strength

b) Weakness

c) Opportunity

d) Challenges

22. **What is your incubator Vision 2020?**

23. **Should you want to set up an additional incubator, which location in terms of state would you select and why?**

24. **What are your expectations from the Government (in terms of fiscal incentives, regulatory policy to achieve this vision of 2020?**

- Incubator point of view
- Portfolio companies point of view.

Kindly return the completed questionnaire to the following address:

Ms. Munish Garg (Co-Investigator)

Manager - Corporate Finance

BIORx Venture Advisors Pvt. Ltd.

1st Floor, B-23A, Gaurav-Deep Towers,

Behind Fortis Hospital, Sector-62, Noida (UP) - 201309, INDIA.

Phone: 01204116548, 08130155044

E: info@biorxventures.com W: www.biorxventureadvisors.com

Annexure - 1

Incubates Feedback:-

1. _____

2. _____

3. _____

4. _____

B. List of target incubators chosen for study

S.No.	TBI	Specialization area	Location
1	IKP Knowledge Park-Life Science Incubator	Pharmaceuticals & Biotechnology	Hyderabad
2	Venture Centre	Biotech Pharmaceutical & Medtec	Pune
3	Centre for Cellular and Molecular Platforms (CCAMP)	Pharmaceuticals & Biotechnology	Bangalore
4	KIIT - Technology Business Incubator	Biotech Pharmaceutical & Medtec	Bhubaneswar
5	International Biotech Park	Pharmaceutical & Biotech	Pune
6	Biotechnology Park Lucknow	Biotechnology	Lucknow
7	Biotech Incubation Center/ Kinfra Biotech Park	Biotech	Kalamassery/ Cochin
8	Bangalore Helix-Biotech Park	Biotech	Bengaluru
9	TICEL Biotech Park	Pharmaceutical & Biotech	Chennai
10	SIDBI	Generic	Kanpur
11	Indian Institute of Technology, Madras	Generic	Chennai
12	The IAN Incubator	Generic	New Delhi
13	Foundation for Innovation and Technology Transfer- MoMSME Funded	Biotech	New Delhi

C. List of targeted incubators responded:-

Responded	Location
IKP Knowledge Park-Life Science Incubator	Secunderabad
M/s Centre for Cellular and Molecular Platforms (C-CAMP)	Bangalore
Lucknow Biotechnology Park	Lucknow
Kinfra Biotech Park/ Ayurker Products Pvt. Ltd	Cochin
Foundation for Innovation and Technology Transfer	New Delhi
SIDBI, IIT Kanpur	Kanpur

D. Incubators responded but not part of the initial sample proposal

Responded	Location
Bannari Amman Institute of Technology TBI	Tamilnadu
Manipal University TBI	Manipal
Shriram Institute – Technology TBI	Delhi
Periyar Technology Business Incubator	Chennai
Ekta Incubation Centre	West Bengal
TBI UOM	Madras
Malviya Centre IIT BHU	Varanasi

E. Summary of Incubators Reviewed

Total no of incubator (including all fields)	Incubators in Life science (Govt. and Private Sector)	Targeted Incubators (Govt. and Private Sector)	Incubators responded to the call (Govt. and Private Sector)	Incubators responded but not part of the initial sample proposed
304	62	13	6	7