# CHAPTER II

## LITERATURE REVIEW

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2.1 INTRODUCTION

This chapter entails the study of various views, approaches relating to the concept of innovation, entrepreneurship, business incubation and the research studies relating to challenges faced by new technology startups, importance of business incubation, critical success factors, evaluation of performance, the impact of business incubation on survival and growth of such firms etc. On the basis of review of the available literature, the research gap was identified. The literature reviewed is discussed in brief under relevant titles in the following paragraphs.

2.2 INNOVATION AND ENTREPRENEURSHIP

**Richard Cantillon (1680-1734)** was the first to use the term ‘Entrepreneur’ and emphasized on ‘risk’ as a prominent entrepreneurial function.

**J.B.Say (1767-1832)**, the French political economist assigned the entrepreneur with a crucial role of ‘coordination’ and described the function of entrepreneur as that of combining the factors of production into a producing organism. He was the first person to assign the entrepreneur a position in the economic process.

**Schumpeter (1949)**, A dynamic theory of entrepreneurship was first advocated by Schumpeter. He was the first economic thinker to assign the key role to entrepreneur in the process of economic development. The concept of innovation and entrepreneurship are considered as the most distinctive contributions to economics by Schumpeter. Schumpeter’s Theory of Economic Development (1912), highlighted the function of entrepreneur, who carries out new combinations. He viewed, the
discontinuous and revolutionary change as the core of economic development which breaks the economy out of its static mode (“circular flow”) and sets it on a dynamic path of fits and starts. He described development as a historical process of structural changes, substantially driven by innovation which was divided by him into five types:\footnote{Śledzik K., (2013), Schumpeter’s view on innovation and entrepreneurship (in :) Management Trends in Theory and Practice,(ed) Stefan Hittmar, Faculty of Management Science and Informatics, University of Zilina & Institute of Management by University of Zilina}

1. Launch of a new product or new species of already known product
2. Application of new methods of production or sales of a product (not proven in the industry)
3. Opening of new market (for which a branch of the industry was not yet presented)
4. Acquiring new sources of supply of raw material or semi-finished goods
5. New industry structure –creation or destruction of a monopoly position

According to Schumpeter, Innovation is an essential driver of competitiveness and at the center of economic change. This causes the gales of ‘Creative Destruction’ (Schumpeter, 1942)

\textbf{A.H. Cole (1965)}, defined entrepreneurship as “a purposeful activity of an individual or a group of associated individuals, undertaken to initiate, maintain or organize a profit oriented business unit for the production or distribution of economic goods and services.”

\textbf{Shapero (1975)}, stated that all the definitions of the term ‘entrepreneurship’ talk about certain aspects of behavior which include “taking initiative, organizing, reorganizing the social economic mechanisms to turn the resources and the situations to practical account and the acceptance of risk of failure” (Shapero, 1975)
Peter Drucker (1985), states that innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service. It is capable of being presented as a discipline, capable of being learned, capable of being practiced. Entrepreneurs need to search purposefully for the sources of innovation, the changes and their symptoms that indicate opportunities for successful innovation. They need to know and to apply the principles of successful innovation.

Hisrich and Peters (1989) defined, “Entrepreneurship is the process of creating something different with value by devoting the necessary time and effort assuming the company financial, psychic and social risk and receiving the resulting rewards of monetary and personal satisfaction”. Hence, Entrepreneurship consists of all the inherent and acquired qualities of an entrepreneur which act as a driving force in him to run his business with difference. Entrepreneurship adds significant value to the economy by creating innovation, wealth and generating employment. There is a direct co-relation between economic growth of a country and level of its entrepreneurship.

Reynolds (2002), asserts that there is no country that has high levels of entrepreneurship and low levels of economic growth.

The innovation and entrepreneurship are thus assigned the key role in the process of development and growth of the economy. Innovation is the essence of entrepreneurship and the entrepreneurship adds significant value to the economy by commercializing the innovations through technology entrepreneurship. However, Technology entrepreneurship faces certain challenges due to certain special characteristics associated with it. In the subsequent paragraphs various views regarding the challenges of technology entrepreneurship are discussed.
2.3 CHALLENGES OF TECHNOLOGY ENTREPRENEURSHIP

**Rustum Lalkaka (2006)**, designed a toolkit to provide the information and create the awareness about Technology Business Incubator and also as a teaching and learning aid on Technology Business Incubator. It was published under the title, *Technology Business Incubation: A Toolkit on Innovation in Engineering, Science and Technology*. According to him, the challenge for technology based entrepreneurs everywhere is that of taking the technology based concept forward, from the prototype and production phase to meeting the market need in terms of value as well as the affordable price. He highlights that technology based enterprises have unique characteristics which require the special attention (Lalkaka R., 2006). These knowledge intensive enterprises require understanding of intellectual property rights, networks of specialized, professional services and skilled workforce. They are agile and hence require quick response for technology transfer. The financial requirements are high and may involve high risk. (Lalkaka R., 2006)

**Magesh Nandgopal, Kaushik Gala and V.Premnath (2011)**, in their paper presented at Innovation Educator’s Conference, Indian School of Business, Hyderabad, highlighted the need of an ecosystem that promotes technology innovation, In this paper titled, ‘Improving technology commercialization at research institutes: Practical Insights from NCL Innovations*, they stress the need of professionals who can support in business incubation process. This includes the legal experts, IP professionals, advisors for writing business plans and formation of company etc. They also emphasize on the need of strong network among the technologists, entrepreneurs, researchers, investors, technology transfer consultants etc. The Technology Business Incubation is the main component of the eco system which must be developed and strengthened. (Magesh Nandagopal, Improving technology commercialization at research institutes: Practical insights from NCL Innovations*, 2011). The authors of the paper have depicted through the chart, a journey of technology based innovation needing a complex eco system which is reproduced below:
According to Balietti (2012), Technology Based Enterprises are run by scientists and engineers, who identify the applications or problems and exploit the opportunities of starting the new applications or a new venture. This requires the collaborations, for technical change to happen. Technology Entrepreneurship is an investment made in the specialized individuals and heterogeneous assets which are intricately related to advances in scientific and technological knowledge and capturing value for a firm”. (Balietti, 2012)

Mingfeng Tang, Angathevar Baskaran and Jatin Pancholi (2010), in their Working Paper on ‘Technology Business Incubators in China and in India: A comparative analysis” highlight that Managing innovation requires paying attention to issues such as developing appropriate learning abilities to drive new knowledge creation, accessing resources (human and
financial), coordinating activities from invention (R&D) to market, and creating synergies among them, developing effective collaborations, communicating and disseminating knowledge, within and outside the innovative organisation, gathering information with respect to the external environment (customers, suppliers, technology developers) combined with information diffusion and processing activities designed to ease the decision-making process, etc.

2.4 IMPORTANCE OF BUSINESS INCUBATION

Many scholarly researches have been carried out in USA, especially in North America and in Europe on the role of Business Incubation Centers in successful development of the technology based new firms.

Birch (1979) states that “The new firms are both vital and fragile resulting in initiatives fostering and protecting small firms during their initial years. This has triggered exponential growth of business incubation as a mechanism to nurture the successful development of new firms”.

The study of business incubators by Allen and Smilor is considered as the earliest attempts to articulate the concept of business incubation.

Allen, David N. Rahman, Syedur (1985)², conducted the study of 12 business incubator facility managers in Pennsylvania and 56 tenant firms. The article, titled ‘Small Business Incubators: A positive environment for entrepreneurship’ is based on this study. They observed that the incubation support helps to fill the knowledge gap, reduce the early stage operational costs and establishes the startup entrepreneurs in a local support network. They mention that the management problems and undercapitalization are found to be the general reasons of failure of small businesses. The entrepreneurs may be having knowledge about the niche

market but lack the business skills. This is where the business incubators play a significant role. According to them, small business incubator is a facility that aids the early stage growth of companies by providing rental space, shared office services and business consulting assistance.

Smilor, R. and M. Gill (1986), in the book titled, ‘The New Business Incubator Linking Talent, Technology and Knowhow’, throw a light on how the business incubator establishes the effective link between talent, technology, capital and knowhow, leverage entrepreneurial talent and accelerate the development of new companies. The business incubators provide such type of support, which startups are not able to obtain on their own. This may be because they are resource poor, or have vague concepts or lack right connections to needed resource pools. Thus business incubation is a policy response to market failure and the ‘linking’ function is the result of policy interventions by governments, corporations, Universities, non-governmental organisations or research institutes. (Raymond Smilor, 1986)

Allen and McCluskey (1991), in the article titled, ‘Structure, Policy, Services and Performance in the Business Incubator Industry’, examine the relationship between the structure of the incubator, incubation policy, services provided and the performance. They conducted the survey of 127 incubators and examined the features of value added continuum Model. Various types of incubators and various aspects of their operations are described in this model. They found that the age and size of the facility are important determinants of jobs created and firms graduated (McCluskey, 1986). A value-added continuum model of Allen and McCluskey is reproduced below:
Gnyawali, D.R. and Fogel, D.S. (1994) in a research article, *Environments for Entrepreneurship Development: Key Dimensions and Research Implications*, propose a framework consisting of five dimensions of entrepreneurial environments and links these dimensions to the core elements of the new venture creation process. According to these researchers, the entrepreneurship can flourish if potential entrepreneurs find opportunities in the environment, if environmental conditions motivate entrepreneurs to take advantage of these opportunities, and if environmental conditions enhance entrepreneur’s ability to start and manage a business (Gnyawali, 1994). They developed the integrated model of entrepreneurial environment which is reproduced below:
Figure No: 2.3
An Integrated Model of Entrepreneurial Environments

![Diagram of an integrated model of entrepreneurial environments.]

The opportunity, propensity and the ability to enterprise is influenced by the policies and actions of the Government and the programs of business development organisations (Gnyawali, 1994).

**Sarfraz A. Mian (1995)**, in the research paper on ‘Assessing Value added contributions of University Technology Business Incubators to tenant firms’ assessed the value-added contributions of University Technology Business Incubators to their new technology based tenant firms. A national survey of six representative UTBI facilities was conducted to get an insight into the value-added aspects as perceived by the clients. They conclude that various services, such as University age, laboratories, equipment and student employees add major value to the client firms. Because of this, the University Technology Business Incubators becomes a viable strategy (Mian, 1995)
According to Rice (2002) “A Business Incubator in collaboration with the community in which it operates is a ‘producer’ of business assistance programs. The entrepreneurial ventures located in an incubator, as ‘consumers’ of those outputs, operate in an interdependent co-production relationship with the incubator”.

According to Hackett and Dilts (2004)3, “A Business Incubator is a shared office space facility that seeks to provide its incubatees with a strategic, value-adding intervention system of monitoring and business assistance. This system controls and links the resources with the objective of facilitating the successful development of new ventures and simultaneously containing the cost of their potential failure”.

National Business Incubation Association 4 defines Business incubation as “a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the Business Incubator and through its network of contacts. A Business Incubator’s main goal is to produce successful firms that will leave the program financially viable and freestanding”.

According to infoDev (2009)5, “business incubation is a public and/or private, entrepreneurial, economic and social development process designed to nurture businesses from idea generation to starting-up companies and, through a comprehensive business support program, help them establish and accelerate their growth and success”.

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4 Kathleen Cammarata, 2003, Self-Evaluation Workbook for Business Incubators, NBIA

20
NBIA (2009), a study on *Impact of Business Incubation in the US-Lessons for Developing Countries* discusses on how incubator intervention in the life of a new company improves the access to inputs. The successful incubators have the support of key stakeholder groups. Behind the most successful incubators is a champion or group of champions who serve as advocates.

**Figure No: 2.4**

*Incubator Intervention in the life of the Company (NBIA, 2009)*

To sum up, various studies highlight the importance of business incubation policies and practices as the value adding intervention necessary for successful development of early stage technology based business ventures. It has been widely believed that business incubators provide a nurturing environment for such ventures. University Based Technology Business Incubators have added advantage of the image, laboratory, faculty expertise and the students as interns.

A brief review of studies on critical success factors of business incubation and the studies relating to evaluation of performance of Business Incubation Centers has been given in subsequent paragraphs.

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2.5 CRITICAL SUCCESS FACTORS OF BUSINESS INCUBATION

Nijkamp & Smilor (1988) argue that any business incubator acts as a mediator between entrepreneurs and community. Thus, successful implementation of the incubator requires combination of at least three elements: Sources of entrepreneurs (universities, corporations, the general community, the public sector, research laboratories and inventors being the most likely sources), Recognition of opportunities by entrepreneurs, Demand for business incubation services. Nijkamp distinguishes several sources of entrepreneurs. They are University, inventors, public sector, corporations, research labs and community. Therefore, demand for an incubator’s services usually appears after opportunity recognition by entrepreneurs.

According to infoDev (2009), following are the critical success factors of business incubators:

- Volume of companies co-located which leads to natural clustering & collaboration
- Locating start-ups with mature companies in the same building to encourage collaboration
- Strict entry criteria focusing on innovation & implementation
- Investors/entrepreneurs seeking to make new equity investments-as mentors
- Discounted professional services
- A strong manager monitoring both mentors and companies
- Incubator climate of collaboration & networking

Bollingtoft and Ulhoi (2005), in their research titled ‘The networked business incubator—leveraging entrepreneurial agency?’ proposed the concept of networked business incubators. According to them, resources and opportunities received in an incubator can be divided into tangible or
intangible. The tangible resources include the physical environment, office and communication services, business services, facilities, equipment and financing. The intangible opportunities or resources include peer networking, possibility to obtain legitimacy, social inputs and psychological support. (Ulhøi, 2005)

2.6 EVALUATION OF PERFORMANCE OF BUSINESS INCUBATION CENTERS

Some models have been developed to measure the effectiveness and evaluate the performance of the organisation.

Jean-François Henri (2004), in the Research Paper titled, Performance Measurement and Organisational Effectiveness: Bridging the Gap, the authors have studied various models of organisational effectiveness under organisational theory and have attempted to reconcile with these models, the literature on performance measurement under management accounting. Various models relating to organisational effectiveness include the goal system, strategic constituencies, competing values and ineffectiveness models. The summary of the study is reproduced below.

8  ibid
### Table No: 2.1

Models of Organisational Effectiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>Conceptualization of the Organisation</th>
<th>Focus</th>
<th>Advocates</th>
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<tbody>
<tr>
<td>1. Goal Model</td>
<td>Organisation as a rational set of arrangements oriented toward achieving goals</td>
<td>Accomplishments of outcomes (ends)</td>
<td>Elzioni 1960</td>
</tr>
<tr>
<td>2. System Model</td>
<td>Organisation as an open system (input, transformation, output)</td>
<td>Inputs, acquisition of resources and internal processes (means)</td>
<td>Yuchtman and Seashore 1967</td>
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<tr>
<td>3. Strategic Constituencies Model</td>
<td>Organisation as internal and external constituencies that negotiate a complex set of constraints, goals and referents</td>
<td>Response to the expectations of powerful interest groups that gravitate around the organisation</td>
<td>Connolly et al. 1980</td>
</tr>
<tr>
<td>4. Competing Values Model</td>
<td>Organisation as a set of competing values which create multiple conflicting goals</td>
<td>Three dimensions of competing values</td>
<td>Quinn and Rohrbaugh 1983</td>
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<tr>
<td></td>
<td></td>
<td>• Internal Vs External focus</td>
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<td></td>
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<td>• Control Vs Flexibility concerns</td>
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<tr>
<td></td>
<td></td>
<td>• Ends Vs Means concern</td>
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<td>5. Ineffectiveness Model</td>
<td>Organisation as a set of problems and faults</td>
<td>Factors that inhibit successful organisational performance</td>
<td>Cameron 1984</td>
</tr>
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</table>

Source: Jean François Henri, (2004) "Performance measurement and organisational effectiveness: bridging the gap"  

According to Jean-François Henri, Performance measurement models have been moved from financial measures under the component of planning and control, to multiple non-financial measures as an independent process under the broader set of activities.
Some of the research studies, which applied financial as well as non-financial measures for evaluation of performance of Business Incubation Centers are discussed below:

**Sherman and Chappell (1998), Methodological Challenges in Evaluating Business Incubator Outcomes**, is the research study undertaken by the University of Michigan Business School in collaboration with the National Business Incubation Association (NBIA), Ohio University and the Southern Technology Council. It was carried out in response to a request for proposals issued by the Economic Development Administration. The researchers mention that the tenants are admitted to the incubator on the basis of certain selection criteria, therefore, direct comparison with the survival rate of non-tenant firms may not be meaningful (Sherman, 1998).

**Lofsten and Lindelof (2002), in their research study on ‘Science Parks and the growth of new technology-based firms –academia –industry links, innovation and markets’ distinguished between 273 firms on and off Science Parks in Sweden. The objective of the research was to identify value addition created for new technology based firms. The study shows that there are some differences in the experience of firms on and off-park regarding the innovation and the marketing issues. Firms located in Science Parks were significantly more likely to have a link with a local university than off-park firms. The examination of performance was done in terms of employment and sales growth and profitability. Initiative for promotion of new technology firms in Science Parks showed higher rate of job creation than the policies to help the new technology firms in general. (Lindelof, 2002)**

**The European Commission (2002),‘Benchmarking of Business Incubators’ study carried out for European Commission Enterprise Directorate General, emphasizes that survival rate is one of the indicators of performance of incubators but the extent to which the incubators contribute to the accelerated development of innovative high growth firms**
and their capacity to create new jobs is more important. The study report highlights a number of factors which relate to: 1) Setting up and operating the incubators 2) Key incubator functions, management, and promotion; 3) Evaluation of incubator services and impacts. These factors are considered as the ‘key performance drivers’ for achieving the best practice.

European Commission used the five criteria, Relevance, Efficiency, Effectiveness, Utility and Sustainability for assessment of the performance of expenditure programmes and schemes. (European Commission Report, 2002)

**Table No. 2.2**

**Key Performance Drivers**

<table>
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<th>Setting Up and Operating Incubators</th>
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<tr>
<th>Key Incubator Functions, Management and Promotions</th>
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<tr>
<th>Evaluation of Incubator services and Impacts</th>
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<td>11</td>
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<td>12</td>
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</table>

Source: Key Performance Drivers (European Commission Report, 2002)

**Bhabra-Remedios and Cornelius (2003)**, under their research titled, ‘Cracks in the Egg: improving performance measures in business
incubator”, suggest for the incorporation of organisational theory concepts in the evaluation of incubators.

Abetti (2004) in the research study on, Government supported Incubators in the Helsinki Region, Finland: Infrastructure, Results and Best Practices, the performance evaluation of incubators was done on the basis of new venture creation, job creation, cost effectiveness, growth and regional development.

Hackett and Dilts (2004), a Real Option-Driven Theory of Business Incubation, predicts and explains how business incubators and the process of business incubation increases the chances of survival of new ventures at the early stage of development (Hackett, 2004).

Hackett and Dilts conceptualized the term incubator as “an entrepreneurial firm that sources and macro-manages the innovation process within emerging organisations, infusing these organisations with resources at various developmental stage-gates while containing the cost of their potential failure”. They identified that at the completion of the incubation process operationally, there are five different mutually exclusive Incubatee Outcome States (Hackett, 2004):

1. The Incubatee is surviving and growing profitably;

2. The Incubatee is surviving and growing and is on a path toward profitability;

3. The Incubatee is surviving but is not growing and is not profitable or is only marginally profitable;

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4. Incubatee operations were terminated while still in the incubator, but losses were minimized;

5. Incubatee operations were terminated while still in the incubator, and the losses were large (Hackett, 2004).

**Rothaermel and Thursby (2005),** the article titled, ‘University-incubator firm knowledge flows: assessing their impact on incubator firm performance’, is based on the data of 79 technology ventures of Advanced Technology Development Center, which is sponsored by Georgia Institute of Technology. The researchers measured the impact of University-incubator knowledge flow on firm’s performance in terms of revenue, funds raised, venture capital funding obtained and the status of the incubator firm, whether graduated, failed or remained in the incubator. They found that the impact of University-incubator knowledge flow on firm level competitive advantage depends on the incubator firm’s absorptive capacity. (Thursby, 2005)

**Phillip H. Phan, Donald S. Siegel, Mike Wright (2005),** in their research article on, **Science Parks and Incubators: Observations, synthesis and future research** suggest for comparison of survival rates among different incubators instead of considering the survival rate of particular incubator. (Phillip H Phan, 2005).

**(OECD, 2007)**¹¹, Technology Incubators: Best Practices in the USA, This is a study of 79 Technology Business Incubators in the USA. The study found no statistically significant relationship between incubator assistance practices and the sales or revenue growth of tenant companies. However, this study puts forward that strength and pervasiveness of community ties, technology generators and individual skills of incubator manager are greater predictors of performance.

NSTEDB (2009), in a document titled ‘Developing ecosystem for knowledge to wealth creation’ proposed the following Incubator Performance Indicators to monitor the performance of Business Incubation Centers (NSTEDB, 2009)

Table No 2.3
Incubator Performance Parameters (NSTEDB, 2009)

<table>
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<tr>
<th>Sr No</th>
<th>Incubator Performance Parameters</th>
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<tbody>
<tr>
<td>1</td>
<td>Average Capital Investment Cost Per Incubatee over five years</td>
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<tr>
<td>2</td>
<td>Average Operating Cost Per Annum Per Incubatee</td>
</tr>
<tr>
<td>3</td>
<td>% of Revenue from Government Grants</td>
</tr>
<tr>
<td>4</td>
<td>Incubator space (Sq. Ft.)</td>
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<tr>
<td>5</td>
<td>Number of Incubatees</td>
</tr>
<tr>
<td>6</td>
<td>Incubator Functions (Offerings)</td>
</tr>
<tr>
<td>7</td>
<td>Incubator Occupancy Range(s)</td>
</tr>
<tr>
<td>8</td>
<td>Average Length of Tenancy (months)</td>
</tr>
<tr>
<td>9</td>
<td>Number of Incubator Staff</td>
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<tr>
<td>10</td>
<td>Survival rates of Incubatee Entrepreneur Firms in Three years</td>
</tr>
<tr>
<td>11</td>
<td>Average Growth in Incubatee Turnover in Five years</td>
</tr>
<tr>
<td>12</td>
<td>Average Jobs Per Incubatee Entrepreneur Company</td>
</tr>
<tr>
<td>13</td>
<td>Jobs generated by Graduated Companies Per Incubator Per Annum</td>
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</tbody>
</table>


According to Manimala (2012), Economic policies have impact on entrepreneurial activities. Due to lack of supportive institutions, entrepreneurial activity does not flourish; it gets channelized into inefficient approaches. Protectionist policies used to foster entrepreneurship through subsidies, quotas or similar other schemes have been found to be counterproductive in creating an enabling environment for entrepreneurship (Mathew Manimala, 2012)

The Ph. D thesis on ‘Assessing the Impact of University Technology Incubator Practices on Client’s Performance’ by Thomas O’Neal\(^\text{13}\) is based on responses from 79 incubators in the USA. The researcher found no strong direct statistical relationships between incubator business assistance, practices and primary outcomes in the form of sales and revenue growth. The individual business assistance practices of incubators will have greater predictive relationships with performance outcomes only if most clients utilize certain practices. The top performing programs have strong connections to Universities. Universities add instant credibility to the incubation program and the companies that reside there. The most successful programs fully leverage the intellectual capital assets (patents, talented faculty and students and facilities) that universities represent.

**Suresh Kumar, K.** in the PH D Thesis on ‘A study on the Performance of technology business Incubators with reference to Members of infodev network’\(^\text{14}\) observed that the combination of the incubation facility, selection process and the support services as inputs of an incubator, if exercised through a strong incubation program, increases the performance of an incubator. However the effect of incubator governance, networking support and graduation criteria on the performance of incubator remained unchanged. The incubator governance has a negative influence on the performance of the incubators. Incubator governance has a direct impact on the incubator inputs, funding schemes and incubation program and will indirectly influence the performance of the incubator.

**Balachandran A (2015):** A study of business incubation Environment influencers impacting Performance of Incubatee ventures\(^\text{15}\), a Ph. D research work focused on identifying influencers of success in the incubation environment that impact the performance of the Incubatee

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\(^{13}\) http://stars.library.ucf.edu/cgi/viewcontent.cgi?article=1367&context=etd


\(^{15}\) Balachandran A.(2015), A study of business incubation Environment influencers impacting Performance of Incubatee ventures Anna University, Chennai
startups and analysed the effect of each influencer in achieving the objectives of an incubator. The possibility of incubators playing the role of open innovation intermediaries was studied. He found that ‘Gaining acceptance from customers / generation of orders and setting a growth trend’ is the dominant qualifier of success of an Incubatee firm’ and ‘Access to market support’ from an incubator is the most important influencer of success among various determinants (service offerings) that contribute to the success of Incubatee firms. He also found that the increase in number of jobs provided by an Incubatee firm was not considered as a success qualifier. Growth in number of employees happens mostly after market or financial success. Incubators ranked this the lowest among identified factors. He recommends that ‘Open Innovation activities of the business incubators’ would enhance the success of the incubatees.

Kamdar, Manish (2012), Role of Business Incubation Centres in Promoting Entrepreneurship16, a Ph. D research focuses on the role of Business Incubation Centers in promoting entrepreneurship in the Indian context, The researcher studied 10 Business Incubation Centres and 42 incubatees. This study is confined to Business Incubation Centres in India only and is limited to physical incubators having housed incubatees. However this research does not probe into the roles of incubators such as technology transfer and its commercialization, economic development etc. The study does not refer to the small and routine interactions that take place between the incubator and the Incubatee which add value to the entrepreneurial process. He observed that practices such as awareness about business incubation Centres and its services, adequate funding, harmony in terms of expectations and priorities, sufficient salary, availability and retention of skilled staff, equity stake in Incubatee companies, and self-sustainability are major issues which have not been addressed and are

16 Kamdar, Manish (2012) Role of Business Incubation Centres in Promoting Entrepreneurship, Maharshi Dayanand University, Haryana (India)
adversely affecting the role of business incubation Centres in promoting entrepreneurship in India.

Sahib Sartaj Singh Dhaliwa (2010)\textsuperscript{17}, Some Entrepreneurial Aspects of Technology Business Incubators in Indian Context, This Ph.D. thesis, is based on the survey of 38 Business Incubation Centres in India. The researcher observes that, the need for technical advisory, business development and networking support is much more as compared to the availability of physical facilities and financial support. Different thrust areas show a large variation in their needs and the availability of various business supports. TBIs in all thrust areas, except ICT sector, do not seem to be in self-sustainable mode. Even at 5-6 years after inception, most of the incubators claim to depend heavily on government aid. Venture capital sector is weak as a whole in the country. He states that entrepreneur and academicians working together is a winning combination and this combination is minimally used in TBIs. There is a need for more extensive participation of the host institutes and marketing of the concept of TBIs.

Manoj Joshi, Balvinder Shukla, Apoorv Ranjan Sharma (2015), Can Business Incubators Impact the Start-Up Success? India Perspective! The researchers interacted with 55 startups and 28 incubation managers. Start-ups were interacted with to understand the gaps between startups expectations and existing incubators’ offerings. To identify the right Incubator model, 28 Incubator managers were interviewed. They found that most of the incubator managers feel the need for next generation model of the incubator. Further, they observed that for-profit incubator’s start-ups are more successful in fund raising and mentored start-ups are more successful as compared to non-mentored start-ups. They highlight the need to create a next generation model of incubation to cater the need of vast population and emerging new age start-ups from various parts of India.

\textsuperscript{17} Sahib Sartaj Singh Dhaliwal(2010), Some Entrepreneurial Aspects of Technology Business Incubators in Indian Context, National Institute of Technology, Kurukshetra
2.7 RESEARCH GAP IDENTIFIED

A critical assessment of the literature reveals that a large number of studies have been carried out in the field of innovation, entrepreneurship and on critical success factors of business incubation and performance evaluation of the Business Incubation Centers in USA and in Europe. Business Incubation in India is at a nascent stage. A very few research studies have been carried out in India. Due to the differences in the nature of host institution, nature of startups, regional differences, there is a need of the study of performance of Business Incubation Centers in particular region, from the perspective of the needs of the incubatees in the region. No such research was found in India. No research studies have been carried out on Business Incubation Centers in the state of Maharashtra.

2.8 CONCLUSION

The research studies carried out so far highlight the importance of business incubation in successful launching of startups and in technology commercialization. The varying needs of incubatees demand different types of business support. The study of performance of the Business Incubation Centers in particular region may help in identifying the strengths, weaknesses and challenges faced by the Business Incubation Centers in the region. This would further help to create the awareness about the importance of business incubation in the region and also to devise the business incubation policies and practices suitable to the needs of the incubatees and needs of the region.