

## **The incubators economic indicators: Mixed approaches**

Hanadi Mubarak Al-Mubarak  
Kuwait University, Kuwait

Michael Busler  
Richard Stockton College

### **ABSTRACT**

**Purpose:** The aim of this paper is to investigate and identify the outcomes of key performance indicators of incubators that facilitate successful implementation such as, 1) entrepreneurship, 2) job creation, 3) start-up companies creation in the incubators, and 4) graduated companies.

**Design methodology/approach:** The study nature of this research is mainly a mixed methods approach such as quantitative (survey questionnaire) and qualitative (multi-case studies, literature review). This investigation uses seven case studies and the data was mainly collected by direct interview with ten international incubator manager and organizational documents from the United States, Europe and other developing countries. The authors' professional experiences on the topic provide the foundation for the paper.

**Finding:** The finding of this research can help incubator managers, policy makers and government parties for successful implementation. Also, add new knowledge for academic literature incubators and economic development.

**Originality:** The authors believe that this paper has proven successful implementation of incubators worldwide and demonstrates an added value to the current literature on incubator's sustainability. Its beneficial outcomes provide useful information and recommendations for both academicians and practitioners who are interested in incubators. Also this research will be unique insight for the implementations of worldwide incubators.

**Keywords:** Economic Development, Incubators, Innovation, Entrepreneurship, Job Creation

## 1 INTRODUCTION

Incubation programs support diversify economies, commercialise technologies, create jobs and build wealth. According to the National Business Incubation Association (NBIA, 2010), business incubators help entrepreneurs translate their ideas into workable and sustainable businesses by guiding them from the beginning to being able to achieve a growing and thriving business. Business incubation provides entrepreneurs with expertise, networks and tools that they need to make their ventures successful.

The problem specifically addressed in this research is primarily related to incubators economic indicators using mixed method approaches. There are many literature related to the incubators with different outcomes to make search activity more efficient and effective. The major emphasis of research is contents searching bodies as successful case studies and interview of incubators managers. This research will present new vision of the incubators economic indicators based on the best practice case studies from international perspective.

The objective of this paper is to investigate and to identify the key performance indicators of incubators outcomes that facilitate the successful implementation of incubators outcomes such as, 1) entrepreneurship, 2) job creation, 3) start-up companies creation in the incubators, and 4) graduated companies.

The paper is structured as follows: Section 2 provides a thorough review of the literature on incubator outcomes such as innovation, entrepreneurship, and job creation. In Section 3, the authors provide the survey results and seven successful case studies to illustrate different key performance such as value added incubators. Section 4 concludes with implications of the business incubation outcomes worldwide as key performance indicators form successful international countries.

## 2 LITERATURE REVIEW

### 2.1 Business Incubation

Business incubators concept has significantly evolved from the archetypal incubators of the 1950s. This concept, lead more attention has been paid to the interaction between the community and the incubator. There are many definitions for business incubators such as, effective talent link, technology transfer, capital movement, and technical know-how in order to leverage entrepreneurial talent and to accelerate the development of new companies (Kuratko and LaFollete, 1987). However, Rice (2002) provides a narrower definition by stating that business incubators nurture and grow start-ups in the Internet economy. They offer fledgling companies, office space, funding, and basic services such as recruiting, accounting, and legal advice-usually in exchange for equity stakes.

According to NBIA, 1997 the definition of Business incubation is 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 business 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. These business incubator graduates have the potential to create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen local and national economies. Critical to the

definition of a business incubator is the provision of management guidance, technical assistance and consulting tailored to young growing companies. Business incubators usually also provide clients access to appropriate rental space and flexible leases, shared basic business services and equipment, technology support services and assistance in obtaining the financing necessary for company growth.

Hackett and Dilts (2004a) define A business incubator is a shared office-space facility that seeks to provide its incubatees with a strategic, value-adding intervention system (i.e. business incubation) of monitoring and business assistance. This system controls and links resources with the objective of facilitating the successful new venture development of the incubates, while simultaneously containing the cost of their potential failure. When discussing the incubator it is important to keep in mind the totality of the incubator also a network of individuals and organizations (Hackett and Dilts, 2004b).

There are many researcher and scholarly contribution on the classification of the business incubators. Some researchers propose to classify them according to 1) the primary financial sponsors (Kuratko and LaFollette 1987; Smilor 1987b; Temali and Campbell, 1984; Allen and McCluskey, 1990; Peters et al., 2004), 2) the goal of the business incubator (Brooks, 1986), 3) focus in the incubates inside the incubators (Plosila and Allen, 1985; Sherman, 1999), and 4) whether the incubatee is a spin-off or a start-up (Plosila and Allen, 1985).

Incubators are a powerful concept because the incubator is a tool to gather and orchestrate existing forces to facilitate company creation. Business incubators also add value for companies and entrepreneurs who undertake a comprehensive and detailed review of the incubation program in which they are interested. In addition, most of business incubation programs goals are:

1. **Job Creation:** Incubators are seen as effective tools for creating self-employment opportunities, conventional product or service companies, and high-growth companies. Incubators also are used to develop innovation, transfer technology, and impart an entrepreneurial spirit (Mian, 1994 and 1997; Phillips, 2002; McAdam and McAdam, 2008; Al-Mubarak, 2008).
2. **Economic Development:** Incubators are used as much for spurring regional economic development and establishing industry clusters as they are for revitalizing urban environments and industry (EURP, 2010; Al-Mubarak and Busler, 2009; Joseph and Eshun, 2009; Al-Mubarak and Busler, 2010; 2011).
3. **International Networks:** Incubators can also be used to develop international networks of small and medium-sized companies (SME).

There are three stages of incubation. See figure 1, appendix I (NBIA, 2010; EURP, 2010; Al-Mubarak, 2008):

1. **Start-up creation (Pre-incubation):** relates to the overall activities needed to support the potential entrepreneur in developing his business idea, business model, and business plan, and to boost the chances to arrive to an effective start-up creation.
2. **Early stage (Incubation):** concerns with the support given to the entrepreneur from the start-up to the expansion phase. Typically this is a mid-term process, lasting usually for the first three years of activity of the newly established company, which are the years in which it is safe to say whether the new venture is successful and has a good

chance to develop into a fully mature company. The actions activated generally are access to finance, direct coaching and mentoring services, as well as hosting services and specific training. Therefore, physical incubation, although a very important service, is a subset of the overall incubation process.

3. Expansion (Post-incubation): relates to the activities to be carried out when the company has reached the maturity phase, and therefore is ready to walk on its own feet. The company will leave the incubator, if it has been physically incubated. Innovation-based incubators work in the intersection between the sets of innovation and entrepreneurship supporting entrepreneurs to profit from the added value of innovative ideas.

### **3. METHODOLOGY**

#### **3.1 The Case Study**

The study employs a multi case study methodology which evaluates a number of aspects as key economic indicators of incubators: 1) entrepreneurship, 2) job creation 3) star up companies creation in the incubators, and 4) graduated companies. This type of approach is closely link with qualitative research, which also frequently uses semi-structured interviews (Yin, 2004). The multi case study allows the researcher to gain an in-depth understanding of the research context and a rich insight into the issue being examined (Yin, 1994). In addition, Furthermore, this paper looks at additional ways to measure the potential weight of incubators outcomes as tool for economic development based on study of current academic literature and work currently being undertaken according to successfully international case study. The case study method is recongnised as the most effective research strategy to capture the rich experience of complex projects (Eisenhardt, 1989; Yin, 1994).

#### **3.2 Data Collection**

This section describes multiple data collection methods used in conducting case studies. The applying different methods of data collection are supported by valid and reliable case findings and reports (Bryman et al., 2007; Yin, 2009). In a case study strategy, many sources of evidence can be used (Yin, 2009). Such sources include documentation, archival records, interviews and observation. Ten interviews made up the main source of evidence used in the current study. The interviewees involved the director of business incubation. All of the interviews were structured to best understand the situation while also giving the interviewees sufficient direction to ensure that they would provide as much information as possible. All of the interviews were recorded and transcribed for clarity and were then sent to the interviewees for review of validity. All of the data from the interviews, multi case study and documents were linked together. Figure 2 (appendix-II) shows the process of developing a research methodology.

### 3.3 Summary of Case Study

No.	Country Case Study	Description	Economic Indicators			
			1) Startup companies creation	2) Entrepreneurship	3) Job creation	4) Graduated companies
1	USA	<p>1) To assist in transferring to the private sector and commercializing the results and products of scientific research and development conducted by colleges and universities.</p> <p>2) To assist in the commercialization of technology developed in the private sector.</p> <p>3) To foster the commercialization of research and development and to create and sustain businesses throughout all regions of the State.</p>	0	99	14044	32
2	UK	<p>Designed to nurture new businesses by providing access to a network of experts, accommodation and business support. In 2010, the BIC site can accommodate over 160 businesses from a range of sectors, and covers a 14-acre site. Our business support team assists over 300 businesses in the start up process each year.</p>	4502	105	115	111
3	France	<p>PREMICE mission is to promote, encourage and develop high innovative and technology firms companies based on university or R&amp;D centres discoveries. The centre works intensively with universities and research centres in the region, in order to identify new ideas that have commercial potential and help to bring them to the market. Moreover, PREMICE have extended its services to SMEs in the region which are involved in innovative activities.</p>	115	11	112	75
4	Germany	<p>Anwendungszentrum GmbH Oberpfaffenhofen (AZO) incubation centre is located in Bavaria in Oberpfaffenhofen, near Munich. The region has a population of 12,520,000 and approximately 560,000 companies.</p> <p>Anwendungszentrum GmbH</p>	10		6	16

		Oberpfaffenhofen – AZO has helped to found 38 companies and create 650 new jobs since 2002. Phase I ran as a German Aerospace Center (DLR) project between 2002 and 2005 and was one of the most successful business incubators in the European aviation industry. The AZO Incubation Centre accepts ten incubatees per year for duration of four years until 2013. Their 2005-2009 funding was €1,842,000				
5	Spain	The main objectives are to be the preferred instrument for qualified entrepreneurs as a support for the creation and development of innovative, technology-based businesses and to be recognized for guaranteeing the satisfaction of customers, partners and collaborators, as well as its own workforce.	546	39	121	110
6	Sweden	The incubator is an environment conducive for innovative ideas within our three focus areas: production technology, clean tech and creative industry. Innovatum offers entrepreneurs a network of professional advisors, access to external financing and guidance through the complexity of managing a business. More than 40 companies have developed and several of them are now working with international brands in a global market.	0	13	35	NA
7	Belgium	<ol style="list-style-type: none"> <li>1) Promote the setting up and development of new companies.</li> <li>2) To stimulate economic activity through among other initiatives.</li> <li>3) A straightforward and attractive system of business incentives.</li> <li>4) Promoting the entrepreneurship spirit</li> </ol>	582	45	34	174

### 3.4 Interview Sample

#### USA - Business Incubation Program

1. In which country are you located?  
USA
2. From what geographical area do you draw the majority of your client?  
National
3. What is the total gross area of your incubator (square feet)?  
141,000 Sq.ft
4. When was your incubator founded?  
1999-2000
5. Does your incubation program have sponsoring entry or entities?  
YES
6. What is your sponsoring entity?  
Academic Institution
7. Which of the following best describes your program?  
Mixed-use incubator (Variety of client industries)
8. Following is a list of goals for different types of incubators. Please indicate your priorities.  
Creating jobs in local community
9. Below are some common obstacles encountered by entrepreneurs. Which of these are most commonly experienced by your clients?  
Limited market potential
10. Please indicate how much income your incubator grosses annually from rent and services?  
\$500,000
11. Please indicate how much income your incubator grosses annually from contracts and grants?  
0
12. Please indicate how much income your incubator grosses annually from cash operating subsidies.  
0
13. Please indicate how much income your incubator grosses annually from investment income.  
0
14. Please indicate how much income your incubator grosses annually from other sources.  
0
15. Please estimate the total annual income of your incubator.  
\$500,000
16. Please indicate the total payroll/benefits, building costs, maintenance/repairs/lease mortgage expense of your incubator.  
\$25,000
17. Please indicate the amount of 'other' expenses incurred by your incubator annually.  
\$50,000
18. Please indicate your total annual operating expenses.  
\$300,000
19. What is the annual salary range of the incubator manager or senior staff member?  
\$48,000

#### 4 CONCLUSIONS AND REFLECTIONS

This paper is based on a mixed-method approach using both qualitative and quantitative methods would provide a deeper insight and understanding into the phenomenon under investigation. Each case study has investigated, addressed and explained the Key Performance Indicators such as Entrepreneurs, Companies created, Jobs created, and Incubator companies graduated. Business incubators impact influence a wide range of economic activities such as build confidence and support amongst the finance community. Finally, this study has clearly stated that the real added value to business incubation is in supporting services and business assistance, e.g. the quality of technology support, range of business assistance, training of interveners, and access to capital. This is evident in both the United States of America and the developed countries, but still taking shape in the developing countries such as the GCC member states. Business incubators provide start-ups, promote a culture change and help in fostering an entrepreneurship environment. Assist companies out-side the incubators and act as a catalyst for the development of wider business support structures.

Therefore, this paper attempts to provide a new line of thinking and further scope for researchers in areas of business incubation. The research findings economic indicator is important to measure the outcomes of each incubator. This paper describes the important role and the impact of incubation on the economic development process of a country with supporting lessons from the current literature and best practice of international counties. A full understanding of these incubators outcomes such as innovation, entrepreneurship and job creation, and the best practice guidelines to lead countries implementation successfully that are vital keys to reducing the risk of failure and increase of survival rate around 90%.

Finally, this study has clearly stated that the business incubation is tool for economic development based on economic indicator from incubation outcomes such as 1) Entrepreneurs, 2) Companies created, 3) Jobs created, and 4) Incubator companies. This is evident in both the United States of America and the developed countries, but still taking shape in the developing countries such as the GCC member states. For future research, using the findings that highlighted in this paper, the authors aim to conduct more surveys and case studies for successful implementation of business incubation in different Middle East and Gulf States. Hence the authors are planning to develop a model applicable to the GCC countries.



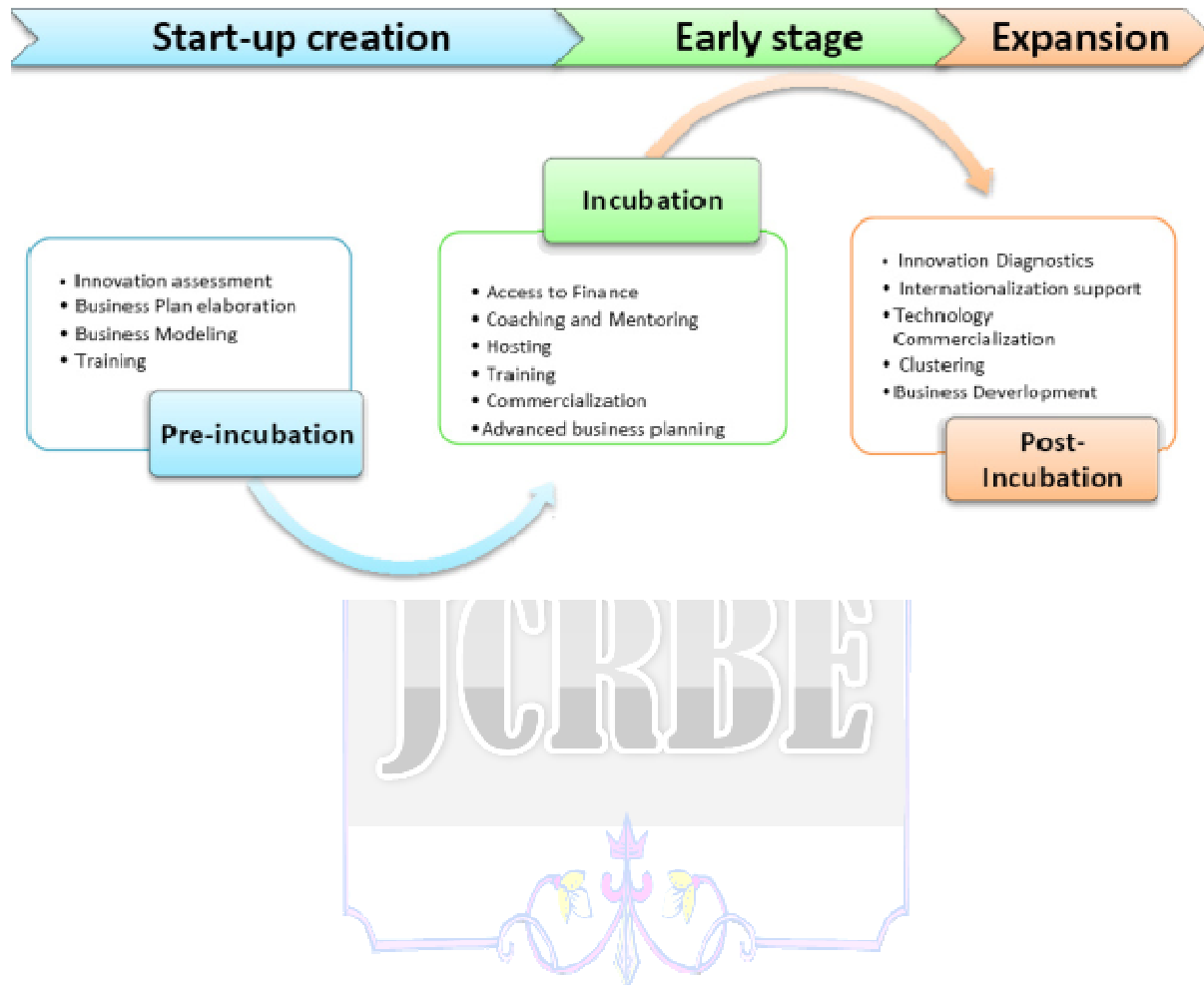
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APPENDIX-I

Figure 1: The incubation process. Source: EURP (2010)



**APPENDIX-II**

**Figure 2: The process of developing a research methodology**

