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# INCUBATOR SUCCESSES: LESSONS LEARNED FROM SUCCESSFUL INCUBATORS TOWARDS THE 21<sup>st</sup> CENTURY

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## Abstract

*Purpose:* The objective of this paper is twofold (1) Discuss and analyze the successful adoption of incubators worldwide, and (2) The lessons learned from successful incubators towards the 21<sup>st</sup> century.

*Design/methodology/approach:* The research methodologies adopted in this study are a mixed-methods approach: quantitative (survey) and qualitative (five international case studies).

*Findings:* Incubators contribute to the international economy and play a vital role not only in the economic recovery but also in smart growth and economic development. These findings will assist incubator managers, policy makers and government parties in successful implementation of incubator policies.

*Originality/value:* This paper contributes to the current literature on the best practices worldwide. Furthermore, it presents future perspectives for academicians and practitioners.

**Keywords:** Incubators, Economic development, Technology transfer, Innovation, Entrepreneurship, Job creation



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## INTRODUCTION

Internationally, incubators have been proven to be an extremely successful model in economic development and employment growth. Today, an estimated 7,000 incubators exist worldwide. Among those, approximately 1,800 are in the US and 900 in Europe. Business incubation has been defined as the endowment of high-level business/support services, including networks for contacts, to accelerate the development of entrepreneurial companies.

The rapid growth of business incubators is due to the confirmed track record of successfully generated new entrepreneurs, which has been achieved by the provision of services to support the entrepreneurial process and helping to increase success rates for generic start-ups or for technological start-up companies. Business incubators have become progressively important for economic development, particularly in relation to small business creation and to employment opportunities. Interest in business incubation comes from a variety of sources, which include local and regional governments, universities, chambers of commerce, science parks, private companies, private real estate developers and nonprofit organizations.

The objective of this paper is twofold: (1) discuss and analyze the adoption of incubators in international countries as success case studies, and (2) identify the lessons learned from successful incubators. The issues addressed are: (1) what are the performance indicators used for each case study, and (2) what are the lessons learned from the success of international case studies.

## LITERATURE REVIEW

The systemic review of incubators is divided into three levels: 1) literature review between 1984 and 1989, 2) literature review between 1990 and 1998 and, 3) literature review between 2000 and 2012. Much in the literature found at the primary level is discussed. First, we discuss the value of an incubator to the community and how the incubator is designed with consideration of the community's cultural values and in dialogue with community leaders (Hisrich, 1988). Second, the value of the incubator to incubatees relies on needs analysis of incubatees, selecting and monitoring, access to capital, availability to network expert/support help and more immediate learning with solutions to

problems (Campbell *et al.*, 1985; Smilor, 1987; Autio and Klofsten, 1998). Third, the value of the incubatee to community and incubator includes technology diversification, economic development, job creation, viable firms and profits from successful products (Smilor, 1987). Fourth, there are several success factors from different perspectives, such as community, entrepreneurial community support, networking, as well as education and linkage with the university. Incubator success indicators include finance, follow up for incubatees, managerial support and clear policies of entry/exit. For the incubatee these factors include business awareness and success rate (Smilor, 1987; Campbell *et al.*, 1985; Merrifield, 1987). Fifth, the importance of appropriate incubatee selection, which is a process (Lumpkin and Ireland, 1988; Merrifield, 1987; Kuratko and LaFollette, 1987; Bearse, 1988). Sixth, the value to community level is a protected environment where new ventures are able to develop, and is provided by the incubator and leads to economic growth and investment for local communities. Business incubators will be part of a larger economic development plan, and although incubation net job creation may initially be small, it is still significant (Allen and Rahman, 1985; Campbell, 1989). Finally, the focus of incubators could be the classification based on the nature of their primary sponsors or the focus of the incubatees. The key characteristics of incubators are low rent, shared services, the existence of entry/exit policies and the university networking and support (Temali and Campbell, 1984; Plosila and Allen, 1985; Brooks, 1986; Al-Mubarak and Busler, 2010a, 2010b).

Although, several articles in level two indicate the success stories of incubators (such as Autio and Klofsten, 1998), the analysis of success stories will be helpful in future implementation and the practitioners should adopt the policies based on the landscape of the country. Allen and McCluskey (1990) discussed the occupancy rates which show that 50% of incubators do not represent real estate ventures. Incubators with established expertise are the most successful. Incubators whose focus is light manufacturing tend to have more success in job creation. Jobs created and firms graduated were not significantly impacted by the business support services. Mian (1996a) identified the tangible services, such as shared offices, to be more successful. Less useful services include assistance grants, marketing, accounting, etc. Due to availability of student employees, university labs, and infrastructure, a university's image is a significant benefit to the incubator firms. Added value contributions are influenced by incubator services. Mian (1996b) found that within four years, firms' sales increase by approximately ten

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times and hiring by four times. The university infrastructure offers many benefits, such as employing students part time and faculty consultation. Growth and survival of tenant firms are positively influenced by the provision of university incubator services. Mian (1997) discussed the four incubation programmes which indicated a high rate of sales and a high rate of employment (150% and 35%, respectively). The university's image enhances incubator firms, and press coverage and university campus visits impact public attention. The most beneficial resource for the firms is availability of student employees.

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The current literature in level three focuses on the incubator's programme as a tool for economic development. Thierstein and Wilhelm (2001) identified the main goal of incubators to be economic development, for example, as in Switzerland where incubators are mostly privately owned. Adegbite (2001) discussed the primary goals that were not met in business or technology incubators. Insufficient support services and lack of objectivity in admission contributed to weaknesses in incubators operating under the ministry. Poor funding added to their organizational hardships. Shefer and Frenkel (2002) noted that over a three year period, 86.4% of the firms graduated from the programme and the success rate shows that 78% obtained financial support after graduation. The selection and overseeing of projects and the skills of the incubator management are critical for success. Pena (2004) demonstrated that the significant impact of incubators will be reflected in high sales and employment growth. Most services offered by incubators, however, have no impact on the performance indicators. Totterman and Sten (2005) identified the incubator-offered services, such as support and networking. The incubator management team should focus on strategic business networking rather than provide tangible services.

Al-Mubaraki and Busler (2011a) examined case studies of ten incubator organizations in developing countries. The findings of this study indicate that business incubators are an effective and innovative tool in supporting start-up businesses. The empirical results highlight some implications for successfully developing and implementing best practices of business incubation programmes. This study makes a contribution to knowledge about the process of business incubation. Al-Mubaraki and Busler (2011b) conducted a study based on a mixed-method approach. This study clearly stated that business incubation is a tool for economic development based on economic indicators from incubation outcomes

such as 1) Entrepreneurs, 2) Companies created, 3) Jobs created, and 4) Incubator companies. This is evident in both the US and the developed countries, but is still taking shape in the developing countries such as the GCC member states.

Recently, Al-Mubarak and Schrödl (2012) studied and proposed a measurement model that concerned the international context. The four measured indicators were 1) Graduation of Businesses Incubated, 2) Success of Businesses Incubated, 3) Jobs Created by Incubation, and 4) Salaries Paid by Incubator Clients. The recommendations from the study could help to develop business incubation guidelines for best practices in GCC countries, which leads economic development worldwide and the GCC. Al-Mubarak and Busler (2012a) discussed the four strategic outcomes of the research findings: 1) Entrepreneurial climate where 62% of firms noted this as the primary purpose of their incubator, 2) Commercialisation technologies were indicated by 55.5%, 3) Employment by 51.6%, and 4) Innovation and diversifying local economies by 46.1%. The research adds value to the current literature on sustainability of incubators, and outcomes. It provides a useful road map to both academicians and practitioners through the experiences of worldwide incubator implementations.

There were four dimensions discussed in the study when determining the effectiveness of business incubators individually and as an industry (Al-Mubarak and Schrödl, 2011). The study recommended that: 1) Further research in this area should focus on the four dimensions discussed in this paper: the number of businesses graduated over a period of time, the number of businesses still in business over a period of time, jobs created by incubator clients, and salaries paid by incubator clients, 2) as the industry grows, new and existing incubators around the world should continue to track these measures of effectiveness in order to empirically demonstrate the value of business incubation, and 3) independent researchers, incubator funders, and governments should cooperate with practitioners in obtaining data related to these four measures of success. The Al-Mubarak and Busler (2012b) study shows the quantitative and qualitative responses used to determine success rates and key indicators of incubators in various countries. The best practice model based on the lessons learned from case studies indicate that the success of incubatees to sustainable graduation is reliant upon: (1) clear objectives, (2) incubators location, (3) access to services, (4) employment creation, (5) economic development strategy. When

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accomplished, the best practice model can lead to a 90% survival rate of companies and reflects sustainability in the market.

### **RESEARCH METHODOLOGY**

The research methodology in this research study is a mixed-methods approach using both quantitative (survey) and qualitative (ten successful international case study) methods. The survey invitations were emailed to National Business Incubation Association (NBIA) members and non-members via the Survey Monkey website, with total number of survey responses at 54, representing a response rate (RR) of about 44 per cent. Each question used descriptive analysis. The case study strategy was selected because the case study method is recognized as the most effective research strategy to capture the rich experience of complex projects (Eisenhardt, 1989; Yin, 1994, 2004, 2009) and it is more practical for management research. It engages in the empirical investigation of a specific phenomenon in a real-life environment, in addition to multi-source methods of data collection. The strategy also helps achieve a greater understanding of the research context and process and answers survey questions due to its capability of using multiple methods, including survey, documents and observation to collect data. Figure 1 illustrates the process of developing a research methodology.

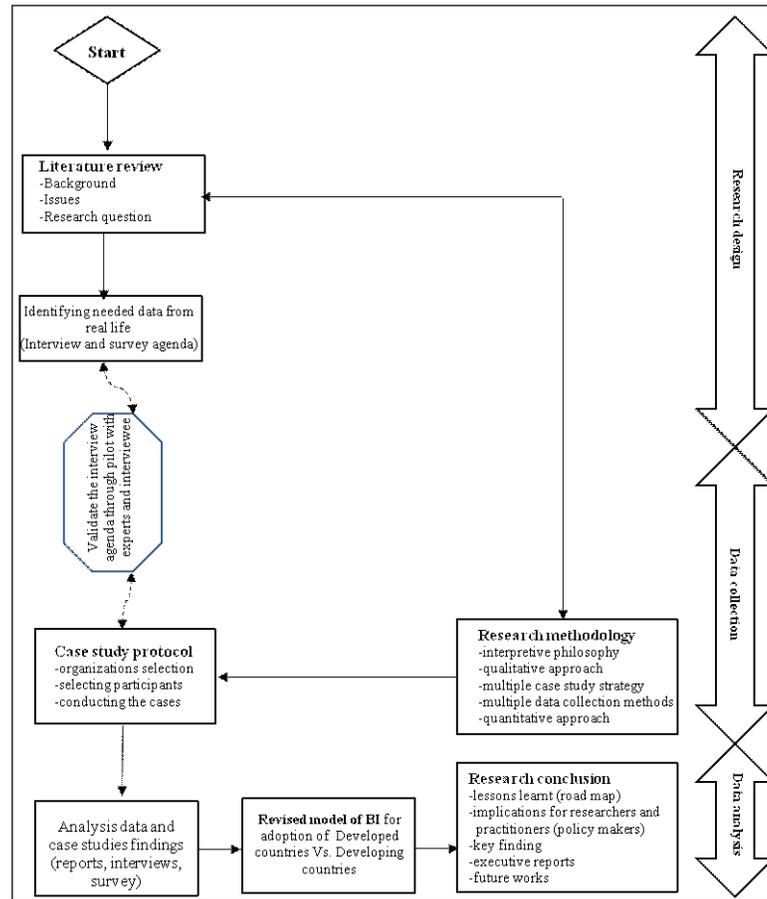
Table 1 shows the analysis of the case studies including three key indicators for each case study, such as: 1) funded year 2) number of clients and 3) number of graduate companies. The selection of indicators used to measure the innovation, employment and productivity growth for each incubator's programme.

### **RESULTS**

Table 2 provides an overview of 54 incubators in the survey sample that are based on developed and developing countries. Almost three quarters (73.08 %) of developed and developing countries incubators' goals were the assistance of the entrepreneurial climate and innovation. Most developed and developing countries' incubators offered strong tangible and specialized services (64.71%).

More than half (59.62%) of developed and developing countries' incubators had created at least 50 jobs per incubator programme. For

**Figure I.**  
The process of developing a research methodology



**Table I.** Developed and developing countries case studies and their key performance indicators

No.	Case	Key performance indicators		
		Funded year	No. of client firms	No. of graduate firms
1	USA	1998	99	32
2	UK	1994	105	111
3	France	1999	11	75
4	Bahrain	2003	35	30
5	Jordan	2004	6	3

Source: [www.infodev.org](http://www.infodev.org)

most developed and developing countries, the number of graduated companies from incubators ranged from 6 to 25 companies (41.18 %). The percentage of survival rate ranged between 81 to 90% for less than half (47.06%) of developed and developing countries.

From Table 3, the ratio of performance over the number of years a particular incubator has been in operation, it is evident that some incubators are performing better than others.

### DISCUSSION AND CONCLUSION

Incubators are attractive strategic tools for economic development and innovative growth. Business incubation programmes offer strong tangible and intangible services. Within this landscape, the incubators' firms are able to achieve their goals of economic development, innovation, technology transfer, fostering entrepreneurship and jobs creation.

No.	Survey questions	Highest % response
1	Services of incubator	Strong tangible and specialized services 64.71%
2	Goals of incubator	1) Entrepreneurial climate 73.08% 2) Innovation 61.54%
3	Financial model: incubator income	Medium 46.15%
4	No. of jobs created by from the incubator	>50 59.62%
5	No. of graduate companies from incubator	6-25 41.18%
6	Survival rate	81-90% 47.06%

**Table 2.** Summary of surveys

No.	Incubators	No. of years till 2011	Ratio of performance indicators for each incubator over the years	
			No. of client firms	No. of graduate firms
1	USA	13	7.62	2.46
2	UK	17	6.18	6.53
3	France	12	0.92	6.25
4	Bahrain	8	4.38	3.75
5	Jordan	7	0	0

**Table 3.** Ratio of performance indicators for developed and developing countries case studies

The best practice model developed based on the lessons learned from quantitative and qualitative approaches of incubators, such as five international case studies and survey, indicate that in order for business incubators to be inclusive and promote smart sustainable growth:

- 1) Clear incubator goals can significantly increase the rate of graduation companies from incubation programmes,
- 2) High survival rate of companies ranged from 81% to 90% which leads to the sustainability of companies in the market,
- 3) High rate of employment creation leads to economic development, and
- 4) Active role of cooperation of R&D contributes positively on technology transfer and increment in the rate of patents.

In conclusion, incubators contribute to the international economy and play a vital role not only in economic recovery but also in smart growth and economic development. International adaptation leads to the support of diverse economies, jobs creation, wealth building, the support of an entrepreneurial climate, fostering the innovation to commercialise new technologies and jobs creation. For future research and from the findings highlighted in this paper, the authors intend to conduct more case studies in different Middle Eastern and Gulf states. Hence the authors are planning to develop a blueprint to shape the 21<sup>st</sup> century.

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