



Incubator successes

Lessons learned from successful incubators towards the twenty-first century

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Abstract

Purpose – The purpose of this paper is twofold: first, discuss and analyse the successful adoption of incubators worldwide; and second, the lessons learned from successful incubators towards the twenty-first 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.

Research limitations/implications – This research focuses on specific lessons. More in-depth research may find additional positive traits.

Practical implications – This research will be of benefit to countries establishing business incubators in order to avoid mistakes and increase the likelihood of success.

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

Keywords Innovation, Technology transfer, Incubators, Job creation

Paper type Research paper

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 USA 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 non-profit organizations.

The objective of this paper is twofold: first, discuss and analyse the adoption of incubators in international countries as success case studies; and second, identify the lessons learned from successful incubators. The issues addressed are: first, what



are the performance indicators used for each case study; and second, 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; Barse, 1998). 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, b).

Although, several articles in level 2 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 per cent 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 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 per cent, 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.

The current literature in level 3 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 per cent of the firms graduated from the programme and the success rate shows that 78 per cent 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-Mubarak 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-Mubarak 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 entrepreneurs, companies created, jobs created and incubator companies. This is evident in both the USA 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 per cent of firms noted this as the primary purpose of their incubator;
- (2) commercialization technologies were indicated by 55.5 per cent;
- (3) employment by 51.6 per cent; and
- (4) innovation and diversifying local economies by 46.1 per cent.

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: first, 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; second, 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 third, 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: clear objectives, incubators location, access to services, employment creation and economic development strategy. When accomplished, the best practice model can lead to a 90 per cent 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 e-mailed to National Business Incubation Association members and non-members via the Survey Monkey web site, with total number of survey responses at 54, representing a response rate 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 I shows the analysis of the case studies including three key indicators for each case study, such as: funded year, number of clients and number of graduate companies.

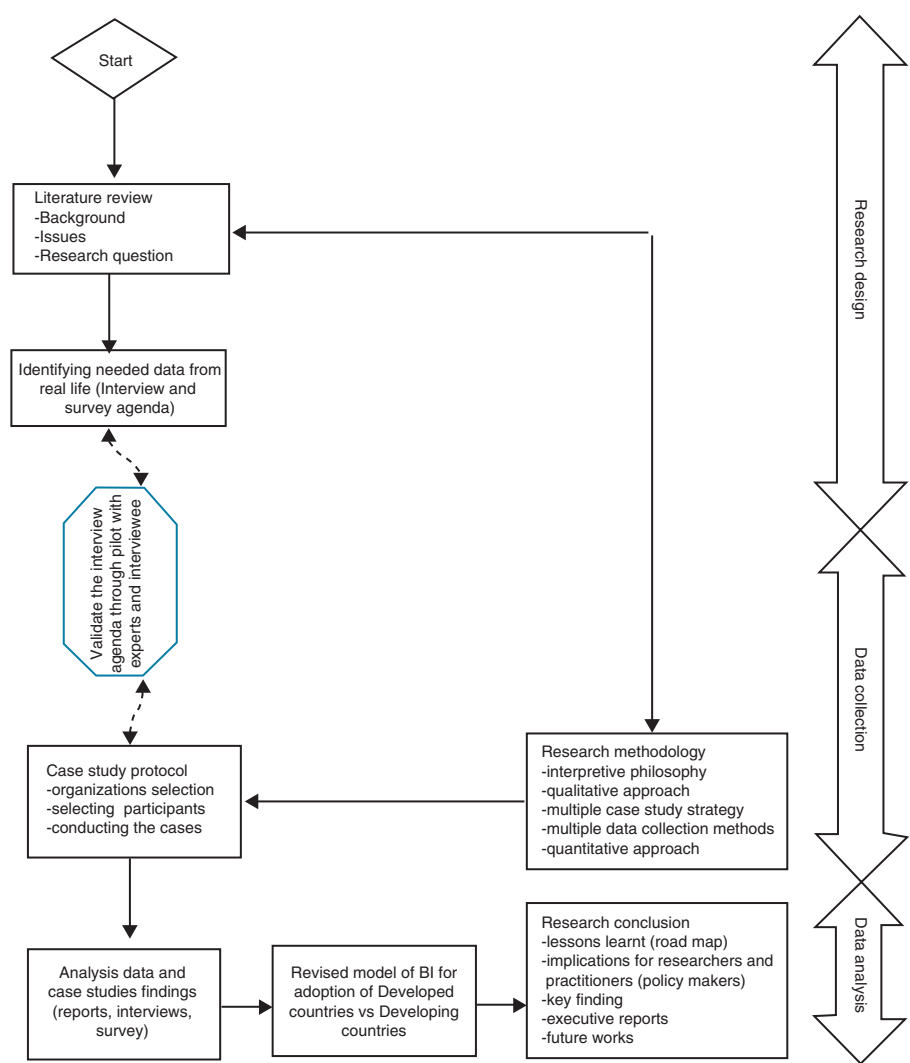


Figure 1.
The process of developing
a research methodology

No.	Case	Funded year	Key performance indicators	
			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

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

The selection of indicators used to measure the innovation, employment and productivity growth for each incubator's programme.

Results

Table II provides an overview of 54 incubators in the survey sample that are based on developed and developing countries. Almost three-quarters (73.08 per cent) 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 per cent).

More than half (59.62 per cent) of developed and developing countries' incubators had created at least 50 jobs per incubator programme. For most developed and developing countries, the number of graduated companies from incubators ranged from six to 25 companies (41.18 per cent). The percentage of survival rate ranged between 81 and 90 per cent for less than half (47.06 per cent) of developed and developing countries.

From Table III, 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.

The best practice model developed based on the lessons learned from quantitative and qualitative approaches of incubators, such as five international case studies and

No.	Survey questions	Highest % response
1.	Services of incubator	Strong tangible and specialized services 64.71
2.	Goals of incubator	Entrepreneurial climate 73.08
		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 II.
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 III.
Ratio of performance
indicators for developed
and developing countries
case studies

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 per cent 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 commercialize 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 twenty-first century.

References

- Adegbite, O. (2001), "Business incubators and small enterprise development: the Nigerian experience", *Small Business Economics*, Vol. 17 No. 3, pp. 157-166.
- Allen, D. and Rahman, S. (1985), "Small business incubators: a positive environment for entrepreneurship", *Journal of Small Business Management*, Vol. 23 No. 3, pp. 12-22.
- Allen, D.N. and McCluskey, R. (1990), "Structure, policy, services, and performance in the business incubation industry", *Entrepreneurship Theory & Practice*, Vol. 15 No. 2, pp. 61-77.
- Al-Mubarak, H. and Busler, M. (2010a), "Business incubators: findings from worldwide survey, and guidance for the GCC states", *Global Business Review*, Vol. 11 No. 1, pp. 1-20.
- Al-Mubarak, H. and Busler, M. (2010b), "Business incubators models of the USA and UK: a SWOT analysis", *World Association for Sustainable Development, WJEMSD*, Vol. 6 No. 4, pp. 335-354.
- Al-Mubarak, H. and Busler, M. (2011a), "The development of entrepreneurial companies through business incubator programs", *International Journal of Emerging Sciences*, Vol. 1 No. 2, pp. 95-107.
- Al-Mubarak, H. and Busler, M. (2011b), "The incubators economic indicators: mixed approaches", *Journal of Case Research in Business and Economics*, Vol. 4, pp. 1-12, available at: www.aabri.com/manuscripts/11884.pdf
- Al-Mubarak, H. and Busler, M. (2012a), "Road map of international business incubation performance", *Journal of International Business and Cultural Studies*, Vol. 7, pp. 1-12.
- Al-Mubarak, H. and Busler, M. (2012b), "Quantitative and qualitative approaches of incubators as value-added: best practice model", *The Journal of American Academy of Business, Cambridge*, Vol. 18 No. 1, available at: www.jaabc.com/jaabcv18n1preview.html
- Al-Mubarak, H. and Schrödl, H. (2011), "Measuring the effectiveness of business incubators: a four dimensions approach from a gulf cooperation council perspective", *Journal of Enterprising Culture*, Vol. 19 No. 4, pp. 1-18.

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- Al-Mubarak, H. and Schrödl, H. (2012), "Incubating success towards Gulf Cooperation Council (GCC)", *International Journal of Innovation and Knowledge Management in Middle East & North Africa*, Vol. 1 No. 2, pp. 31-56.
- Autio, E. and Klofsten, M. (1998), "A comparative study of two European business incubators", *Journal of Small Business Management*, Vol. 36 No. 1, pp. 30-43.
- Bearse, P. (1998), "A question of evaluation: NBIA's impact assessment of business incubators", *Economic Development Quarterly*, Vol. 12 No. 4, pp. 322-333.
- Brooks, O.J. (1986), "Economic development through entrepreneurship: incubators and the incubation process", *Economic Development Review*, Vol. 4 No. 2, pp. 24-29.
- Campbell, C. (1989), "Change agents in the new economy: business incubators and economic development", *Economic Development Review*, Vol. 7 No. 2, pp. 56-59.
- Campbell, C., Kendrick, R.C. and Samuelson, D.S. (1985), "Stalking the latent entrepreneur: business incubators and economic development", *Economic Development Review*, Vol. 3 No. 2, pp. 43-49.
- Eisenhardt, K. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550.
- Hisrich, R.D. (1988), "New business formation through the enterprise development center: a model for new venture creation", *IEEE Transactions on Engineering Management*, Vol. 35 No. 4, pp. 221-231.
- Kuratko, D.F. and LaFollette, W.R. (1987), "Small business incubators for local economic development", *Economic Development Review*, Vol. 5 No. 2, pp. 49-55.
- Lumpkin, J. and Ireland, R.D. (1988), "Screening practices of new business incubators: the evaluation of critical success factors", *American Journal of Small Business*, Vol. 12 No. 4, pp. 59-81.
- Merrifield, D.B. (1987), "New business incubators", *Journal of Business Venturing*, Vol. 2 No. 4, pp. 277-284.
- Mian, S.A. (1996a), "Assessing the value-added contributions of university technology business incubators to tenant firms", *Research Policy*, Vol. 25, pp. 325-335.
- Mian, S.A. (1996b), "The university business incubator: a strategy for developing new research/technology-based firms", *The Journal of High Technology Management Research*, Vol. 7 No. 2, pp. 191-208.
- Mian, S.A. (1997), "Assessing and managing the university technology business incubator: an integrative framework", *Journal of Business Venturing*, Vol. 12 No. 4, pp. 251-285.
- Pena, I. (2004), "Business incubation centers and new firm growth in the Basque country", *Small Business Economics*, Vol. 22 Nos 3-4, pp. 223-236.
- Plosila, W. and Allen, D.N. (1985), "Small business incubators and public policy: implications for states and local development strategies", *Policy Studies Journal*, Vol. 13 No. 4, pp. 729-734.
- Shefer, D. and Frenkel, A. (2002), *An Evaluation of the Israeli Technological Incubator Program and its Projects*, Israeli Financing Instruments for the Support of Entrepreneurship, Technion – Israel Institute of Technology, The Samuel Neaman Institute for Advanced Studies in Science and Technology, Haifa.
- Smilor, R.W. (1987), "Managing the incubator system: critical success factors to accelerate new company development", *IEEE Transactions on Engineering Management*, Vol. 34 No. 4, pp. 146-156.
- Temali, M. and Campbell, C. (1984), *Business Incubator Profiles: A National Survey*, Hebert H. Humphrey Institute of Public Affairs, University of Minnesota, Minneapolis, MN.
- Thierstein, A. and Wilhelm, B. (2001), "Incubator, technology and innovation centres in Switzerland: features and policy implications", *Entrepreneurship and Regional Development*, Vol. 13 No. 4, pp. 315-331.

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- Totterman, H. and Sten, J. (2005), "Start-ups: business incubation and social capital", *International Journal of Small Business*, Vol. 23 No. 5, pp. 487-511.
- Yin, R. (2004), *The Case Study Anthology*, 1st ed., Sage Publications, Newbury Park, CA.
- Yin, R. (2009), *Case Study Research: Design and Methods*, 4th ed., Sage Publications, Newbury Park, CA.
- Yin, R.K. (1994), *Case Study Research – Design and Methods*, 2nd ed., Sage Publications, Newbury Park, CA.

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