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Towards a New Vision for Sustainability of Incubator Best Practices Model in the Years to Come

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Abstract:

Incubators are internationally recognized as a premier 21st century location for technology and technology-based economic development. The purpose of this paper is to identify the similarities and differences of business incubation programs worldwide. The study focuses on six key success indicators and points out proposed incubators model in the years to come. The approach to the design methodology is based on survey and interviews implanted on 100 selected incubators. The research findings indicate the similarities of incubators programs that are 1) Creating jobs, 2) Enhancing community's entrepreneurial climate, and 3) Tangible services and the differences are 1) Incubators type, 2) Finical status, and 3) Incubators age. The research adds value to current literature on new visions for sustainability of incubators best practice models for the coming year. Finally, it provides useful guidelines for implementation to both academies and practitioners involved with incubators worldwide.

Keywords: Technology incubators, innovation, entrepreneurship, job creation, economic development.

1. Introduction

As we begin the 21st century, developed and developing countries are implementing a variety of mechanisms to support their entrepreneurial climate in order to achieve self- sustainability, economic growth and an enhanced new economy based on knowledge and innovation. Simultaneously, nations around the world are utilizing the best practices of incubators as a strategy to become leaders in the future.

Business incubators are active institutional mechanisms that support several goals:

1) Creating jobs and wealth 2) Fostering a community's entrepreneurial climate 3) Creating business and retention 4) Becoming new financial models based on knowledge 5) Accelerating innovation and 6) Technology commercialization and transfer. The strategy for America indicates the main element as innovation. Innovation will shape the ideas and technologies that will be suitable for building the 21 century. Additionally, innovation will create new jobs and catalyze broadly shared economic growth (White House, 2010)

The objective of this paper is to identify the similarities and differences of business incubation programs worldwide. This work emphases on six key success indicators such as 1) Overview of incubators, such as geographical, sponsor, type, age, and size 2) Incubators goals 3) Services offered by incubators 4) Graduation policy 5) Obstacles by incubator clients, and

finally, financial information, such as income, operation expenses and annual salary of incubators manager. Incubators model for the future is proposed.

2. Literature review

Business incubation is defined as a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with tangible services and specific resources (NBIA 1997). In UK, business incubation is defined as a combination of a unique and flexible business development processes, infrastructure and people, designed to support incubates through the growth, start up, and all phases of incubation to graduation (UKBI, 2010). Many scholars have identified the strategic benefits of incubators (Allen and Rahman, 1985; Similor and Gill, 1986; Allen and McCluskey, 1990; Mian, 1996). They have indicated that incubators foster technological innovation and industrial renewal. Allen and Levine (1986), Mian (1997), Thierstein and Wilhelm, (2001), and Roper (1999) all report that incubators support regional development through job creation. Campbell (1989) and Petree et al (1997) discussed that the incubators are commonly linked

with business support networks and technological innovation programs and are dynamic processes to support young firms to survive and grow during the start-up period.

Al-Mubaraki and Busler (2010a) further investigated three practical business incubation models in Europe and their adoption as case study examples: the United Kingdom, France, and Germany. These three countries contain approximately 83% of all the incubators located throughout Europe today. This study focuses on (1) the nature of incubator financing (2) the incubator's mission and strategy and (3) graduation it in turn offers its incubate clients. The S.W.O.T analysis results of each case study reflect the positive strengths of each program and comply with its mission and objectives showing great opportunity for the future plans and performance of each program.

In another study, Al-Mubaraki and Busler (2010b) indicated that the business incubators can help young firms to survive and grow during their start-up years, and can play a key role in the economic development of a community or region. In developing countries, including Kuwait, India and the other GCC member states, business incubators can be particularly

valuable in helping the development of local economy, promote technology transfer, create new enterprises and generate jobs.

A further study by Al-Mubaraki and Busler (2011a) analyzes and examines 10 incubators case studies in developing countries. The findings of this study indicate 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 programs. This study also contributes to knowledge about the process of business incubation.

Al-Mubaraki and Busler (2011b), Al-Mubaraki and Schrodl (2012b) base this new study on a mixed-method approach. The study results clearly show 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 United States and other developed countries, but is still taking shape in developing countries such as the GCC member states. In addition to the four dimensions discussed in the study, the following set of recommendation is proposed.

1. Further research in this area should focus on the four dimensions discussed in this paper: 1) The number of businesses graduated over a period of time 2) The number of businesses still in business over a period of time 3) Jobs created by incubator clients and 4) 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.

3. Independent researchers, incubator funders, and governments should cooperate with practitioners in obtaining data related to these four measures of success.

Al-Mubaraki and Busler (2012c) show the results of quantitative and qualitative responses used to determine success rates and key indicators of incubators in various countries. The study presents the best practice model based on the lessons learned from case studies and indicates that the success of incubates to sustainable graduation is reliant upon: (1) clear objectives (2) incubators location (3) access to services (4) employment creation and (5) economic development strategy.

Al-Mubaraki and Busler (2012a) indicate the five strategic outcomes of business incubation programs: 1) entrepreneurial climate, 62% had this as primary purpose of their incubator; 2) commercialization technologies indicate 55.5%; 3) employment, 51.6%; and 4) innovation and diversifying local economies, 46.1%. In addition, the research adds value to

current literature on sustainability of incubators and outcomes, and provides a useful roadmap to both academies and practitioners through the experiences of worldwide incubator implementations.

3. Research methodology

This study concentrates on a specific context, i.e., the incubators best practice worldwide. The investigation and analysis of literature is an accepted form of desk-based research that compares the works of different authors (Hart, 1998). This type of approach is closely linked to mixed methods approach, quantitative (survey questionnaire) and qualitative (literature review) with qualitative research (Bryman and Bell, 2007). This approach allows a broader assessment of a practical and real situation (Yin, 2009). The results of data analysis will be summarized and synthesized in order to draw out patterns of incubators best practice models to be

implemented in the years to come. Finally, the established lessons will be an aid to governments, practitioners and academies for successful implementation of incubators.

4. Survey Results

Business incubators are particularly valuable tools in economic development, for job creation, to promote technology transfer and create new enterprises. In order to find out the actual experiences of best practices of incubators, an Internet-based survey was conducted with members of the National Business Incubation Association (NBIA) representing countries worldwide, including the Middle East and the Gulf Cooperation Council (GCC).

Of the 100 survey invitations that were emailed to NBIA members via the Survey Monkey web site, 47 were returned as undeliverable leaving a sample frame of 53. The total number of survey responses was 53, representing a response rate of about 53 percent.

4.1 Overview of incubators

4.1.1 Geographical area of client

Table 1 shows the distribution of respondents according to the majority of client geographical area of incubators' program, over half (N=28, 53.8%) indicated an urban area. Less than half (N=10, 19.2%) indicated a rural area and (N=9, 17.3%) a sub-urban area. The rest described their programs as multinational (N=5, 9.6%) and national (N=2, 3.8%).

4.1.2 Sponsoring Entities

Table 2 shows data about sponsoring entities of the samples. 49 out of 53 respondents indicated that they had a primary sponsoring entity with governments, followed by universities as academic institutions (N=23, 46.9%). Economic development organizations also accounted for a significant number (N=13, 26.5%) of sponsoring entities. The best described hybrid and Technology commercialization group (N=3, 6.1%) also, for-profit entities and other (N=2, 4.1%).

4.1.3 Incubators Type

Table 3 shows distribution of respondents by their type of incubators' program. Just over half (N=27, 50.9%) indicated that the primary type of incubator was to foster technology companies. Less than half (N=25, 47.2%) indicated their program could best be described as supporting a mixture of businesses (mixed-use incubator). The rest described their programs as manufacturing incubators (N=4, 7.5%), services business-oriented programs and incubator for web-related businesses (N=2, 3.8%), Community revitalization incubator (N=1, 1.9%), or other (N=3, 5.7%).

4.1.4 Incubators Age

Table 4 shows data about the time period when their incubator was founded. The highest response (N=28) was founded in the period 2001-2005 with 54.9%, with more than 17% founded between 1999 and 2000. Nearly 15.7% of respondents (N=8), however, said that their incubator had been founded in the period 1986-1990. The remaining incubators program (N=4, 7.8%) were founded in the period between 1991-1995 and 1996-1998. Overall, these results indicate that many business incubators were very well established in the period 1999-2005.

4.1.5 Incubator Size

Table 5 shows the distribution of respondents by the size of their incubators program in square footage. Just under half (N=16, 33.3%) indicate the largest size range to be 10,000- 19,999 sq. ft., followed by less than 9,999 sq. ft. (N=9, 18.8%). The rest (20%) described their sizes as less.

4.2 Incubators goals

Table 6 shows the distribution of respondents by their incubator's program goals. Just over half (N=43, 81.1%) indicated that the primary goals of their incubators were creating jobs in the local community and enhancing the community's entrepreneurial climate (N=38, 71.7%), followed by commercializing technology (N=34, 64.2%)

and building/accelerating growth in local industry(N=32, 60.4%). The best described their programs as retaining business in the local community (N=22, 41.5%), opportunity to support other entrepreneurs and the community (N=20, 37.7%), Identifying potential spin-in/spin-out business opportunities (N=19 35.8%), diversifying local economies (N=16, 30.2%), encouraging minority or women entrepreneurship (N=13, 24.5%), generating complementary benefits for the sponsoring organization and moving people from welfare to work (N=7, 13.2%), and revitalizing distressed neighborhoods (N=4, 7.5%).

4.3 Services offered by incubators

Table 7 shows the number of respondents whose business incubators offer particular types of services. Fifty-three respondents answered this question. The results indicated that most of the incubators offer networking activities (N=49, 92.4 %). Followed by help with business (N=47, 88.6%), internet access (N=46, 86.8%), marketing assistance (N=44, 83%), shared administrative/office services, and linkage to higher education/financial management (N=41, 77.3%). More than half the respondents indicated the services offered by incubators such as linkage to higher education resources (N=39, 73.5%), help in accessing commercial bank loans (N=38, 71.7%), help with accounting/financial management (N=38, 71.7%), help with presentation skills (N=38, 71.7%), business management (N=34, 64.2%), comprehensive business training program (N=33, 62.3%), commercializing Technology (N=32, 60.4%) and intellectual property management (N=30, 56.6%). Very few offered others services less, than 50%.

4.4 Graduation Policies

Table 8 shows the Graduation Policies of the start-up companies inside the incubators. The results indicated that most of the client spent the maximum time allowable in the incubation program and the client company had outgrown space available at incubator (N=34, 68%), the other client company had achieved mutually agreed upon milestones (N=32, 64%). Very few incubators client failed to meet certain bench marks and must leave the program (N=24, 48%) and client company had achieved liquidity event (N=15, 30%).

4.5 Financial information

4.5.1 Income

Table 9 shows the financial information about the incubator income. According to the survey respondents, the highest incubator income was from services contracts/grants (N=43, 81.1%). This was followed by cash operating subsidies income (N=42, 79.2%) and investment income (N=36). Less than half indicated other incubator incomes.

4.5.2 Operating Expenses

Table 10 shows the financial information of the incubator's operation expanses. Survey respondents indicated the highest operation expanses are from total payroll/benefits and building costs (N=42). This was followed by other expanses (N=34).

4.5.3 Annual salary of the incubator manager

Table 11 reports the numbers and percentages regarding the annual salary range of the incubator manager. Highest respondents indicated that their annual salary range is $50,000- 75,000 (N=17, 34%). Less than thirteen respondents indicated an annual salary of less than $25,000 (26%). The rest described the annual salary range of the incubator manager less than (10%).

4.6 Obstacles by incubator clients

Table 12 shows distribution of respondents by their obstacles by incubator clients. Just over half (N=43, 87.8%) indicated the primary obstacles were lack of financing for company, entrepreneurs lack of background/expertise in entrepreneurship (N=40, 81.6%), and incomplete/inadequate management team (N=28, 57.1%). Less than half (N=24, 49%) indicated the entrepreneurs profound lack personal economic resources, business literacy and/or education (N=23, 46.9%), and entrepreneurs unwilling to accept advice/incapable of success (N=22, 44.9%). The rest described their programs' obstacles as lack of technology literacy, distance from or access to networks and lack of customer acceptance.

5. Similarities and differences

5.1 Similarities

Creating jobs - Most of incubation programs create significant number of jobs and startup companies. Further, all jobs contribute positively on the countries employment rate. Enhancing community's entrepreneurial climate - It attributes on fostering entrepreneurship which reflects on major cultural changes in each countries and support the growth to be smart and digital.

Tangible services - All services offered by incubators are mainly same such as networking to learn from others experience and operation process, shared office services, linkage to financial management and counseling services.

5.2 Differences

Incubators type - Incubators type change from country to country and from program to program for example the developed countries focuses on technology incubators however, the developing countries focuses on mixed-use incubators because the marketplace required this type of incubators rather than technology incubators.

Finical status - Having an incubator with high income and low operation expanses varies from program to program. The difference is based on client companies, incubation management team and skills of entrepreneurship.

Incubators age - Some new incubators perform better than old incubators. This indicates that founded year is independent with incubators outcomes.

6. Proposed incubators model in the years to come

The similarities and differences outlined above indicate some of the reasons why incubators are similar in some countries and different in other countries. They also deal some strategies for practitioner and academia for forthcoming successful implementation of incubators. The author's experience proposed the incubators model in years to come in Figure 2.

7. Conclusion

Business incubation is recognized internationally as the premier locations for 21st century economic development, fostering entrepreneurial climate, technology commercialization transfer, innovation and job creation. In conclusion, the survey results from 53 incubation programs worldwide illustrate the positive adaptation of this dynamic mechanism tool for the 21st century. The results of the survey indicated the following:

- Incubator goals and creating jobs in the local community possess the highest percentages (81.1%), enhancing the community's entrepreneurial climate (71.7%), commercialization technology (64.2%) and accelerating growth in the local industry (60.4%).
- Most of the incubators offer networking activities (92.4%) which help the business (88.6%), internet access (86.8%), marketing assistant (83%), shared administration/office services and linkage to higher education/financial management (77.3%).
- Supreme clients have spent their maximum time allowable in the incubation program. Client company has outgrown space available in the incubator (68%).
- The primary obstacle was lack of financing for company (87.8%) and entrepreneurs lack of background/expertise in entrepreneurship (81.6%).
- The highest percentage income from service contracts/grants is 81.1% and cash operating subsidies income is 79.2% and stands first. The operation expenses indicated the highest percentage and are from total payroll/benefits/building costs. Third, annual salary of incubator manager shows a result of highest annual salary range between $50,000-$75,000 (34%).
- The majority of clients' geographical area is urban (53.8%). The most sponsoring entities are governments (92.5%). The primary type of incubators was fostering technology companies (50.9%).The highest response regarding age founded was in the period 2001-2005 (54.9%). The largest size of incubators program is ranged from 10,000 to 19,999 sq. ft.

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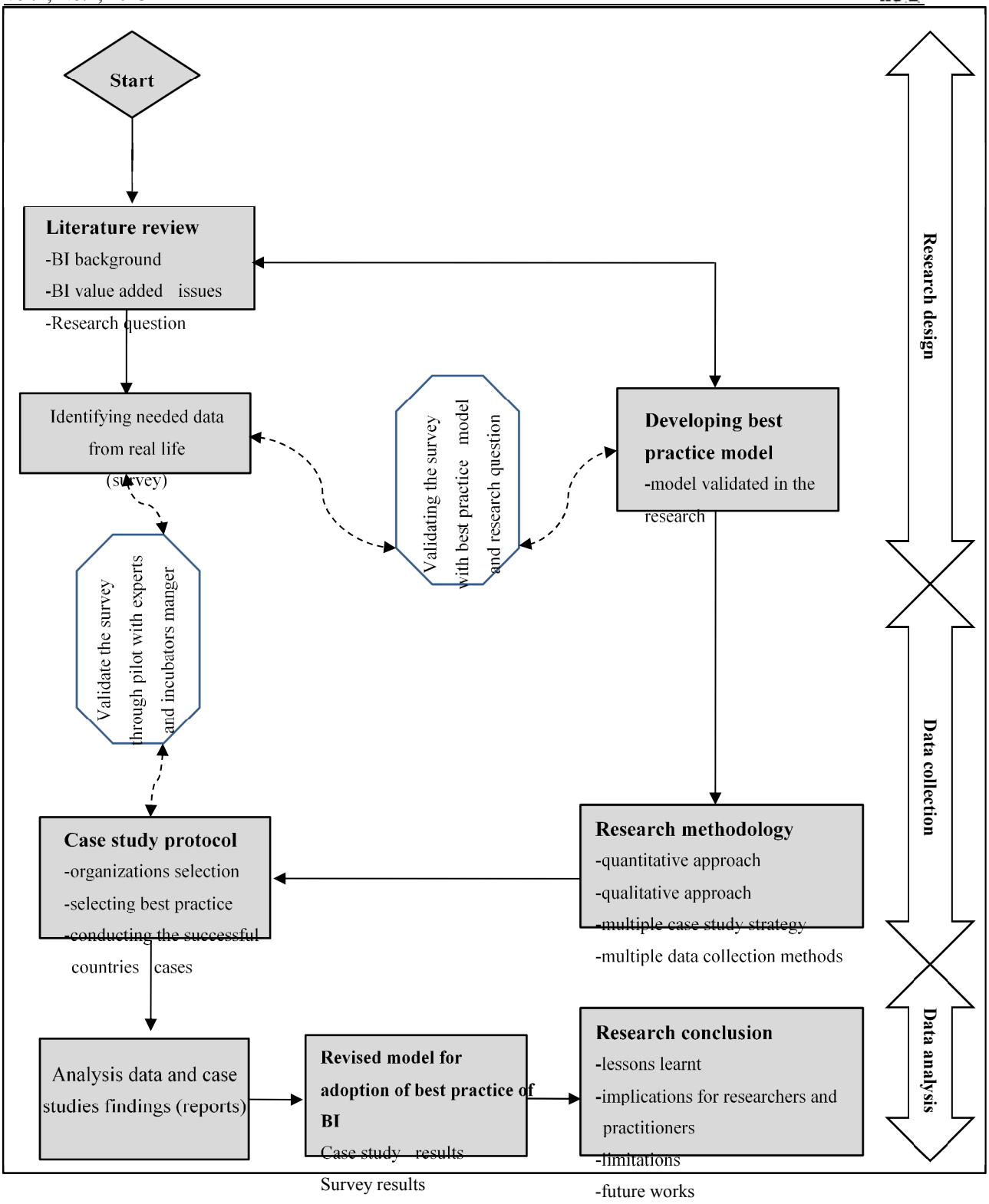

Figure 1. The process of developing a research methodology

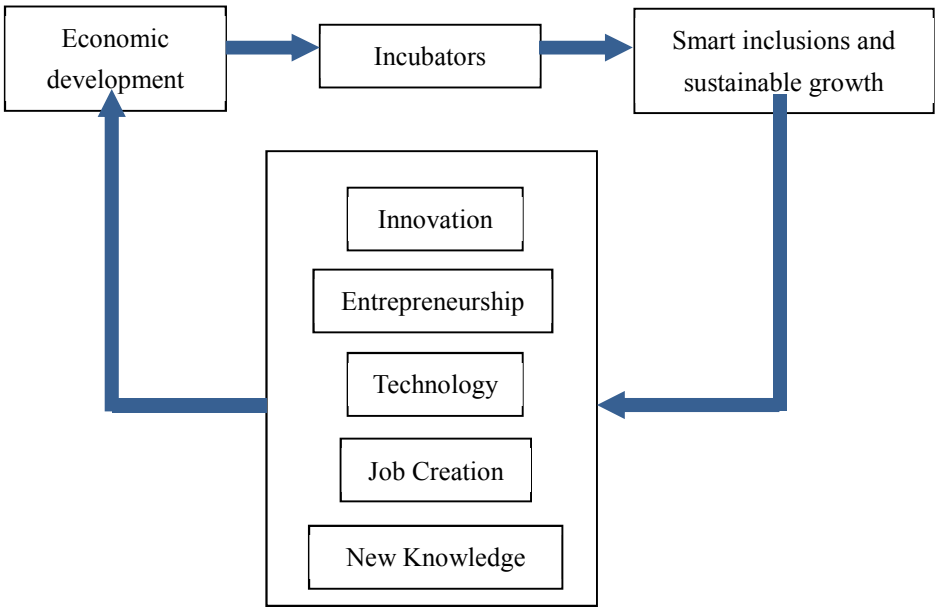

Figure 2. Proposed incubators model in the years to come

Table 1. Geographical area of client

Answer Options	Response %	Response Count
Urban	53.8%	28
Suburban	17.3%	9
Rural	19.2%	10
National	3.8 %	2
Multinational	9.6 %	5
Answered Questions		**52**

Table 2. Sponsoring Entities

Answer Options	Response %	Response Count
Academic institutions	46.9%	23
Sponsoring entity	2.0%	1
Government	49.0% 2	24
Economic development organization	6.5%	13
Profit entities	4.1% 6	2
Hybrid	0.1% 6	3
Technology commercialization group	0.1% 4	3
Other	0.1%	2
Answered Questions		**49**

Table 3. Incubators Type

Answer Options	Response %	Response Count
Technology incubator	50.9%	27
Service incubator	3.8%	2
Mixed-use incubator (variety of client industries)	47.2%	25
Manufacturing incubator	7.5% 3	4
Incubator for web-related business	0.8% 1	2
Community revitalization incubator	0.9% 5	1
Other (Please specify)	0.7%	3
Answered Questions		**53**

Table 4. Incubators Age

Answer Options	Response %	Response Count
Before 1981	2.0 %5	13
1981-1986	0.9%	8
1986-1990	15.7%	4
1991-1995	7.8% 7	4
1996-1998	0.8%	9
1999-2000	17.6% 5	2
2001-2005	4.9%	8
Answered Questions		**51**

Table 5. Incubators Size

Answer Options	Response %	Response Count
Less than 9,999	18.8% 3	9
10,000-19,999	3.3% 12	16
20,000-29,999	0.5% 12	6
30,000-39,999	0.5 %	6
40,000-40,999	4.2% 6	2
50,000-50,999	0.3%	3
More than 60,000	12.5%	6
Answered Questions		**48**

Table 6. Incubators Goals

Answer Options	Response %	Response Count
Creating jobs in local community	81.1%	43
Enhancing community's entrepreneurial climate and value attributes to entrepreneurship	71.7%	38
Retaining business in local community	41.5%	22
Building/accelerating growth local industry	60.4%	32
Diversifying local economies	30.2%	16
Encouraging minority or women entrepreneurship	24.5%	13
Commercializing technologies	64.2%	34
Opportunity to support other entrepreneurs and the community	37.7%	20
Generating complementary benefits for the sponsoring organization	13.2%	7
Revitalizing distressed neighborhood	7.5%	4
Moving people from welfare to work	13.2%	7

Table 7. Services offered by incubators

Answer Options	Services Incubator	Offer Incubator Needed	Response Count
Services	14	2	14
1. Help with business	43	7	47
2. Networking activities	46	7	49
3. Marketing assistance	36	9	44
4. Internet access	43	5	46
5. Shared administrative/Office services	41	3	41
6. Help accessing commercial Bank Loan	29	11	38
7. Linkage to higher education Resource	36	6	41
8. Help with accounting/ financial Management	31	9	38
9. Help accessing specialized noncommercial loan funds	27	9	34
10. Loan guarantee programs	12	7	18
11. Linkages to strategic partners	37	7	41
12. Help with presentation skills	34	6	38
13. Shadow advisory boards/mentors	24	4	27
14. Human Resources/ Personal development/ Training	27	7	31
15. Linkages to angel or venture capital investor	32	9	39

16. Help with business etiquette	22	3	24
17. Comprehensive business training program	29	7	33
18. Assistance with E-Commerce	15	9	23
19. Specialized equipment/facilities	24	6	28
20. Business management process/ customer/assessment	31	5	34
21. Services/inventory/ management	16	4	19
22. Federal procurement assistance	14	7	21
23. Commercializing Technology	27	7	32
24. Management team identification	24	4	27
25. Assistance with manufacturing practices, Process	15	6	19
26. And technology	18	6	22
27. General legal services	19	8	25
28. International Trade assistance	19	6	24
29. Intellectual property management	27	4	30
30. Assistance with product design and development	19	2	20
31. Process and technology	19	3	21
32. Economic Literacy training	16	4	20
33. In-house investment funds	9	9	16
34. Loaned executive to act in Management capacity	7	4	11
35. Child care/services	2	4	6
Answered Questions			**53**

Table 8. Graduation Policies

Answer Options	**Response %**	**Response Count**
Client company has outgrown space available at incubator	68.0%	34
Client has spent maximum time allowable in program	68.0%	34
Client company has achieved mutually agreed upon milestones	64.0%	32
Client failed to meet certain bench marks and must leave program	48.0%	24
Growth rate of client exceeds talents of incubators program	14.0%	7
Client company has an experienced in depended management team	20.0%	10
Client company has achieved liquidity event	30.0%	15
Client company has attracted another round of funding	18.0%	9
Client company has outgrown space available at incubator	68.0%	34
Client has spent maximum time allowable in program	68.0%	34

Client company has achieved mutually agreed upon milestones	64.0%	32
Answered questions		**50**

Table 9. Income

Answer Options	**Less than $50,000**	**50,000-$100,00 $100,00- $200,00 $200,00- $300,00**	**Greater than $300,00**	**Response Count**
Income	6	4	9	19
1. Rent and service	21	14	9	43
2. Income from services contracts/Grants	20	15	7	42
3. Cash operating subsidies	22	12	2	36
4. Investment income	20	3	0	23
5. Income from others sources	19	11	3	31
6. Total income	5	15	21	41
Answered questions				**48**

Table 10. Operating Expenses

Answer Options	**Less than $50,000**	**50,000-$100,00 $100,00- $200,00 $200,00- $300,00**	**Greater than $300,00**	**Response Count**
Operating Expenses	6	7	8	21
1.Total payroll/benefits Building costs maintenance/repairs/lease mortgage expenses	8	15	19	42
2. Other expenses	19	12	3	34
3.Total operating expenses	4	10	24	38
Answered questions				**45**

Table 11. Annual salary of the incubator manager

Answer Options	Response %	Response Count
Less than $ 25,000	26.0%	13
$ 25,00-$ 35,000	2.0%	11
$35,0000-$50,000	2.0%	17
$50,000-75,000	34.0%	1
$75,000-100,000	22.0%	1
$100,000-125,000	6.0%	3
$125,000-150,000	6.0%	3
$150,000-175,000	4.0%	2
More than $175,000	0.0%	0
Answered questions		**50**

Table 12. Obstacles by incubator clients

Answer Options	Response %	Response Count
Lack of financing for company	87.8%	43
Entrepreneur slack background/ expertise in entrepreneurship	81.6%	40
Lack of customer acceptance	20.4%	10
Incomplete/inadequate management team	57.1%	28
Limited market potential	46.9%	23
Entrepreneur profoundly lack personal economic resources, business literacy and/or education	49.0%	24
Entrepreneur unwilling to accept advice/incapable of success	44.9%	22
Distance or access to networks	14.3%	7
Lack of technology literacy	22.4%	11
Others	12.2%	6
Answered Questions		**49**