Research on the State of Business Incubation Systems in Different Countries: Lessons for Uganda

Joshua Mutambi, Joseph K. Byaruhanga, Lena Trojer, and Kariko B. Buhwezi

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Abstract

Small and Medium sized enterprises have proven to be capable of catalyzing national economies owing to their high growth potential, their role in promoting innovations, employment creation and economic development. However, in the early days of their growth period, these firms face difficulties that may lead to their failure. Business incubation has been identified as an effective growth mechanism for such entrepreneurial firms. This paper mainly looked at the concept and description of business incubation, development process and contribution of incubators to startup firms. It examined the impact to regional entrepreneurship and economic development globally. The paper concluded by highlighting the existing incubators in Uganda and identified recommendations for strengthening the business incubation in Uganda.

Keywords: Business Incubation Systems; SMEs, Entrepreneurship; Industrial Development, Least Developed Countries, LDCs, Sub-Saharan Africa

JEL Classification: O55, O14, M13 1.

Introduction

Small and Medium Enterprises (SMEs) have more significant role in improving economic growth and industrial development of nations by contributing to the creation of employment, income generation opportunities and wealth, promotion of entrepreneurship and enhancing of exports. They constitute an important dimension in the innovation process (Beal, 2003; Hammer *et al.,* 1997; Byaruhanga, 2005; Tirthankar, 2007). The paper's discussion is informed by reviews of relevant publications, workshop reports, survey reports and stakeholder discussions in respect to the contribution of SMEs, and how they could be enhanced to sustainable growth through business incubators that have received considerable attention in the world.

The SMEs in the Least Developed Countries (LDCs), where most of the Sub-Saharan African countries fall, producing products and services with moderate quality, applying low level technologies

and faced with other obstacles have been facing tough competition with the imported products. However, globalization has opened up new businesses and market opportunities. In case of African and particularly the Sub-Saharan countries, the regional integration process through various groupings such as the Common Markets for East and Southern Africa (COMESA), Southern Africa Development Community (SADC) and the East African Community (EAC) have expanded and strengthened the linkages with the global economic structures and processes (UN OSAA, 2009)

Within rural and semi-urban areas, there often exist significant pressures to start new businesses, adopt new technologies, and produce products that conform to standards required by the markets and to those established by the regulatory authorities. However, small and new businesses have several disadvantages that hinder their success. They have difficulties in securing the resources they need for survival (Ferguson and Olofsson, 2004). Because of this, over 80-90% of the new businesses started each year fail worldwide within the first five years of operation (Aerts *et al,* 2007).

Incubators have been considered as a remedy for the disadvantages that small and new firms encounter by providing numerous business support services, and they are useful in fostering technological innovation, entrepreneurship, commercialization and industrial renewal. For these reasons, most countries have increasingly been engaged in establishing incubators (Akcomak, 2009).

This research paper addresses the following questions:

(1) Discuss the conceptualization and theory of business incubation

(2) What are the experiences and performance impacts of business incubators in different countries?

(3) What lessons can be learnt from the developed countries by the Least Developed countries, particularly for Uganda

The paper emphasizes Uganda which is situated in a region that includes some of Africa's most economically important countries but also a member of the Least Developed Countries in the Sub-Saharan Africa as a case study. Uganda is a member of EAC common market, COMESA, WTO and other international bodies. Uganda today has a great potential to become the key investment and business hub in the East African region. As new challenges and demands are derived from global economic competitiveness, an understanding of business incubators and opportunities is critical to provide future direction for the incubation process, required services and desires of entrepreneurs in Uganda.

Due to the key structural constraints to Industrialization in Uganda, the role of the State in these circumstances is still very vital as lessons learned from the developed countries (UNCTAD, 2009). Industrialization offers prospects for the expansion of employment and income. At the same time, it helps to create the idea on the innovation and better technology changes that brings production improvement thereby accelerating the growth of productivity and quality. A new industrial policy for

Uganda was therefore enacted in 2008 which is attuned to the needs of domestic enterprises, more cognizant of the need to build linkages with Trans National Corporations and to leverage untapped commercial opportunities produced by university research.

The paper therefore is organized as follows: a section on entrepreneurship and industrialization, literature review on business incubator's historical development and objectives; status of the business incubators and their impact in the World; the overview of the attempt to establish incubators in Uganda and summary of the recommendations and conclusions.

Methodology

This paper is a product of a study carried out on the literature concerning the development of business incubators in the world from the published materials, text books, conference presentations and the authors experience in Industrial policy formulation, innovation systems and cluster development facilitating activities, and interactions among the triple helix actors.

Entrepreneurship and Industrialization

Industrialization is both the process of building up a country's capacity to convert raw materials into new products and the system that enables production to take place. The issue of entrepreneurship and its relationship to the industrialization process has long occupied the attention of development planners. In particular, the key role of manufacturing industry for growth based mainly on technology driven increase of productivity and some essential co- factors, like human skills, capital or appropriate institutions is globally undisputed.

A recent international literature suggested that operating in clusters may help small enterprises to overcome their growth constraints (McCormick, 1999). Creating favorable conditions for entrepreneurship does indeed help the process of industrialization, and business incubation focusing on national/regional strengths through clustering and networking is believed to help small enterprises grow and contribute to industrialization. Therefore small enterprise development has been linked to the industrialization process (McCormick, 1999).

What is needed thus is to create favorable conditions to achieve the above objectives, and facilitating entrepreneurs will contribute to industrial development which is a key role of the developmental state. The emergence of the cluster based development strategy termed as "new innovation system" based on the cooperation among universities (research institutions), industry and government has been reported to have brought a wide range of support services worldwide for development of knowledge based businesses, with linkages to universities, research institutes, venture capital and international joint ventures. Clusters affect competitiveness within countries as well as across national borders (Porter, 1998).

Primarily, the capacity to access, adapt, disseminate and generate new technologies that are crucial for start-ups and SMEs has to be based not only on industrial policy but also other related and sound policies such as Science and Technology policies with dynamic systems of national innovation in place.

The tie between basic research, science and development can also be strengthened by establishing University Incubators. Particularly the University Incubators can support the potential entrepreneurs by providing a mentor, seed financing, networks and business training. The Universities can provide access to laboratories, high tech equipment and highly educated specialists in order to commercialize academic research by developing products or licensing the technology (Becker and Gassmann, 2006).

2. Literature Review

Theoretical Conceptualization and Objectives of Business Incubation Process

The term 'incubator' was derived from the fundamental meaning of the term: The artificial nurturing of the chicken egg in order to hatch them faster in a sheltered environment. The same hatching concept is applied to the incubating of companies; it speeds up new ventures' establishments and increases their chances of success. An incubator thus hatches new ideas by providing new ventures with physical and intangible resources (Becker and Gassmann, 2006). They have been operated by community development efforts or municipal organizations to fuel economic growth and job creation through government funding since the 1960s. Business incubation concept rests on the argument that if weak but promising new businesses with a potential of growing into successful ventures can be identified at an early stage and helped, failures, loss of resources can be reduced and more ideas can be developed (Hamdani, 2006).

During the past 3 decades, States, regions and cities have initiated economic development programs aimed at: (1) maintaining industries and firms, (2) recruiting established firms from other areas, and (3) creating new industries and enterprises. With respect to the third objective, there has been a proliferation of business and technical assistance programs aimed at increasing the formation, survival, and success rates of small and medium sized enterprises. These include Small Business Development Centers, Small Business Institutes, Enterprise Forums, University- based entrepreneurship centers, special programs offered through Chambers of Commerce, Business incubators and so forth (Rice, 2002).

By comparison, business incubators offer the opportunity to deploy multiple modes of assistance, including continual interaction, because companies and the incubator staff are co-located in the same facility. The spectrum of services offered by an incubator is extremely varied, including strategic business planning, administrative services, technical assistance and guidance on issues of intellectual property, (particularly in the case of technology incubators), to connect with financing and networking activities, to infrastructural facilities, etc. (Nolan, 2002; Lalkaka, 1997; EC-CSES, 2002; Sun *et al,* 2007).

Business incubation is a globally well-tested over 50 years systematic approach with diverse objectives primarily aimed at growth-oriented start-up enterprises to help them grow with the efficient use of business resources, to become sustainable and competitive companies. For example, according to (Nolan, 2002; EC-CSES, 2002; GBIN, 2009) these very diverse objectives include:

1) Generating employment;
2) Commercializing ideas and university research with spin-off companies;
3) Development of entrepreneurial culture and supporting innovations in communities;
4) Upgrading the technological standing of firms in a given locality;
5) Encouraging young graduates to create their own businesses;
6) Improving survival rates for new start-up businesses;
7) Development of new industry sectors and economic diversification;
8) Expanding the supply of infrastructure;
9) Empowering the socially disadvantaged groups;
10) Creating export revenues, and;
11) Increasing competitiveness of an existing sector.

Conceptually "Incubation" is a more diligent and planned process to strengthen clustering or co-location of firms and therefore needs a careful attention to the problems of the prospective occupants, extending well beyond providing infrastructure and office services. Business incubation is a process enacted by business incubators, angels and venture capital organizations in order to facilitate the entrepreneurial process (Hackett and Dilts, 2004). In 2009, of the total 7,000 worldwide, the numbers in industrializing countries are more than half the total, especially in China, Korea, Taiwan, Brazil and Mexico. In Europe, the majority are in Germany, France and U.K. While incubators in industrial countries serve a variety of objectives, those in the industrializing countries are predominantly focused on technology (Lalkaka, 2009). Majority of the Least Developed Countries' incubators aim at fostering entrepreneurship, innovations and value addition (manufacturing) in promoting industrialization (UNCTAD, 2009).

Historical background of Business Incubators in the World

Over the last 50 years, business incubators have evolved in different ways .The first incubator was established in 1959 in Batavia, New York in the United States, but until the 1970s' this concept was unique (Wiggins and Gibson, 2003; Hackett and Dilts, 2004). Since the first incubators were founded in the late 1970s and early 1980s (the so called "First generation" or "traditional incubators" (EC-CSES, 2002) was characterized by a strong "real estate" component), the main objective has been and still is to nurture entrepreneurial start-ups that will

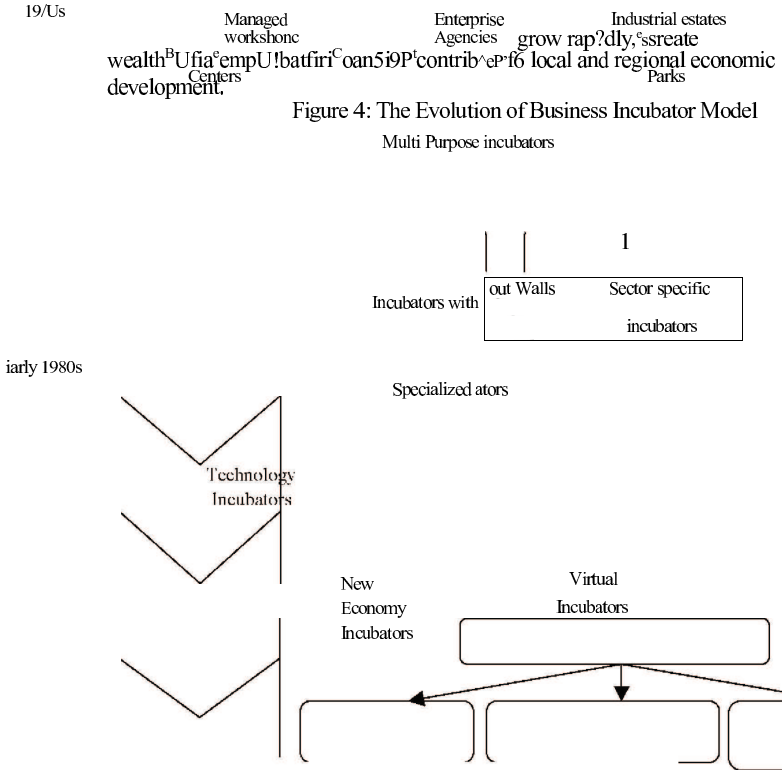


Figure 4: The Evolution of Business Incubator Model

Source: EC-CSES (2002)

The earlier incubators focused their efforts on new technologies, light manufacturing and services. Later, the "Second Generation" of incubators in the 1990s added on counseling, skills enhancement, networking services, management, access to professional support and seed capital. However, as the industry has matured, the types of businesses incubated have significantly broadened (Wiggins and Gibson, 2003). The coming of the knowledge-based business incubators in the late 1990s and increasing importance of universities in incubation, resulted into strong development of what analysts have termed as the "Third Generation" of business incubators heavily technology oriented. From these humble beginnings, the incubator industry has matured into an international economic- development tool. Figure 1 shows the evolution of business incubation.

There are several definitions and approaches to business incubators available in academic literature and many have been adopted by Industry Associations and Policy makers in different countries reflecting local cultures and national policies. Most of them are characterized by a specific physical location and co-operation between public and private sector institutions in the form of actions essentially aimed at building bridges between academia and industry, promoting

innovation in small and medium enterprises (SMEs) and encouraging investment in technology - based start-up firms.

A description of activities the incubators perform according to (UN-CE, 2001; EU-CSES, 2002; Scaramuzzi, 2002; Hamdani, 2006; Rumen 2009; Akcomak, 2009; Chandra, 2007; Lalkaka, 1997; Zedtwitz and Li, 2004; Hackett and Dilts, 2004) define that incubators:

- Provide secure, affordable, flexible, well equipped physical space including communication infrastructure ;
- Provide professional, business, management, and technical consulting (in areas where they don't have the relevant knowledge and expertise) services together with access to seed and working capital, public grants, loan financing, venture capital, and R&D partnership funding, and state equity financing;
- Are often associated or connected with institutions such as universities, research institutes, communities, consortiums, government administration councils, and Nongovernment organizations;
- Create an interactive community of entrepreneurs, academic and business interests that stimulate and encourage the sometimes fragile incubation process, including the disadvantaged population, and finally;
- The most important element that identifies, incubators from the rest of similar establishments is that it provides high level business support/management services under one roof for entrepreneurs and new ventures that have medium and high level technological focus to create synergy (Akcomak, 2009). The environment within the incubator created through the interaction between the incubator managers and incubatees, and among the incubatees themselves is seen by majority writers as a very important facet of incubation.

Chien, (2007) described a business incubator as an innovative development tool of human resource development (HRD) used to foster growth and diversify the venture base. Human resource development; networking and knowledge acquisition, adaptation and dissemination that take place within enterprises, universities and research institutions supplemented with appropriate policies will lead to the business incubators' importance in attainment of their objectives.

The general definition of business incubator by the National Business Incubation Association is[1]:

> Business incubators nurture the development of entrepreneurial companies, helping them survive and grow during the start-up period, when they are most vulnerable. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. The most common goals of incubation programs are creating jobs in a community, enhancing a community's entrepreneurial climate, retaining businesses in a community, building or accelerating growth in a local industry, and diversifying local economies.

Development and effective management process of business incubators

In the 1980s, many industrialized countries and industrializing countries created business incubators in hopes of stimulating jobs, technology transfer and economic development in their communities; some have been successful while others the success has been slow or not there at all. This has been due to a variety of factors; such as differences in regional characteristics, the policy and regulatory environment, economic factors in play, different stakeholders involved, culture and attributes of the incubator firms, the vision of the incubator and the mode of management.

Chien (2007) study concluded that there is a relationship with the role of HRD in the incubator management and the effectiveness of incubator development to fulfill its goals. Confronted with lack of trained personnel

and expertise in managing various stages of the change more research to study the success rates and to analyze the failures has been done. In countries with effective institutional environment, good policies and organizational mechanisms, a lot more successes of incubation systems has been realized as will be discussed in later sections.

Like any other business, the success of business incubators depends on the incubator development, financing, effective management and performance process, and among the important factors in successful management of incubators is the cooperation among variety of stakeholders (incubation network system). However, the role of management is far more than provision of workspace in the facility; it involves all types of support that would help the firms to flourish including facilitating employees training in specialized techniques and linkages with support institutions such as university ties.

Therefore, the mission and vision of the incubator and how it will be implemented by incubator management is very important. The driving force in incubator programs is the supply of expertise, capital, and support that comes from assistance activities directed towards filling the voids in entrepreneurs' abilities. Thus, the development and performance of incubators is important to entrepreneurs. Management of incubators can affect the firms' survival and growth. In general, there are two groups of incubators: profit (these incubators help the start-ups by offering rental space, capital, financing solutions, and business mentoring etc. at subsidized rates) and Not for - profit (these incubators are set up by public and non public-organizations that wish to promote businesses in an area, a specific industry, economically empower the disadvantaged or to promote the entrepreneurial spirit (spin-offs) at a university or research institute.).

Business incubation is a cross-cutting process embracing a range of components including business and entrepreneurial support and finance. The model is as shown below:

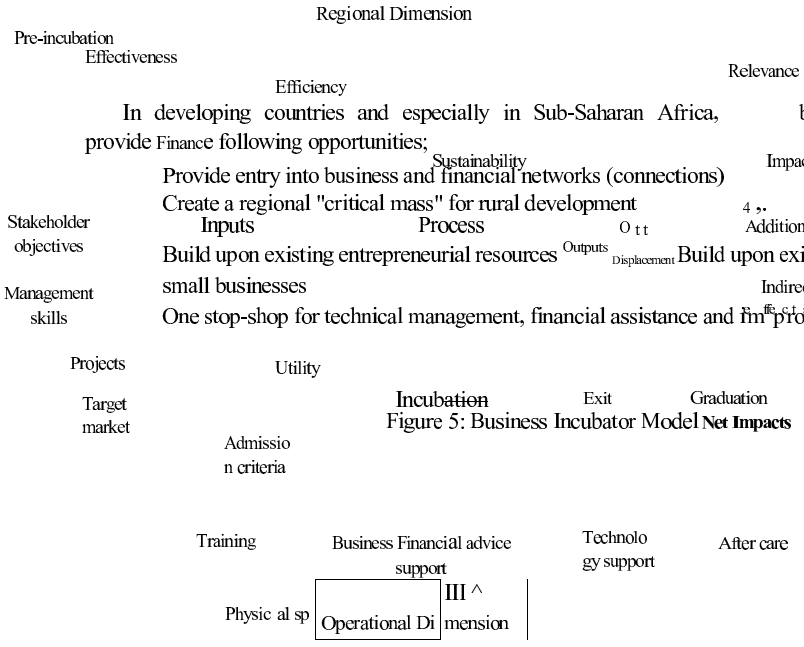
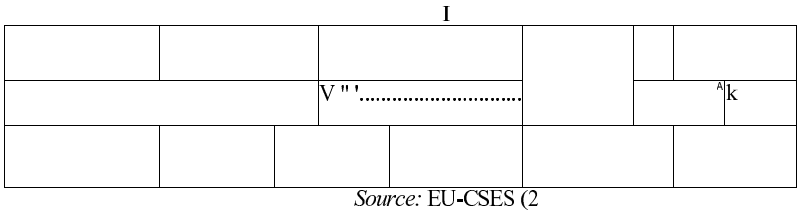


Figure 5: Business Incubator Model



Source: EU-CSES (2

Research on incubators defines the incubation process as comprised of three stages Pre- incubation, the incubation stage and the post - incubation. Since the aims of incubators are to foster innovative enterprise development, and can be successfully focused on creating competitive enterprises with high job creation potential, regardless of whether or not the business concept is innovative, they can serve as important levers to forge positive change that creates a more enabling environment for innovative entrepreneurs across the economy.

However, the best way of achieving the intended objectives, is to have more communication within the incubator management and tenant entrepreneurial firms. It requires active linkages between financiers, academia, policy makers and the business community (Incubation system). More focus also should be on the entrepreneurial incubation process and the outcome. This has thus resulted in the need to consider HRD[2] as an important part of the incubator management and development process, and in the process of technological innovation human resource development plays a significant role in improving the effectiveness of management technology and in achieving organizational objectives (Chien, 2007; Wang and Zang, 2005).

Significance of Business incubators

Looking at the role of incubators in the entrepreneurial process, Wiggins and Gibson (2003) argued that incubators must do five things well in order to succeed. (1) Establish clear metrics for success, (2) provide entrepreneurial leadership (3) develop and deliver value-added services to member companies (4) develop a rational new company selection process (5) ensure the member companies gain access to necessary human and financial resources.

While innovation is considered by many as the foundation of growth, the innovation process in the Least Developed Countries follows a different pattern. It is not a perfected or a common occurrence. Learning and innovation may arise from a variety of sources, such as research and development (R&D-which is codified knowledge), tacit learning -by-doing, investments in new machinery and equipment, technology suppliers, mobility of labour etc. For many low -income economies, especially the Sub-Saharan Africa, however the opportunities for industrial learning have been limited compared to the developed market economies where firms are heavily supported by a dense array of institutional support institutions that buttress institutional learning on a continuous basis (UNCTAD, 2009).

By establishing business/ technology incubators and linking them to cluster initiatives, it will stimulate networking among firms, especially with firms located close to each other. It will also enhance university -industry collaboration via university incubators. In establishing linkages and collaboration with other firms or institutions, firms can outsource knowledge and technology.

Therefore, promotion of incubation as the essential tool in cluster development makes sense, as cluster development strategies can consider the adequacy of available facilities for the development of identified clusters. The availability of work premises and business support services for potential entrepreneurs and expansion of existing businesses is an important component of maintaining the long-term success of a cluster.

The long term evolution of incubators has revealed that the concept evolved from a simple tool for economic development into a high-tech, sector specific and increasingly profit-oriented tool to promote entrepreneurship. It is now an accepted practice across the world both for established economies and emerging economies. The European Union countries, Asia and pacific countries, Middle East countries, North and South America, including African countries are implementing business and technology incubation programmes. The business incubator impacts are the longer term

consequences of activities, linkages and outcomes. These can be grouped into five broad areas; (1) launching sustainable businesses, (2) job creation, (3) taxes, (4) social impact.[1]

North America

The National Business Incubation Association estimates that North American incubator clients and graduates have created about 500,000 jobs since 1980. Even better, for every 50 jobs created by an incubator graduate, about another 25 jobs are created in the community. Incubator graduates create jobs, revitalize neighborhoods and commercialize new technologies, which strengthens local, regional and even national economies.

The 1990s, witnessed further development of incubators throughout the United States of America, for instance, in 1981, there were 8 incubators and by 2000, there were 900 incubators in the US (Peters *et al,* 2004).

Regarding start-up businesses, in 2001 alone, North American incubators helped more than 35,000 start-up companies that employed nearly 82,000 workers and generated annual earnings of more than $7 billion with 900 incubators (Sally Linder/NBIA, 2003) while In 2005, assisted more than 27,000 businesses that provided employment of over 100,000 workers with over 1000 incubators in operation. There are 120 in Canada, with 2,958 client businesses generated revenues at the end of the year 2005, created full and part-time employment of over 13,000 people; the average survival rate of companies in Canada that go through business incubation has been shown to be higher than 80% after five years (CABI, 2005).

Business incubation experience in other Regions

Incubators differed from the existing industrial parks and estates as the focus shifted away from real estate development and subsidized rents to value added business services.

European Union Region

The EU started supporting the development of incubators in mid1980s as part of its regional policy. Whilst initially EU focused on establishing incubators in 'lagging' regions, in recent years it works more on incubators as support for high knowledge-intensive start-ups as part of the 'Lisbon Agenda' (European Union- Regional Policy, 2010). EU programs providing assistance to incubators include: the European Regional Development Fund (ERDF); European
Social Fund (ESF); Leonardo Programme mainly for training; Sixth R&D Framework Programme, and others.

The existence of EU-wide support networks such as, EBN (European Business & Innovation Centre Network), 'Gates to Growth', and 'Science Alliance' and the strong National associations such as in, France, Germany, UK, Finland and Sweden effectively promote the growth of business incubators.

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1 Status of Business Incubators and their Impacts in the World

Promoting incubation and growth of innovative firms is also singled out in EU2020 strategy, proposed by President Barroso, as one of the ways of creating value basing growth on knowledge. The Deputy Director General, Enterprise and Industry, European Union- Regional Policy, (2010) said "Business incubators have a long history in supporting research and development based start -ups from academic and research institutes.

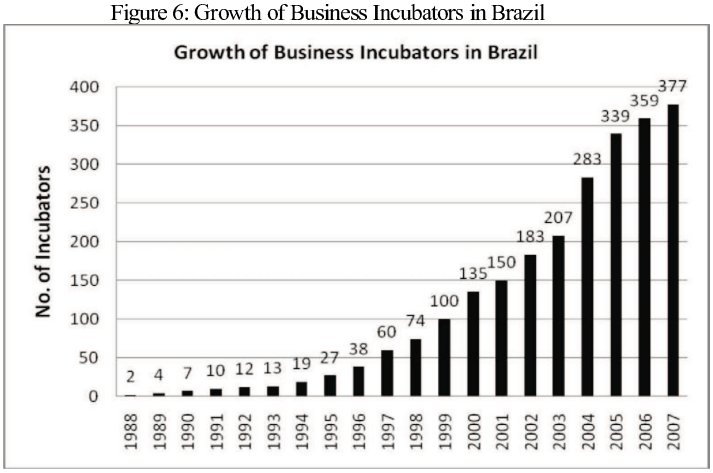
Overall, Western, Central and Eastern Europe have a wide range of incubator models with countries at very varying stages in the process of business incubation (EC-CSES, 2002) with a total of around 1,200 incubators generating over 40,000 gross new jobs/per year. The survival rate is relatively high, on average 85%, and 77% of all incubators are not-for profit.

There are approximately 300 business incubators in UK that support a range of high-growth technology businesses in sectors such as biomedical, IT, and the creative industries. In Sweden, there are a total of 55 business incubators (www.sisp.se). Many incubators also offer a "virtual" incubation service where advice and support is provided to start-up businesses located outside of the incubator.

Latin America and Caribbean

Brazil is the leading country in the incubation business in Latin America as in terms of number of incubators in operation and annual growth rate. Brazil is the fourth ranking business incubation market in the world. Incubators in Brazil have witnessed meteoric growth from just two in 1988 growing to nearly 400 in 2007 (Chandra, 2007). Other countries like Mexico, Chile and Colombia followed the same. Table 4 shows the growth of business incubators in Brazil.

Figure 6: Growth of Business Incubators in Brazil



Source: Chandra (2007)

Funding: Business incubators in Brazil are funded by the coalition of partners, government, federal agencies and non-government sources. The incubator initiative in Brazil was started by the key individuals from the academia, industry and government. It is today viewed as a hybrid organization that facilitates interaction between the triple helix of university, industry and government spheres (Chandra, 2007).

Networking: The existence of National Association of incubators and science parks prays a key role in strengthening synergies in different kinds of incubators and by encouraging participation from universities and research institutes while persuading different entities to support incubators. Business incubators in Brazil provide the usual raft of services, tangible and intangible with an emphasis on networking.

The Asian and Pacific Region

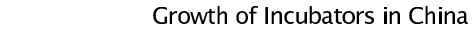
The main goal of incubation systems in Asia was to promote continuous regional and national industrial, economic growth through increasing employment, general business development and to stimulate specific economic objectives such as industrial restructuring as well as wealth generation and utilization of national resources. China, Japan, India, Korea, Malaysia, Indonesia and other members of the Asia and Pacific region embraced business incubation. Asia leads in establishment of Business incubators. There are over 1,500 incubators in operation in Asia alone. China alone has over 600 incubators compared to just over 50 incubators in India (15 of which are technology Business incubators) and 100 incubators in the planning stage by the government of India, Japan (200 incubators), Taiwan (70 incubators), Malaysia (20 incubators), about 300 in South Korea and Australia (20 incubators) (Cho and Eunsuk, 2009).

Table 8: Growth of incubators in China

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
No. of incubators in China	80	77	110	131	280	436	466	489	534	548
No. of tenant companies	2670	4138	5293	7693	12821	23373	31385	33048	39,491	41,434
Total employees in tenant companies	45600	68975	91600	128776	263596	414995			720,000	792,590
Accumulated number of graduated companies	825	1316	1934	2770	3994	6927	9,565	11671	15,815	19,896

Source: Zedtwitz and Li. (2004) and Min (2007).

Figure 7: Growth of Incubators in China



The experiences and characteristics of incubation industry in China shows that; much attention and great support from central government, pour strong drive to incubation industry; Incubator has become an important carrier to build an innovation-oriented country and the cradle to cultivate technology enterprises and entrepreneurs. The trend is that more companies are getting incubated as more incubators are established, and the total number of employees increasing (Min, 2007). China further enhanced capacity and fast development of national incubator facilities to over 600 incubators.

In Korea, another leading successful country in business incubation in Asia, the concept has been a success because of the good policies on small and medium businesses by the government, especially during the 1990s, when they needed to create jobs, revitalize the local economy and develop national innovation systems (Cho and Eunsuk, 2009). 95% of the Korean Incubators are located on universities or research centers and most of the start-up businesses, 71.1% are mainly in engineering or sciences fields.

The total number of employees of incubators' clients in South Korea was 22,538 in 2006 and increased to 22,982 by 2009 from 269 incubators with 4,532 business clients showing job creation effects. While, the total sales volume of the incubators' business clients were $2 billion in 2006, which increased to $2.3 billion in 2009, showing the results of start-up policies.

Australia

Australia has a stock of about 100 business incubators in the public hands since they were instituted in the 1980s.They represent a significant infrastructure and human capital asset, backed by their local communities (BIIA, 2008). The achievements of business incubation in Australia since they started the industry include:

- 103 business incubators
- 3,500 graduated businesses
- A minimum of more than 10,500 full time equivalent (FTE) jobs have been created

In New Zealand, the growth in tenant firms exists since 2005/6 to 2009, was from 100 to 170 respectively, and the employment generated also increased considerably in 2008/9 reaching 1000 full-time equivalent (FTE) employees.

Africa

Compared to other regions of the world, business incubation is in its infancy in Africa especially in the Sub-Saharan Africa and the opportunities for innovation and entrepreneurial networking are not as developed as in regions with a longer history of incubation, for instance America North, Eastern Europe, Asia and Pacific, and Latin America.

In Africa, according to the study carried by Irwin *et al,* (2009), 21 countries well spread from around the continent have attempted to establish business incubators of which many are providing business development services, sometimes described as virtual incubation, rather than providing physical space. The countries with their percentages include; Angola (3%), Botswana (2%), Djibouti (2%), Ethiopia (6%), Ghana (5%), Kenya (6%), Madagascar (2%), Mauritius (2%), Morocco (2%), Mozambique (3%), Namibia (2%), Nigeria (13%), Rwanda (3%), Senegal (2%), South Africa (27%), Sudan (5%), Swaziland (2%), Tanzania (5%), Tunisia (2%), Zambia (2%) and Uganda (6%).

The status of the managing incubators is mixed, which include the universities or academic institutions, the government, the Non-government organizations and the private sector. The targeted business sectors include; Technology and manufacturing, Agriculture and agro-processing, Sciences, and ICT. The Cape Town-based Bandwidth Barn has been in operation since 2000 and is today regarded as one of the leading ICT business incubators in the world. The Bandwidth Barn is a fully-owned subsidiary of the Cape IT Initiative (CITI), a development and promotions agency for the ICT sector in the Western Cape.

Also according to the study done by the Economic Commission for Africa (Kamoun *et al,* 2009) in selected 17 countries of North Africa and Southern Africa, a total of 18 incubators and 40 business incubators have been created. The majority was located in Tunisia, Morocco and Egypt where networks of incubators have been created.

The Uganda experience

The Ugandan manufacturing sector is not yet technology-intensive or innovation -led. It is dominated by production activities that are standardized and require low technology by global standards. However, Uganda's economic framework strongly emphasizes on public-private partnerships. New policies on science, technology and innovations, national industrialization, and the overall national development plan reflect the involvement of the private sector and the push for the "triple helix" of government-academia - industry collaboration.

In Uganda, attempts have been made to set up incubation centers since the post independence days, (1960's) to provide support to SMEs, research and development, innovation and learning activities, and nurturing start-up businesses. Universities and Research institutions have also started to establish small business incubators as a way to help spin-offs business start-ups while providing laboratories for students and entrepreneurs in which to experience the real world of business.

The following are the traditional and the new establishments that are offering incubation services:

(a) The Uganda Management Training and Advisory Center (MTAC)

(b) Uganda Gatsby Trust (UGT)

(c) Uganda Industrial Research Institute (UIRI)

(d) The Textile Development Agency (TEXDA)
(e) The Presidential Initiative on Banana Industrial Development (PIBID)

(f) Makerere University: (i) Faculty of Computing and Information Technology: National Software Incubation Centre (NSIC); and (ii) Department of Food Science and Technology: The Food Technology and Business Incubator.

In all the above Ugandan incubation system, there are still main weaknesses such as; insufficient business support services, inadequate physical and operational infrastructure, inadequate capabilities to exploit the opportunities in the emerging sectors such as ICT,

biotechnology and new materials, low level of private sector participation in R&D activities and insufficient risk capital funding.

4. Conclusions and Recommendations

The development of business incubator involves numerous stakeholders that have an interest in the success of the initiative. Tenants occupy the incubators only temporarily during the critical first few years when high overheads, lack of business experience and resources are faced in many new and small businesses. Human capital is core in promoting incubators as it provides the capacity to create, innovate, and exploit new ideas.

- In keeping with global trends, to strengthen the small business environment by implementing and promoting more explicit links between business incubation and a broader portfolio of business growth and investment strategies will realize more beneficial effects.
- The principal factor that contributed to European successful implementation of the business incubation systems has been the development of national innovative capacity and adoption of the regional innovation system model by states which assume that the most fundamental resource is knowledge and most important process is learning and that learning is predominantly an interactive social process. Hence, the need for Business incubators to promote transfer of knowledge, creation of synergies and promotion of entrepreneurship development and ultimately industrial growth
- Other strong factors that have helped advanced countries (North American, European and Asian) which other developing countries especially in Africa can learn from are; the strong technological entrepreneurship infrastructure and the unique cultural and social characteristics of the people, (i.e. entrepreneurship and the developmental state). In other words, government support is indispensable.
- The business incubation environments should be able to meet the needs of both female and male business owners and entrepreneurs (gender perspective). The right choice of the location will speed up their further progress, they should be close to knowledge-intensive areas surrounded by universities and research institutes or in science and technology industrial parks.

- There is need to strengthen the public-private partnerships:-Partnerships can also help to promote new forms of financing and improve capacity building measures thereby contributing to the sustainability of the incubatees.
- There is need for strong policy and strategic making that will lay very strong foundation for incubation development in developing countries at national and regional levels. A policy referring to a policy defined, understood, articulated and implemented at all levels.

It is concluded that incubation success, especially in developing countries is the pivotal wheel of industrialization and national competitiveness, which is the reason many governments should pay attention with strong support. However, emphasis should be put on management and operation of the incubators even with good infrastructure and technical capabilities. It can be further concluded that successful entrepreneurs and viable business ideas

come from all sources, from universities, corporations and the grassroots. Hence, business incubators can contribute to stimulating more entrepreneurs to pursue their dreams of creating their own company.

Notes

[1] See their website: www.nbia.org

[2] HRD is the integrated use of training and development, organization development, and career development to improve individual, group and organizational effectiveness (Chien, 2007).

[3] See: www.infodev.org.

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