Full Length Research Paper

Technology and business incubation a proven model to promote technology innovation and entrepreneurship in Rwanda

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Recieved: September 5, 2011                                                                                        Accepted: October 4, 2011

Abstract

In this exploratory study, we analyze the potential of Technology and Business Incubation as a potential for promoting technology entrepreneurship and innovation in Rwanda. With our research, we aim to significantly advance the empirical analysis of Technology Business Incubation as a tool for creating sustainable businesses in Rwanda. This paper is in the context of how Universities in Africa can use business incubation as a tool to support MSMEs in order to promote Entrepreneurship in Africa with a focus on young entrepreneurs. This paper is based on the case study from Rwanda. Our analysis focus on examining how university graduates succeeded to become successful Entrepreneurs with the support they received from Technology and Business Incubation Facility (TBIF). Based on our research findings Business Incubation bring several benefits for the whole community and can reduce poverty. We see that promoting Technology entrepreneurship models among young University Graduates are more suitable for investment requiring little capital or in efforts of mobilizing resources. Nevertheless, the implementation of Business Incubation can challenge, especially concerning engaging the local community and creating a sense of ownership.

Keywords: Technology and Business Incubation, Small Business Management, Entrepreneurship, Micro Small and Medium Enterprises

JEL Classification: L26

INTRODUCTION

Little is known about entrepreneurship in emerging countries, especially among the low-income people. Yet it is widely recognized that entrepreneurship has important role enhancing the economic growth and reducing poverty. The business start-up challenges relating to MSMEs in Africa and other developing nations differ greatly from those of developing nations including Europe and USA. Due to lack of an enabling environment that would result in a thriving ecosystem for small businesses to start, develop and mature, Africa accounts for only 30% survival rate for business start-ups in the first year1, compared to 71.3% survival rate in 3 years in the UK (OECD, 2002) and 69% 3year in the US (US Small Business Administration, 2002).

The benefits of entrepreneurship for development and economic growth have been widely highlighted. For instance entrepreneurship is seen as a self-development strategy for communities (Korschning and Allen, 2004), allowing individuals and households escape poverty (Bennet, 2010; Benzing and Chu, 2009) and innovation (Djordjija et al., 2010). Infact entrepreneurship has been claimed to be the single most important pathway out of poverty. Hence, international development agencies are demanding for stronger tools for expanding employment and entrepreneurial opportunities (OPECD, 2009; Naude, 2008). For example, it is demanded to improve the access of small and micro-enterprises to finance information and technology and develop new sound business practice. Further, there is a need to create more inclusive business models that directly integrate young graduates. These entire requirements need more collaborative approaches between large companies, small enterprises, public sector entities, civil society organizations and the poor themselves.

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The challenges may include lack of information, awareness and resources to access business opportunities, limited exposure, interaction, information sharing and networking, lack of business support and advisory services, lack of awareness and use of emerging technologies, impact of the challenges resulting from liberalization & globalization, other cultural and regional factors that may affect business start-up specifically in the region.

This paper will make reference to the country Rwanda, and Technology and Business Incubation Facility\(^2\) a model business incubator in Africa set up in year 2005 by Kigali Institute of Science and Technology\(^3\). TBIF has since established strong networks locally, regionally and internationally to the benefit of its incubatees who are mainly business start-ups. This paper attempts to portray a suggestive framework that will explore the possibility of using Technology and Business Incubation within Universities to facilitate young entrepreneurs to start technology-based businesses while capitalizing on the opportunities of cooperation in the South.

Unemployment among University graduates is the pertinent concern the Government of Rwanda. However, it is not happening due to lack of awareness among the youth especially University Graduates. Most of the practice here in higher leaning institution is the students are more inclined to take up white collar jobs rather than self-employment as career option. This paper addresses the issues concerning facilitation provided to the young Entrepreneurs in order to train them to put up viable business. Technology and Business Incubation Facility: – a technologically-driven and specific Business incubation model is located in Kigali, Rwanda that is supported by the Kigali Institute of Science and Technology (KIST). Although the business incubators described above utilize different business models and serve different clients, each incubator has similar infrastructures to increase interest in private and political involvement and support, stimulate client activity, and establish standards that are flexible for incubator growth and development. Focusing on the process of incubation rather than on the incubator facility and its design will help draw attention to the underlying attributes of successful new venture development in an incubator environment (Hackett & Dilts, 2004).

LITERATURE REVIEW

The Business Incubator is seen as offering huge untapped market opportunities and sources for innovating. Incubation is a support process that nurtures the development of beginning and emerging companies through a range of resources and services. The primary goal of a business incubator is to produce organizations that will leave the incubation program as a self-supporting organization during the start-up period when they are most vulnerable (Barrow, 2001, p. 14; Aernoudt, 2004; Hackett & Dilts, 2004). The primary reason for beginning and emerging organizations to join an incubator is to build successful enterprises and to connect and network within their community (Tötterman & Sten, 2005). Graduates of an incubator will potentially create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen the local economy.

Incubation programs are distinguished by a commitment to incorporate industry best practices to small or emergent companies (Rice & Matthews, 1995; Barrow, 2001, pp. 5-6). Business incubators reduce the risk of small business failures and assist in the development and growth of existing companies (Allen & Rahman, 1985). Critical to the definition of an incubator is the technical assistance and the management consulting adapted to these organizations. Typically, incubators provide access to office space with flexible leases that offer basic business services and equipment. The incubator will have on hand technology support services and financial assistance necessary for company growth. In addition, a ready supply of clients is essential for long-term sustenance of the incubator project (Barrow, 2001; Tötterman & Sten, 2005; Perry Interview, 4/11/07; Rossiter Interview, 3/22/07). Facilities built to nurture business survival and enhance growth prospects not only increase opportunities and prospects available to incubator clients, but increase the long-term sustainability and the respect of the community to the incubator.

The earliest incubation programs focused on a variety of technology and service firms. In fact, it is generally accepted that the earliest business incubator in the United States was established in 1959 at Batavia, New York (Hackett & Dilts, 2004). New incubator programs have targeted programs to support the needs of women and minorities, telecommunications, and education (Allen & Rahman, 1985). The incubation model has been adapted to meet a variety of needs, from promoting commercialization of university technologies to increasing employment in economically distressed communities to serving as an investment vehicle (NBIA, 2007).

The demand for early stage small businesses seeking to improve their opportunities must deliver results against the outcomes that the stakeholders in the community need and want. A broad range of supporting stakeholders in the community such as state and local governments, business and community based groups, and regional development organizations, look to business incubators as a method to curb risk not only to the companies that they serve, but also to the neighborhoods in which they are located.

As a consequence, incubators have generated a high level of political and economic expectations in relation to their performance (Vedovello & Godinho, 2003). Therefore,
incubator programs and their activities are integrated into the fabric of the community and its broader economic development goals and strategies (Perry Interview, 4/11/07). Although some incubator models were designed in the late 1990s and early 2000 as a financial venture, incubators were not and should not be designed to make money (Barrow, 2001; Rothaermel & Thursby, 2005; Traynham Interview, 3/6/07). Many times, young companies enrolled in an incubator program may have had a solid business plan and/or exceptional business strategy to at least initiate the preliminary course of action by the proprietor. However, the entrepreneur may not have had the resources or the drive sufficient to last the amount of time (and money) required to properly nurture the business in its developing stages (Barrow, 2001; Hacket & Dilts, 2004). The risk involved in moving these companies to thrive and become self-sufficient is many times far outweighed by the probability of their failing or taking longer than expected to become autonomous. A good incubator recognizes that along with the facilities, supplies, and instruction in best business practices they offer, a sense of community and belonging is critical to the clientele they serve. An incubator motivated by money may not always be the right choice for companies that could take longer to mature. To lay the foundation for an effective incubation program, developers must invest time and money in a feasibility study (Logue, 2000). An effective study will help determine whether the proposed project has a sound financial base and strong community support, essential in the success of an incubator. Government subsidies for well-managed business incubation programs represent strong investments in local and regional economies. Research has shown that every dollar of estimated public investment provided to clients and graduates of the National Business Incubation Association (NBIA)—a private, nonprofit 501(c)(3) membership organization with a board of directors representing leading business incubators—generates approximately $30 in local tax revenue alone (NBIA, 2007). In 2010, NBIA’s board of directors developed a set of industry guidelines to help incubator managers better serve their clients. Since that time, NBIA research has consistently shown that incubation programs that adhere to the principles and best practices of successful business incubation generally outperform those that do not.

RESEARCH METHODOLOGY
The study adopted a descriptive research design to collect, measure, classify, analyse and interpret data. The data was obtained through a questionnaire. The research instrument was analyzed by use of descriptive statistics as well as inferential statistics. To test the relationships that presuppose a relationship between criterion and response variables, the data coded was extracted using factor analysis methods. The Pearson Correlation Coefficient is a bi-variate correlation coefficient that in this study was used to indicate one-on-one association between each of the independent variables to the dependent variable, while holding other factors constant.

FINDINGS
Financial assistance for the programme

TBIF initiative was supported by The Netherlands Organization for International Cooperation in higher education (Nuffic) under their program to support Institutional Strengthening of Post-secondary Education and Training Capacity (NPT) and the InfoDev Incubator Grant from the Information for Development Program (InfoDev), World Bank and Competitiveness and Enterprise Development Project (CEDP) under Ministry of Finance and Economic Planning.

Management of the incubator Centre
The activities of the ICT Incubator Centre are being monitored by an Incubator Management Committee. The membership to this committee includes the representatives From: Board representatives: (a) KIST (b) Rwanda Private Sector Federation (RPSF) c) Bankers Association d) Representative from Ministry of Finance and Economic Planning d) Donor Representative. The TBIF Incubator Centre is managed by one Manager and a Business Trainer, One Administrative Officer who provides Secretarial and Administrative support and IT officer. A technical team comprising all members of the Incubator and the Incubates representative who screens and reviews the project proposals received from potential start-ups for the incubator Centre and make recommendations to the KIST Management Committee.

Cost Benefit Analysis – Investment, Turnover and Employment creation
The Incubator Centre was set up with an initial investment of 500,000 US$. The capital expenditure included the setting up of the necessary infrastructure and logistics for operating the Centre. It included construction of low cost housing with 15 offices of 24 sq. mtrs, Conference Hall, Training room, Restaurant etc and cabling, wiring for broadband Internet connectivity, setting up of network points and setting up of the IT infrastructure. Meeting room facilities is available which is equipped with one multimedia projector and one laptop for visual presentation. The TBIF meets the running cost for the Incubator Centre through its own income generation. The running cost for the Incubator Centre is estimated to be 42,000 USD per annum and includes staffing costs, electricity, telephone, ADSL Connection, and shared administration services such as photocopy and fax facilities among others.

The Centre also generates some revenue from the facilities and services offered to the start-ups located on the premises and include rent, fax and photocopying services. The revenue collected from these services is estimated at 250 USD per month with 15 clients and hence the centre gets an income of 42000 USD and income from other sources such as training, renting facilities, consulting etc and TBIF gets an income of another 40,000 US$ totaling 82,000 US$ against expenditure of 24,000 USD and hence TBIF incubator is a sustainable business model with a profit of 40,000 USD. One of the main objectives for the setting up of the Incubator Centre was emphasis on employment creation. Employment created by these companies are 164 people until the financial year 2010-
Similarly, the start-ups at the Incubator Centre have invested an amount of more than USD 100,000 in their business venture up to date. Since the Incubator Centre became operational, the Centre has supported 64 startups the various sector and graduated 58 companies and after 3 years 56 company are still operational. The centre has also trained around 1532 people in Entrepreneurship Training.

Success and Failure
The Incubator Centre has nurtured 64 enterprises out of which 58 have successfully graduated while a few ones have closed down. The success rate has been attributable mostly to the perseverance, qualities of the entrepreneurs and the business network developed by the Incubator Centre. Failures of enterprise have been characterized (a) technical deficiencies (b) inability of the entrepreneurs to properly market the product.

Under the technical deficiencies category, the absence of the local infrastructure for conducting online transactions and real-time credit card validation mechanism was a major handicap to promote online transactions. At the same time, the purchasing habit of local consumers has been largely limited to cash, cheque and with little credit card facilities.

Partnership and International Co-operation
The TBIF working in close collaboration with local and international stakeholders in the areas of business development and capacity building. It includes the Rwanda Development Board (RDB), Private Sector foundation (RPSF), CSS Zigama Bank etc amongst others. At the international level,. TBIF is a member of the African Incubator Network (AIN), the Southern African Business & Technology Incubation Association (SABTIA), the Shanghai International Technology Transfer Information Platform (SITTNet) & Affiliated with the US based National Business Incubation Association (NBIA)

CONCLUSION
The TBIF Incubator Centre has been implemented within a conducive environment whereby policies have been oriented to the development of the start up SME’s. It is believed that the business incubation is one of the tool for economic development process and supported by all the stakeholders. Business incubators have the Potential for promoting Innovation & Entrepreneurship not only in Rwanda but in entire world. Thus, Incubators is the relevant link to the development and vibrancy of the private sector (industry) by creating network linkages, spurring innovation and entrepreneurship while redefining and reinvigorating the relevance of the institutions of higher learning (Universities) in African economies. Most of all create a brighter outlook and future to the many graduates from African Universities who are better positioned as the force for industry in African economies.

REFERENCES
Technology and Business Incubation Facility (http://www.kist.ac.rw/tbif/members.php)


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