

The Role of Virtual Business Incubation Services in Enterprise Development: A critical Analysis of International Best Practices

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Abstract

This paper seeks to evaluate the role that virtual business incubation services play in supporting enterprise development. The relative capital-intensiveness and outreach limitations by the available conventional physical business incubation justify the importance of virtual business incubation services. Virtual incubation services are delivered through extension workers, online tools and off-site advisory services. However, no one incubator practice, policy, or service has the guarantee to produce virtual incubation program success. Instead, it's the integration among multiple practices, policies, and services that produce optimal outcomes. Thus, it's the relationship between helpful policies and services that matter most for virtual incubator success.

Keywords: Enterprise, Virtual, Business incubator, online tools

Introduction

Entrepreneurship is an essential component of a growing and dynamic economy Adegbite, (2011), and entails new venture creation. However, according to Lalkaka (2001); "many of the newly created entrepreneurial ventures die within the first three years of establishment while very few ones survive into the future". While Scholars have severally provided diverse reasons why most business start-ups do not succeed in growing, they have also devised remedy strategies. In order to nurture and successfully grow new start-up enterprises, a sizeable number of initiatives have emerged to provide business incubation. "Business incubation is a unique and highly flexible combination of business development processes, infrastructure and people, which are designed to nurture and grow new and small businesses by supporting them through the early stages of development and change (UKBI, 2007)". Therefore, organizations that provide such services are referred to as 'business incubators'.

Time immemorial however, a traditional incubator offers its services within the walls of the incubator building and uses the physical concentration of incubatees as a tool for improving incubation outcomes. This implies; traditional business incubation involves the provision of a 'with-walls' facility through which concentrated business incubation support processes are delivered. Hence the old incubator model requires a start-up venture to set up shop at the incubator's site. According to Word Bank; this physical interaction is a powerful tool for building knowledge and networks among starting entrepreneurs. Recently however; a new model of virtual incubation has emerged, which aims to bring the same range of services and tools to the entrepreneur as location independent, instead of the entrepreneur availing those services and tools at a fixed location.

Virtual business incubation is defined as; "the full range of business incubation tools and services that are not (necessarily) provided to clients residing inside the facilities of a business incubator—that is, virtual in the sense of location-independent (InfoDev, 2011)". It implies tools and services provided to entrepreneurial clients outside the normal physical facilities of a business incubator. Given that entrepreneurs have varying needs; virtual incubation seems to provide a more diverse range of services and tools, and in a more cost-effective manner. However, research evidence indicates that "virtual business incubation allows an entrepreneur to take advantage of the professional business and support services and the advice of the incubator without the requirement to utilize their physical site". This therefore implies, virtual business incubators offer a more flexible solution that is better suited to modern day business start-ups.

In reference to related literature; virtual business incubation includes outreach services, drop-in services and facilities, online tools, consultancy, mentoring, and networking. However, the main thrust of this paper is the critical analysis of international best practices in business virtual incubation, which have been proven effective to support the start-up and growth of new enterprises. This section therefore provides background information on virtual business incubation and in particular, discussions on the evolution of virtual business incubation and the role of virtual business incubation.

Evolution of Virtual Business Incubation

Business incubators are believed to have begun in the 1950s but took off in the late 1990s as support for start-up companies who need advice and venture capital to get their ideas off the ground (Plaatjes. 2013). As the dot-com bubble burst, many vitual business incubators emerged. This now has greatly changed the incubator business operations. Several of the incubator companies who survived the dot-com bubble switched to a virtual model. The old incubator model required a startup venture to set up shop at the incubator's site. The virtual model, on the other hand, allows an enterprise to garner the advice of an incubator without actually being located at the incubator site. This new model suits those entrepreneurs who need the advice an incubator offers but still want to maintain their own offices, warehouses, etc.

Traditional business incubators have grown in scope to accelerate and systematize the process of creating successful entrepreneurial ventures by offering them with a comprehensive and integrated range of services, including: space, business support services, and networking opportunities (Benchmarking of Business Incubators 2002). According to literature, the first incubator was established in 1959 in Batavia, New York in the United States. The success of the concept in USA has given it a widespread and since spread to other parts of the world. Accordingly; as at 2006, there were 1,200 incubators of different categories in the United States Thewarapperuma, & Webb , (2014).

One key factor that distinguishes a traditional incubator is that; incubatees operate within the confines of a physical building, which promotes physical interaction. This has been cited in related literature as a powerful tool for building knowledge and networks among starting entrepreneurs. However, physical incubation is relatively capital intensive and outreach is limited by the available office space and the start-ups operating within the geographical area. Additionally, the physical space offered by the incubator may not equally suit the needs of all start-up entrepreneurial ventures.

Virtual Business Incubators have therefore emerged to provide services beyond the confines of a physical building and extend the geographical range that an incubator can serve, i.e. beyond its in-house clients (InfoDev, 2011). A virtual incubation service concept refers to the service that is offered to non-resident incubatees or to services provided by service providers that are not physically present. In effect, virtual business incubators are those where some or most of the service package is virtual (i.e. location-independent) by design, and/or delivered (partially) with virtual tools. Designed as location-independent and delivered with virtual tools; business incubation services offers a combination of benefits i.e. face to face and online instruction, to deliver unique services. Research evidence indicate; "this allows a company to use the services of an incubator, without actually being located at the incubator site." Furthermore, "virtual incubators are also able to serve a much larger number of companies, over an extended geographical area."

Typically hosted by a university or a research centre, virtual incubators are characterized by the ability to operate both within and without a building Elena S (2002). This view is supported by quite a number of

scholars including Folinas, (2014); and Lalkaka (2011), who collectively contend that; "when these models operate as "incubators without walls" they serve their clients as a virtual facility or resource within the Internet and provide services within an e-learning methodology.

Role of Virtual Business Incubation

Innovative entrepreneurial ventures are recognized as the key elements for competitiveness and economic growth Joshua et al, (2013) and therefore, several programs have been adopted globally to enhance the survival rate of such enterprises. Virtual business incubation however, is recognized as an effective strategy to establish an enabling environment where new entrepreneurial ventures are nurtured for sustainable economic development. The start-up and growth of new ventures is supported by such incubation services through provision of the resources and environment in which they can flourish. According to a 2010 study by the National Business Incubation Association (NBIA), the survival rate of startups using business incubators is 87% compared to 44% for startups that didn't use incubators. This implies; "virtual incubation is an agent of economic growth and development (Lalkaka, 2011)", and also helps shorten the innovation process by enabling risky ventures to develop. In addition, virtual incubators promote linkages between new start up enterprises and available resources.

Recent research reveals; there are numerous benefits of virtual business incubation. According to United Kingdom Science Park Association, virtual business incubation among others: "acts as a catalyst for economic change development; helps young companies to negotiate the hurdles that often lead to their early downfall; provide access to an array of expertise, mentors, investors and specialist advisors; help entrepreneurs overcome the isolation and stress of starting a business; provide visibility and credibility in the marketplace; and also enables growing companies to become stand-alone entities within the community". Baird. R et al, (2013) also emphasizes that, business incubation is a key intervention to addressing the "Pioneer Gap", which specifically refers to the burden shouldered by enterprises that are pioneering new business models for social change. Evidence from USA however, shows significant employment growth in incubator-resident firms.

Potentially, graduates of a virtual incubator will create employment opportunities, revitalize neighborhoods, commercialize new technologies, and strengthen the local economy (Tötterman & Sten, 2015). In addition, they reduce the risk of small business failures and assist in the development and growth of existing entrepreneurial companies (Allen & Rahman, 2009).

The rate of joblessness among young people has risen dramatically and is one of the principal social and economic challenges of this decade in Africa and around the world. Yet research evidence indicate, virtual business incubation services exists and are a more cost-effective means of helping the youth to recognize economic opportunities and become successfully self-employed. However, information on which international virtual business incubation best practices exists in more developed markets, and whether such best practices are transferable to less developed countries is still scanty. The purpose of this study therefore, was to establish whether existing international virtual business incubation best practices in more developed economies are replicable in developing countries. The study focused on three key questions:

- What are the conditions under which virtual business incubation service is delivered?
- What tools are used in Virtual Business Incubation?
- What are the key domains for best practices in virtual business incubation?

Methodology

This paper uses secondary data through extensive literature review, to collect information and insights from a wide variety of virtual business incubators that are operating successfully around the world, each working in different circumstances, with a different mission and individual approach. The review process adopted Cooper et.al, (2009)'s recommended methods to identify potentially relevant studies on virtual business incubation. The Researcher followed a search strategy involving: the search of multiple bibliographic databases; Scanning of reference lists for existing reviews and eligible studies; scanning of conference proceedings; hand-searching of key journals; forward citation searching of seminal articles; and, searching the Internet. Additionally, the comprehensive search targeted only primary studies as suggested by Khan et al. (2003).

A critical appraisal was undertaken to assess the quality of thirty five studies retrieved during the search. The Researcher selected 10 virtual business incubators and/or virtual business service providers as case studies for further research. The ten selected cases were those that contained an explicit statement of objectives, materials, and methods and those studies that have been conducted according to explicit and reproducible methodology. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement was used to assess the quality of the selected studies.

In the sections that follows, considerations of how the selected virtual business incubation best practices could be replicated are discussed and tables adopted in the presentation of the results. This after the discussion of the results is followed by robust policy suggestions.

Replication of Virtual Business Incubation Best Practices

This section looks at the core services of virtual business incubation; virtual business incubation tools; and concludes with the key domains of universally acceptable virtual incubation best practices.

Core Services of Virtual Business Incubators

This section discusses the conditions under which virtual business incubation services are delivered and include: (1) "hand-holders" - incubators offering mainly business development services; (2) "network boosters" - networking focused business incubators; and (3) "seed capital providers" - finance-focused business incubators. However, it is important to note that, the different service concepts can be mixed. In this case, management at virtual business incubators can study the various core services and tools of virtual business incubation, and get inspired to introduce new services or ways of providing a service, based on the characteristics of particular service concepts.

Table 1: The table below summarizes the main findings related to each of the types of virtual Incubation.

Item	Hand-holders	Network boosters	Seed capital providers
Service focus	Business development services (training, mentoring)	Access to business networks	Access to business finance
Target group(s)	Special high-potential target groups	High-potential, Educated	High-potential, ICT or Social enterprise
Outreach	10-20 business per year	100-300 businesses per network/ competition	15-30 per season
Service provision	Service provider(s)	Facilitator	Facilitator
Funding	Donor/Govt/Univ/ NGO	Foundations, commercial	commercial
Typical main revenue model	Sponsorships, additional consultancy projects	Sponsors, membership fees	Admission fee, equity

Adopted from InfoDev report, (2013): "Lessons learned from virtual business incubation"

Hand-Holders

Hand-holders provide an incubation service concept that emphasizes training and mentoring as opposed to access to finance or networking. This category of virtual incubation services addresses the challenges entrepreneurs face in developing their entrepreneurial capacities to kick-start their enterprise. Research evidence however indicate; the hand-holders' services are more relevant in remote, basic and emerging settings. This arises because business development services in advanced business environments are already

widely available. Additionally, it has also been discovered, the hand-holders' service concept can be replicated to dispersed or rural target groups, albeit at higher costs. This is due to the fact that; rural customers could be invited to come to the incubator premises and/or satellite offices can be opened.

Once well structured, 1-on-1 communication partially replaces face-to-face mentoring for hand-holders, because online collaboration tools have proven to make ICT communication more effective. This could also work for training sessions in a classroom, which has been replaced by setting up E-learning systems. Some examples of hand-holders include 3ie in Chile, ParqueTec in Costa Rica, and Softstart in South Africa.

Network Boosters

The category of network boosters are incubators that aim to bring different stakeholders together including entrepreneurs, investors, volunteers, and service providers. The purpose is to help the different stakeholders provide added value to each other's businesses. Network boosters however, do not focus on delivering services themselves but rather, the incubator is a facilitator.

Two types of network boosters are identified including the "BPC+ network booster", which involves a business plan competition that provides services beyond the awards ceremony. The second group are the "network boosters 2.0"; who are basically business networking clubs, bringing entrepreneurs together and facilitating exchange of ideas and knowledge. These normally target a business sector, or a group of professionals with shared values.

Table 2: Short description for examples of hand-holders

Incubator	Short Description
The 3ie International Institute of Innovation and Entrepreneurship	Provides capacity building support for developing ideas into a business plan and further into a fully-fledged business. 3ie targets university students as well as other starting entrepreneurs, who may be on- or off-site. In addition to technical support, 3ie manages and disburses grants to starting enterprises on behalf of the Chilean government.
ParqueTec`	Offers in-house and external incubation services to innovative entrepreneurs. Besides technical assistance, selected entrepreneurs receive seed capital funding. Incubatees repay this investment plus service costs by paying a percentage of their gross sales value to the incubator, thus creating a sustainable business model.
The Softstart Business and Technology Incubator (SBTI)	Is a multi-model (real-estate, virtual & satellite) incubator operating in the ICT sector in Gauteng, South Africa. It supports entrepreneurs from the concept phase, through development and ultimately implementation. Profitable market opportunities are exploited and the focus is on growing the depth and breadth of the venture.

Adopted from UK Business Incubation Limited, (2011)

Network Boosters BPC+

This first group comprises advanced business plan competitions - where the incubators focus on organizing business plan competitions, but continue to facilitate a number of business plan competition participants after the competition. This particular concept can be replicated as long as no other business competitions are active in the region/sector. It is important to target dispersed communities that possess Internet skills and access. However, prize money and available opportunities for travel are the reasons that mostly attract entrepreneurs to the competitions. Examples of business-plan-competition-plus network boosters include; Endeavor and the BiD network.

Table 3: Short description for examples of Network Boosters BPC+

Incubator	Short Description
Endeavor	Is a non-profit organization, which helps entrepreneurs in emerging markets to overcome barriers to growth through a competitive selection process (12-18 months). Entrepreneurs are selected and provided with customized services from a volunteer network of 1,000+global and local business leaders (Venture Corps), who serve as mentors, advisors, connectors, investors, and role models. Most the services are provided online and through events.
BiD Network	The BiD (Business in Development) Network supports the start-up, growth and financing of SMEs in developing countries. The foundation does this mainly by organizing business plan competitions (BiD Challenges), preparing entrepreneurs for financiers and bringing together (angel) investors and entrepreneurs with a ready-for-finance business plan. Most services are provided online, and through events.

Adopted from UK Business Incubation Limited, (2011)

Network Boosters '2.0'

Incubators in the second group however; the 2.0 network boosters, do not organize competitions but rather focus on bringing people together, typically by hosting regular events like investor pitches. This group of network boosters can be replicated if potential members are not too dispersed. Besides, other conditions must be at play including: availability of ample business opportunities in the targeted sector; complementarity in skills and knowhow of target group members; and a culture that allows for networking of people with different backgrounds. Examples of network boosters include Mobile Monday in Finland and the HUB, Amsterdam in Netherlands.

Table 4: *Short description for examples of network boosters '2.0'*

Incubator	Short Description
Mobile Monday (MoMo)	Is an open community platform founded in Helsinki, Finland in 2000. The initiative started as an informal get-together for the Finnish mobile industry on a Monday evening in 2000. Currently, monthly events (i.e. on the first Monday of the month) are organized in over 100 cities. Individuals can also become a member of MoMo online, and get in contact with other mobile experts around the globe.
The HUB, Amsterdam	The HUB is a privately funded business incubator that facilitates cooperation and exchange between its members, who initiate and implement member-driven, HUB-branded entrepreneurial activities. The revenue model is based on monthly membership fee; the level of membership defines the hours of access to HUB facilities. Social media are actively used to promote the HUB, and its entrepreneurs and activities.

Adopted from UK Business Incubation Limited, (2011)

Seed Capital Providers

Research evidence indicate; "the success of seed capital providers is based on the incubator's ability to select high potential entrepreneurs, and to access and mobilize funds, allowing them to provide seed capital to these companies (Wolfe. C et al, 2010)". This category of virtual incubators focuses on providing seed investment capital, which is combined with either short- or long-term online mentoring support. There are however, two types of seed capital providers: commercial seed capital providers and social seed capital providers.

Commercial Seed Providers

Most often called venture accelerators or seed accelerators, commercial seed accelerators take equity with the objective of selling their shares for profit, and focus on providing short-term programs for about three months of training, mentoring, and networking support. These services are designed to prepare companies for external finance. Commercial seed providers generally invest $5,000 to $8,000 per founder and between $18,000 and $25,000 per company. The average equity stake they take is 5-6 percent. If successful, the shares are liquidated through an acquisition or initial public offering (IPO). In addition to making highly selective, small investments in numerous companies, venture accelerators provide training, mentoring and networking support that focuses on preparing companies for external finance.

Seed capital providers target a specific range of companies, in an emerging or advanced business environment. Opportunities for replication are therefore limited. The seed capital provider model can be replicated in the following settings: Emerging and advanced environments, where venture capital investments are common, and Internet is affordable, stable and fast. There are business and investment opportunities for firms that can grow quickly with relatively little cash (mobile apps, cloud computing, social media, gaming and entertainment, and web services.)

Social Seed Providers

Social seed providers offer a wider range of financing options, typically combining the provision of capital including grants, loans, and equity with a long-term mentoring support program. The selection process is highly competitive and is based on identifying enterprises with a social/environmental mission and growth potential. In addition to seed capital, these virtual business incubators generally provide mentoring services by taking a seat in a real or simulated Broad of Directors, as a way to monitor business performance and provide strategic guidance. If other business development services are considered necessary by the seed capital provider and the incubatees, these are mostly provided by selected companies or consultants for commercial rates. Support is usually provided for a longer period of time (1-3 years).

Forging investment relationships between investors and entrepreneurs with a different (business) cultural background is very challenging. Locally based investment partners are needed. It may also be worthwhile to explore whether local angel investor networks can be initiated by the VBI. For this, the presence of regional champions, class of established entrepreneurs willing to become an angel investor, is essential. There are several examples of seed capital providers including Villgro in India, ParqueTec in Costa Rica, and Founder Institute and Y-Combinator in the United States and other countries.

Table 5: *Short description for examples of seed capital providers*

Incubator	Short Description
Villgro Innovation Foundation	Focuses on innovations with social impact on low-income markets in India. The organization empowers rural development by identifying and incubating innovations that can be translated to market-based models, thus impacting thousands of rural households. Villgro offers funding and virtual incubation services to its incubatees
ParqueTec`	Offers in-house and external incubation services to innovative entrepreneurs. Besides technical assistance, selected entrepreneurs receive seed capital funding. Incubatees repay this investment plus service costs by paying a percentage of their gross sales value to the incubator, thus creating a sustainable business model.
Founder Institute	Is a global network of start-ups and mentors and offers a four-month training program. Mentoring is provided through a global network of over 400 mentors, who are normally the CEO or founder of a successful start-up. The mentors are accessible both during the sessions and via email. Graduates can present their companies at so-called Founder Showcase Events in order to attract investors.
Y-Combinator	Is a venture fund, which focuses on seed investments and business consulting to start-up companies. Twice a year Y-Combinator invests a small amount of money (average $18k) in a large number of start-ups. Selected startups move to Silicon Valley for 3 months, during which they are mentored in order to get into good shape and refine their pitch to investors. Each cycle culminates in a Demo Day, when the start-ups present to a large audience of investors.

Adopted from UK Business Incubation Limited, (2011)

Tools for Virtual Business Incubation

Literature reveals; Virtual Business Incubation can be delivered in six ways: on-site, through a website, through 1-on-1 ICT-based exchange, through virtual communities and through an online crowd.

On-site virtual services

This category of virtual business incubation involves group training, workshops, presentations and events to which incubatees are invited. This approach of delivering incubation services to non-resident clients has been proven effective in many aspects. These include: expansion of the geographical coverage of an incubator, increased cost-effectiveness of the incubator; increased in exposure of an entrepreneur to another business environment; and allowing for exchange between entrepreneurs from different backgrounds and regions.

Websites and E-learning

Websites are used in virtual incubation to provide online training materials and information. This has helped in both; deepening and broadening the outreach of virtual incubators. It has also benefited incubatees in that, they are able to look for information and learn at their own pace, whenever and wherever it is convenient.

1-on-1 interaction with ICT

The 1-on-1 ICT-based exchange in virtual incubation involves the mentoring or monitoring incubatees using the phone, email and Skype. This has been proved in saving time and travel costs. It is also a fast way of communication, which is an important aspect in some situations.

Online recruitment

This includes selection and admission of interested incubatees, mentors, and volunteers for the virtual incubator through the internet. Online recruitment helps in identification of the most appropriate candidates and also improves the quality of the incubator service. The approach has been proven effective in saving costs without compromising quality. It has also positively contributed to the brand of the incubators.

Virtual communities and events

Virtual communities and events involve building an active online communityin which members exchange knowledge. These are important to mobilize local community members to actively contribute by providing valuable resources. Incubators have made use of social media to build and maintain a brand in existing off-line communities, and disseminating invitations, announcements and news. This has led to building an active online community in which members exchange knowledge is very challenging. As a consequence, the quality of services offered by the incubator has improved, and the costs involved cut down. Besides, even revenues have been generated through membership/admission fees.

Crowdsourcing and crowd funding

This involves mobilizing large numbers of people to contribute their knowledge and/or finances online. For instance, crowdsourcing is suitable for incubators or incubatees that have a clearly defined problem such as feedback on a new product or service design, or feedback on specific challenges related to business models. On the other hand, crowd funding may offer access to potential sources of finance, especially when incubators can connect with existing crowd-funding platforms

Table 6: The table below summarizes the main findings related to each of the virtual incubation tools.

Services	Virtual tools	Service concept
Brand building	Website/social media; Online recruitment through partners; Social media Virtual communities with regular events	Network boosters, Venture accelerators
Member/client selection	Online recruitment Online aptitude and skills testing	Seed capital providers
Training/providing information	Client comes to the incubator/Satellite offices; E-Learning, Website/social media	Hand-holders, Network boosters
Mentoring	Fellowship programs Online recruitment of volunteers	Seed capital providers, Network boosters _BPC+'
Networking	Online matchmaking Virtual communities with regular events	Network boosters 2.0
Access to finance	Online recruitment of business plans; Demo days/ pitching sessions; Crowdsourcing	Network boosters BPC+', seed capital providers

Adopted from InfoDev report, (2013): "Lessons learned from virtual business incubation"

Key Domains for Virtual Business Incubation Best Practices

Based on review of related literature, a categorization for seven key domains of best practices for virtual incubation is made by Wolfe. C et al, (2010) and includes: comprehensive business assistance program; professional infrastructure; client capitalization and financing; client networking; technology licensing and commercialization; university linkages; facility basics; governance and staffing; client screening and graduation; and incubator evaluation. In this section, a discussion of each of the ten key best practice domains is made including an overview of the importance of the best practice to the incubator success. In addition a summary for each component of the best practice in action is given.

Comprehensive Business Assistance Program

Under the key domain of comprehensive business assistance program, Chuck Wolfe and partners identify needs assessment, coaching and facilitation, and monitoring clients' progress as the three best practices for virtual incubation.

For needs assessment; two actions are suggested including the development and implementation of a systematic process for assessing client needs, which has the flexibility to adapt to the changing environment surrounding early-stage ventures; and assessment of the incubatees needs prior to accepting a business into the incubator, and on a continual basis after it has entered the program.

For coaching and facilitation; three actions are specifically recommended namely (1) Dedicate sufficient staff time to meet with clients on a regular basis; (2) Allow clients to make decisions and to complete tasks; and (3) Provide oversight and support as clients use program resources.

For monitoring client progress; four particular actions are proposed. These include: (1) development of milestones to meet the specific goals of the client and the incubator; (2) development and implementation of a systematic process for monitoring the client's progress in meeting milestones; (3) utilization of the monitoring processes to modify the services package offered to clients; and (4) utilization of monitoring processes to graduate clients from the virtual incubator.

Professional Infrastructure

The professional infrastructure key domain also involves three virtual incubation best practices. These include; Know-how Network, Mentors, and Advisory Boards.

For the know-how network action; six actions are suggested: (1) develop a broad-based pool of individual advisors from the private and academic sectors and ensure they have the technical and business skills needed to support client businesses in various stages of their development; (2) establish a large enough pool of advisors to minimize the impact on a specific provider, especially if services are provided on a pro-bono basis; (3) limit exclusive arrangements with individual service providers to ensure that the appropriate services are available to meet client needs; (4) negotiate a fee structure to minimize the financial impact on the client. (Examples include pro-bono services, services in exchange for equity and services with deferred payment until equity capital is secured); (5) facilitate the interaction between the service provider and the client; (6) screen service providers and establish a feedback mechanism to assess client progress and satisfaction.

For mentors; (1) develop a pool of volunteers willing to serve as mentors for clients; (2) ensure that mentors meet with clients according to a regular schedule; (3) meet with mentors periodically to monitor client progress and identify additional needs; and (4) screen mentors and establish a feedback mechanism to assess client satisfaction.

For advisory boards; (1) develop a pool of professionals, technologists, business owners, etc., willing to volunteer their services as advisory board members for clients; (2) ensure that advisory boards meet with clients according to a regular schedule; (3) meet with advisory boards periodically to monitor client progress and identify additional needs; and (4) screen advisory board members and establish a feedback mechanism to assess client satisfaction.

Client Capitalization and Financing

For the particular key domain of client capitalization and financing; four specific actions are suggested. These include: (1) provide access to debt and equity capital to launch and sustain the growth of clients and train clients on requirements for financing; (2) establish linkages with "angel," venture capital and corporate equity investors through capital networks, brokers and personal contacts; (3) consider creating in-house equity and debt funds to seed a deal and to fill financing gaps; (4) create relationships with corporations that are willing to provide services (e.g., product development, manufacturing, sales and distribution, etc.) for clients in the incubator in lieu of capital.

Client Networking

The client networking domain includes three suggested actions: (1) to proactively encourage client networking to establish and sustain the incubator's nurturing environment; (2) to pay attention to facility design issues, host brown-bag lunches, CEO roundtables and affiliates programs to bring business owners together to exchange ideas, share experiences and leverage resources; and (3) to hire incubator management that values client interaction and networking and is capable of facilitating these processes.

Governance and Staffing

For the issue of governance and staffing, five actions are suggested; (1) the need to ensure that the incubator has an effective governing body including private-sector perspectives; (2) commitment to achieve consensus among staff and major stakeholders on the mission of the incubator is important; (3) ensuring that the incubator's president/CEO has appropriate skills and is capable of helping companies grow; (4) ensuring that staffing is sufficient, that certain staff is designated to work primarily and directly with client services and that those people have the highest qualifications; and (5) Hiring entrepreneurial presidents/executive directors capable of identifying client needs and matching them with a wide range of resources, and ensure they do this without impeding the client's need to learn or diminishing the client's responsibility for growing a business.

Client Screening and Graduation

The domain of client screening and graduation has three actions suggested: (1) utilization of an extensive screening process to select clients that can benefit from the value-added services the incubator provides; (2) ensuring that screening processes determine the needs of the applicant, the ability of the incubator to provide value to the applicant and the willingness of the applicant to accept the value provided by the incubator; and (3) establishing appropriate graduation criteria.

Incubator Evaluation

Lastly; two actions are suggested for incubator evaluation: (1) to utilize a range of quantitative and qualitative measures to evaluate performance relative to the incubator's mission; (2) to obtain client feedback on the value of the program while they are residents and following graduation; and (3) to ensure evaluation processes are both manageable and consistent and that outcomes are used to improve incubator performance.

Lessons Learnt

The extent to which virtual tools can be of benefit for business incubation depends on the mission of the incubator, the service the incubator aims to provide, the competencies, business environment and location of the target group, and the resources available. In this section, a discussion of the specific virtual tools that can increase the outreach, quality or cost-effectiveness of virtual business incubation services is done. Thereafter, a discussion of the opportunities virtual tools can offer to improve the cost-effectiveness and outreach to rural areas of the three defined virtual business incubation service concepts, namely 1) hand-holders, 2) network boosters and 3) seed capital providers is also done. Finally, an overview of the conditions under which these service concepts can be replicated, and learning to improve virtual incubation service concepts is provided.

Specific Tools to Enhance Outreach and Cost-Effectiveness

There are quite a number of specific virtual tools that have been identified and can be used to increase the outreach, quality or cost-effectiveness of virtual business incubation service. These include brand building, client selection, training and information provision, mentoring, networking, and access to finance.

To enhance brand building; several tools have been earmarked and involve partnerships with communication partners 'events, media, website and social media, and virtual communities with regular events.
Regarding selection of clients, the online option is identified as the most effective but only when done in cooperation with partners. Additionally, attitude and skills testing is also conducted online.

It has also been realized there several tools for effective training and information provision, these include clients coming to the incubator/Satellite offices/rented facilities, or employing electronic learning. It has also been discovered, rural/local partners are needed for local networks and knowledge, however, a well maintained website is also necessary.

For mentoring, it is common to find that volunteers are recruited online. However, structured ICT-based mentoring that is combine with face-to-face meetings is equally common.

There are two main tools for networking including online matchmaking that emphasizes need for trust and quality checks, and virtual communities with regular events.

Access to finance involves online recruitment of business plans, demo days and pitching sessions, and crowdsourcing.

Opportunities to Improve Cost-Effectiveness and Outreach to Rural Areas

Following here below is a presentation on the overview of key lessons for improving cost-effectiveness and outreach to rural areas, using virtual business incubation services and tools including hand holders, network boosters, and seed capital providers.

Hand-holders

Hand holders have been identified as those virtual business incubators that define and implement a structured training and mentoring Programme at all stages of enterprise development, from initial idea to established enterprise. It has been noted however, this process involves various information flows including phone, email, SMS, and face-to-face exchange with different people. The process therefore needs to be well managed. This demands that clear deliverables and deadlines for delivery must be set and, if these are not met, then there needs to be some sort of consequence. It also calls for active stimulation of exchange between entrepreneurs, and also combining remote coaching with face-to-face individual coaching and workshops for groups of entrepreneurs. In addition, adapting to entrepreneurs from another culture requires specific skills but also, injecting talent through fellowships motivates and improves incubatees.

Network boosters

"Network boosters bring people together to improve business, and usually target a business sector, or a group of professionals with shared values. Distinguishing real entrepreneurs from fortune seekers however, requires a sound promotion and selection strategy from the implementer, as well as a quality-based evaluation and reward system from the funder. It is also important to mobilize volunteer coaches as "in-kind" contributions by large companies. Furthermore, preparing entrepreneurs for investment opportunities requires professional support. Besides, business plan competitions have proved to be very effective for generating publicity and establishing a brand. Yet, participating in too many business plan competitions has a negative effect on business development. Thus; there is a need to keep stressing that "the members own the community" and actively ensure a diverse mix of members. It is assumed that this creates a positive working atmosphere and brings members together to create synergies. Also social media is perceived as an effective tool for communication and hence, contributes positively to the brand and identity of the organization.

Seed Capital Providers

Two types of seed capital providers are identified including commercial seed capital providers that take equity with the objective of selling their shares for profit, and social seed capital providers that offer a wider range of financing options. The success of seed capital providers however, is based on the incubator's ability to select high potential entrepreneurs, and to access and mobilize funds, allowing them to provide seed capital to these companies. It is important as investor and incubator, to select the right incubatees. Additionally and equally important is the fact that, real innovation requires finance in the form of grants or patient investment, not debt finance. However, not all entrepreneurs feel comfortable with the implications of external finance and hence, alternatives to external finance should also be explained and considered.

Conditions for Replication

It is proven that an incubator helps incubatees remove bottlenecks affecting their growth. It is also true; entrepreneurs are faced with a wide range of entrepreneurial challenges, and their skill, know-how, resources and networks vary. Therefore, an incubator needs to understand the starting point of the entrepreneurs it targets before defining its service concept and choosing tools to deliver services. When initiating a new virtual incubator, of course, many issues need to be decided and managed, including the business model, the target group, the service package, the management structure and the monitoring cycle. Additionally, it is important to appreciate the need for high-quality leadership as a key factor that determines the probability of success. Finally, an entrepreneurial incubator develops its services based on the needs of the target group and knows how to sell them.

Policy Suggestions

No one incubator practice, policy, or service has the guarantee to produce virtual incubation program success. Instead, it's the integration among multiple practices, policies, and services that produce optimal outcomes. Thus, it's the relationship between helpful policies and services that matter most to incubator success.
The critical review presented in this paper, reinforced with findings from previous research about the virtual business incubation services provides important information for policymakers, incubator funders, and the

incubation community itself. The policy recommendations presented in this section are interdependent and targeted at three audiences: policymakers, funders and incubation practitioners looking to start a new virtual incubator or review an existing program.

National governments especially in less developed economies should develop new policies that encourage national wide local adaptation of international best practices for virtual incubation.

Wide scope of program funding should be mobilized by governments to support incubators, and any of the incubation programs that receive public funding should be required to implement industry best practices.

Programs receiving public support should be required to submit annual reports to their public funding source, so governments can monitor progress toward funding goals.

The governments in developing countries should develop robust monitoring and evaluation mechanism to provide for standardized outcome measures across the industry.

Policy makers should enact complementary policies and create enabling environments that improve support for seed, angel and venture capital funding.

National governments should attract angel investors by creating new venture startup matching fund facilities for entrepreneurs to secure early stage funding. These early stage matching funds from government would be beneficial and could provide emerging angels confidence.

For Funders

Funding organization should leverage the networks and reach of virtual business incubators, and work in collaboration with them to strengthen their pipeline and explore potential areas for improved alignment in their activities.

Funding agencies should work with virtual incubators to establish a more robust set of success metrics and monitoring criteria for incubation in low-income states.

Funders should build formal partnerships with virtual incubators that are closely aligned with their investment strategy and that have strong performance records. 4

Funding organizations should help incubators to develop better support offers by encouraging peer learning and collaboration.

For Incubation Practitioners

Virtual incubation management should include diverse expertise and review the current array of services provided through the incubation program to assess the effectiveness of those services periodically.

Virtual incubators should have competent staff with sufficient resources including time, to effectively deliver key services.

Practitioners should evaluate incubation programs periodically through two different units of analysis: outcomes and processes.

Virtual incubators should partner with academic institutions and industry associations to develop stronger data collection systems.

Virtual incubators need to build networks with the local financial sector, in particular domestic commercial investors, who may be able to directly support a majority of the incubators' graduates more readily than impact investors.

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