A Model for Sustainable and Replicable ICT Incubators in Sub-Saharan Africa
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A Model for Sustainable and Replicable ICT Incubators in Sub-Saharan Africa

Introduction

Economic development is the overarching name for the comprehensive set of activities that are undertaken (usually by government) to improve the standard of living of the people whom the development organization represents. This might include development of businesses, infrastructure to support commerce, financing and investing, development of real estate, and a host of other activities which may result in the creation of employment, increases in wages and salaries, expanded trade and a more rewarding life for the local population.

One highly successful element in an overall economic development strategy is the concept of incubating businesses. The business incubation idea suggests that from grouping a number of companies in one location, providing them access to business services and sources of capital, under the tutelage of an incubator manager who is experienced in business, successful companies will result. Since the early 1980’s the incubation concept has been employed in both developed and less developed countries with generally favorable results. The combination of reasonably priced rents, training, and mentoring, introductions to potential investors, and the atmosphere of success that pervades business incubators inspires entrepreneurs to make the best use of their resources and achieve the financial stability that allows them to grow. Moreover, the high survival rate of incubator tenant companies reverses the high mortality rate that is the norm for small companies outside of the incubation industry.

The National Business Incubation Association (NBIA) is the largest and best known of international organizations serving business incubators around the world. NBIA describes the purpose of the incubator as follows: “A business incubator’s main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen local and national economies.” (Emphasis added.)

From that definition, one can readily conclude that incubation is largely about providing the tools that entrepreneurs utilize to grow their companies and achieve economic success. However, the situation, as observed in the five case study incubators was somewhat different, and perhaps more reflective of conditions in Africa than in technology incubators in the United States. While technology incubators in the US and other developed countries have an implied mission of moving companies through a program, graduating them and sending them out into the community as part of a larger economic strategy, the absence of support infrastructure in the Sub-Saharan countries in question (excepting South Africa) is less well developed and there may be less incentive to graduate to another facility. In addition, the access to services which may be found in the local neighborhood in developed country incubators may be completely unattainable in Sub-Saharan Africa. Finally, there is the ever-present question of access to capital which, while available in the developed world is often simply non-existent outside of it. These differences impact the model that is described in the following report.
Rise of Incubation as an Economic Development Tool

Business incubation has long been a successful economic development tool in developed as well as lesser developed countries. In the United States, incubation has been a growing phenomenon for almost thirty years, with the first incubators emerging in areas where manufacturing was on the decline, and redundant factory buildings held the promise of renewed economic activity. It soon became apparent that the strategy was considerably more powerful than as a simple means of creating employment for those whose factory jobs had moved to warmer climates. As the incubator industry grew, economic development strategists realized its power to create successful small companies.

Studies conducted by the National Business Incubation Association (NBIA) and the US Economic Development Administration (US-EDA) proved conclusively that the survival rate of companies that were clients in incubation programs was substantially greater than was the case for non-incubator companies. In the US, it gained favor rapidly and the numbers of incubators grew from a handful in 1980 to hundreds in the 1990’s. The so-called “DotCom Bubble” of the late 1990’s increased the ranks of incubators by the addition of “Internet Incubators” to a reported 900 in the US in 2000. These Internet Incubators were facilities in which individuals who owned commercial buildings crammed in as many early stage companies as possible and called the buildings incubators, adhering neither to the operating standards, nor the incubation best practices that NBIA demands of its members. It should be remembered that many of these companies had no business plan, no experience on the management team, and no financing, but managed to attract attention because of their enthusiasm, and the willful suspension of disbelief of investors who should have known better. With the end of the “DotComs” many of these incubators closed, but left a lingering doubt for some as to the efficacy of the incubator concept.

Yet, the incubation concept has continued to produce companies that survive their first five years of operation in surprisingly high numbers (85%+). It continues to draw enthusiastic support from the economic development community, and has been tested and found effective. The NBIA claims that in January of 2009 there were 1,115 incubators in the US, and another 300 in North America. Based on the reports of the international incubator community, NBIA believes there are over 7,000 incubators around the world. From a renovated building in the “Rust Belt” of the US, this idea has proven itself to have both merit and staying power!
Impact of ICT

While incubation is a successful economic development tool, it has also become a credo of economic development professionals in recent years that certain industries have the potential for rapid growth, and the creation of employment, particularly in Small and Medium Enterprises (SMEs). These are companies that provide services and equipment in information technology, and telecommunications – companies that program computers, design Internet websites, disseminate various entertainment media, provide us with the ability to use mobile phones, and access the Internet remotely. This industry is usually referred to as the Information and Communications Technology industry (or “ICT”). For the most part, these kinds of companies have low barriers to entry, and wide appeal in that they provide entertainment, news, and international communication on an unprecedented scale. Using the Internet for telecommunications alone allows information to be broadcast instantaneously to any place in the world with the ability to receive electronic data. The data may be transmitted by submarine cables, satellites, microwave, and telephone wires (among other media formats) and much of the engineering and scientific effort being expended in the world today is to expand and enhance the media delivering the information.

It has become evident that this revolutionary expansion of communications technology can provide some of the most sophisticated forms of telecommunications access to people who would otherwise have no means of communicating to the rest of world. It is also relatively inexpensive, once the infrastructure is in place it facilitates distance learning, remote support of all kinds, and the ability to share knowledge and skills. For Africa, ICT represents a game changing new aspect in economic development because areas once considered too undeveloped to embrace technology, suddenly are capable of receiving information and program content that can educate, and help them achieve a level of knowledge competitive with other parts of the world. For the incubation industry, this means that small companies in incubators can order parts, communicate with their suppliers, seek investors, be counseled by advisors, advertise
their products and services, and in general, avail themselves of much of the same kinds of technical support as SMEs in the United States, France, or China.

The primary sectors of the ICT industry that are discussed in this report are as follows:

- **Telco’s** – meaning the fixed-line telephone service providers. In many cases these are government monopolies that are heavily regulated and provide a source of revenue to state budgets through the tax system. (Many telco’s also offer mobile services).
- **Internet** – the many kinds of services that are accessed through the World Wide Web. The Internet is the linking of millions of public and private networks belonging to government, business and academic sources (among others).
- **Wireless** – which includes accessing the Internet without being tethered to it, but rather using various forms of radio transmissions.
- **Cellular** – primarily cellular telephone services; however, this also includes the ability to transmit data, messages, music, and other forms of entertainment.

Two more specialized sectors of the ICT industry that are of special importance in Africa are Business Process Outsourcing (BPO) and Information Technology (or IT) outsourcing (ITO). These topics define the use of the Internet for the purposes of remotely conducting business “back office” services for a client in some other location (e.g., administration and finance, human resources, etc.) and providing IT services such as custom programming or web site design, typically taking advantage of lower labor costs in the remote location. Call centers, help desks, and other forms of customer support are typical examples.

ICT infrastructure supports business activity in virtually every industry in Africa, from e-government to healthcare, banking, transportation, tourism, and even agriculture. The importance of developing capabilities to connect these various entities cannot be exaggerated as a priority for development. ICT incubators in Africa represent one means of facilitating the spread of these communications technologies, and are seen as a means of rapidly developing an entrepreneurial class in regions that did not previously have such a group. However, the development of ICT incubation programs requires a plan that takes into account the environment in which the incubators will operate, and assists prospective incubator managers in achieving a financially sustainable level of operations. Moreover, and recognizing that incubators vary considerably from one operating environment to the next, it was the desire of the infoDev client that a model should be formulated which would identify the best operating practices and characteristics of ICT incubators in other locations and generalize them to an African environment. This report is intended to describe the model that the consultant believes will establish a group of sustainable, replicable, ICT incubators in Sub-Saharan Africa. It was with the foregoing in mind that the work plan and methodology of the study were designed and executed.
Work Plan and Methodology

**Incubator Assessment.** In order to acquaint the consulting team with ICT incubation projects that the client felt could be emulated in some fashion, and the lessons learned applied to the development of the model, a work plan was developed to visit several and gain understanding of their operations. Steps in the plan are shown below:

- **Background Research** – desk-based research concerning the country in which the incubator is located and its level of economic and social development. The degree of ICT usage, mobile market penetration, nature of the ICT regulatory environment, and level of sophistication with respect to technology development. Finally, a review of other incubators in the Region was conducted as well.

- The Team developed two questionnaires for use in interviewing tenants and others associated with the incubation community. The first questionnaire was used in guiding interviews of the incubator managers/staffs and their stakeholders\(^1\), investors, directors, and other supporters. The second questionnaire was developed for the purpose of obtaining the views of the tenants in the incubators, asking about their use of the amenities offered by the incubator such as training, business counseling and consulting, referrals to sources of finance, etc.

- Site visits to five successful ICT incubators (identified by the client) to understand the best attributes of each were then scheduled and the questionnaires employed during the visits.

- A case study was then prepared describing each site visit and discussing the characteristics of each that could be employed in the development of a network of ICT incubators in sub-Saharan Africa.

- Country visits to two target countries in Africa selected by infoDev in consultation with the Team were also scheduled. (The two countries, selected at a later date were Tanzania and South Africa.)

- The Model for the sustainable, replicable ICT incubator was then developed.

- A Financial Model for financing the incubator and the client companies was formulated separately based on interviews conducted in South Africa and by telephone to representatives of the investment community.

- A presentation of the Model was made to World Bank and International Finance Corporation representatives in Washington, DC.

- A second presentation of the Model to Public and Private Sector investors in Johannesburg, RSA was also scheduled.

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\(^1\) “Stakeholder” is used throughout this document to mean those individuals and entities that have a financial interest (real or implied) in the ultimate success of the incubator.
Study Design

**Questions to be Addressed.** The following questions were considered in formulating the work plan for this project. The intent was to cover many of the same issue areas as would be investigated in a feasibility study or incubator assessment, so as to understand the issues that confront the managers of the five facilities. They were:

- Does the ICT regulatory environment support private investment?
- Does tax policy encourage investment in entrepreneurial companies?
- Is there a strongly committed founder and community support?
- Is there external support for incubator real estate?
- How do the client companies sell their services and products?

**ICT Incubator Visits.** The team scheduled visits to the five ICT incubators in various locations around the world were conducted by the IPI Team. The incubators, date of visit, and their locations were as follows:

<table>
<thead>
<tr>
<th>Incubator</th>
<th>Location</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPark Jordan Technology Incubator</td>
<td>Amman, Jordan</td>
<td>2-5 Sept.</td>
</tr>
<tr>
<td>Viasphere</td>
<td>Yerevan, Armenia</td>
<td>9-12 Sept.</td>
</tr>
<tr>
<td>ParqueSoft (network)</td>
<td>Cali, Colombia (and other locations)</td>
<td>6-9 Oct.</td>
</tr>
<tr>
<td>SmartXchange</td>
<td>Durban, S. Africa</td>
<td>2-5 Nov.</td>
</tr>
<tr>
<td>Octantis</td>
<td>Santiago, Chile</td>
<td>3-7 Nov.</td>
</tr>
</tbody>
</table>

Each visit to an ICT incubator provided an opportunity for team members to understand the rationale behind the incubator’s establishment, its primary sources of funding, the kinds of tenants accepted into the program, the successes experienced and the lessons learned in making the incubator operational.

Teams of one or two people were assigned to the respective incubators and visits conducted. Each team was then debriefed on their return, and a visit report was prepared describing the observations made by the tenants and the lessons they believe had merit for inclusion in the report.

**Analyses of the Site Visit Reports**

The team analyzed the reports of the site visits with the intent of applying the lessons learned in the development of the visited incubators to a model for Sub-Saharan Africa. These are summarized later in this report. The observations of the incubators were then applied to an organizational design model developed by Behavioral Assessment Associates, a consulting firm that specialized in exactly this type of analysis. Through a series of steps that included an analysis of the Strategic Environment Factors, an Organizational Mission was developed for the ICT
incubator. The resulting Mission was then used to determine the Organization Outputs that should be expected, and from that the Standards and Measures of the ICT model. The key point is that the Organization Outputs are directly related to the ICT world, and the Standards and Measures would be unique to the ICT incubators rather than the more general impacts that are typical of any incubation program analysis. Once the organizational model is complete, the Structural Level can be approached and it is in this analysis that the form of organization, work system (means of processing the raw materials and inputs) information flow, and critical measures of the incubator’s performance are defined. The “critical inputs” that were analyzed were as shown below:

Critical Inputs for the ICT Incubator in Sub-Saharan Africa:

Interviews with individuals involved in incubation across Africa reinforce the conclusion that, although ICT is universally recognized as a means of rapid economic development, differences in business culture and approach to developing ICT business vary considerably. Development of ICT incubators in widely disparate locations must take this into account. In addition, the various elements of the business environment that each incubator will operate in must be considered. Below is a list of those elements of the environment felt to impact development of ICT businesses (and ICT incubators).

1. Technological Forces – emergence of trends, devices, events that influence, etc. Includes elements such as Internet bandwidth and telecom access, growth of mobile phone access and services.
2. Legal & Regulatory Forces – laws governing ICT; national tax systems with respect to investment; regulatory environment; deregulation and liberalization of fixed line and wireless; trend toward a free market view of business.
3. Economic Factors – high unemployment; limited access to social services; impact of industry (agriculture, extraction, tourism, medical services) use of microfinance; and trend toward collaboration between businesses.
4. Political Forces – dynamic political environment that varies by location.
5. Social & Demographic Factors – high birthrates in many countries; much of the population at or below poverty level; low life expectancy; support for free markets.
6. Raw materials & Resources required (processed by the organization to accomplish its mission) – trained labor force; equipment for access to networks, test equipment, etc.
7. Competitive Entities and Forces – displacement of fixed-line services by mobile services.
8. Stakeholders (and how they construe their mission) – Includes banks; large companies; academia; equipment and service providers.
9. Other Organizational Factors – need for a professional network of incubators (e.g., African Incubation Network – AIN – and others) requirements of training programs for entrepreneurs (and incubator managers); governance issues (e.g., board structure and roles).

The factors listed above were considered by the team, and then used to develop the generic ICT Incubator Mission and the outputs (products) of the incubator.

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2 The format for this systems analysis was originally developed by Behavioral Assessment Associates, Morris Plains, NJ, (Dr. Ross’ former consultancy).
Mission of the ICT Incubator in Sub-Saharan Africa

- Provide a safe, stable and secure place to start and grow companies that can offer needed services, support and equipment to the ICT community within the country and the region.
- Create employment in both ICT and the larger business community.
- Promote development of a free market system through training and education, making use of entrepreneurial talent to improve the community’s economic well being.
- Enable access to equipment and services required by the new companies.
- Be a focal point of entrepreneurial activity, networking between tenant companies, the business community and potential partners.

Organizational Outputs of the ICT Incubator in Sub-Saharan Africa

The ICT Incubator in Sub-Saharan Africa will produce organizational outputs. They are derived from the Mission Statement above:

1. Tenants of the incubator will deliver ICT services and products throughout the country and the region.
2. Tenant companies will create employment for individuals in the country and the region.
3. Incubator training will contribute to enhancement of a skilled ICT labor force throughout the country and the region.
4. Tenant companies will sell value-added services and products.
5. The ICT companies that graduate will be sustainable.

In this model, the outputs of the incubator must be tangible, and used as inputs to another process. That would mean that the graduate companies, the services and products they sell (or re-sell) and jobs created as a result would all qualify as outputs.

Graduation is a primary objective in most developed country incubation programs. However, in virtually all of the incubators visited by the study team, graduation is frequently not a primary objective of the program. In addition, the kinds of coaching, mentoring and counseling services typical of an incubator program may be unavailable or less reliable outside the incubator. Client company entrepreneurs may also find that the incubator’s internal network which served them while they were clients is no longer available once they graduate and it can make the decision to leave the facility a difficult one. Without some incentive from the management to move on, some companies can become permanent residents. The problem becomes more acute if the rents are kept artificially low, or there is no logical next step in the incubation process such as the ability to find “graduate” space outside the incubator.

Standards and Measures

In order to determine if the incubator has achieved its mission, a means of measuring its success is required. Typically this is done by describing some standards of economic impact for the incubator’s operations. Quantitative measurement gives an indicator that can be compared across the board, taking into account the differences in operating environments that will be faced by a constellation of ICT incubators across Africa.
The following appear to be reasonable measures of success given the environment, Mission Statement, and Outputs stated above. These measures might be most useful for infoDev and IFC monitoring of the group of incubators.

**Employment creation** – the numbers of full- and part-time jobs created by the client companies in the incubator. While job creation can be misleading in that the intent of encouraging ICT development is to create jobs above the subsistence level, it is the most common measure of incubator success in other parts of the world.

**Numbers of client company contracts** (new and existing) – this measure would give an indication of the true business activity of the individual companies.

**Year-on-Year growth of Revenues** – a percentage improvement illustrating growth in company revenues.

**Numbers of “walk-through” employees** – those who were trained but did not stay with the client company should be reported in addition to current employees as they are still trained ICT workers presumably available for employment in the industry.

**Aggregate client company growth in turnover** – the aggregate amount for all companies in the incubator should preclude client company reluctance to reveal economic performance.

**Post-Graduation, Year-on-Year Annual Turnover Growth** – more than in other environments, sustainable, replicable ICT incubators in Africa will require some path forward for those companies that grow to a point requiring graduation or which seek graduation for other reasons. Their progress must be tracked in order to develop the level of public support that will be required to sustain the program.

The Team summarized their incubator case studies for inclusion in the body of this report.

**Summary of Incubator Attributes**

Five incubators were visited during the period September through November of 2008. The important characteristics that make each of these incubators attractive as contributors to the Africa ICT model are shown below. The methodology for examining the incubators was to visit for a three to four day period, during which time the management, and a selection of stakeholders and sponsors; advisors; and tenants were interviewed in depth to obtain their views concerning the attributes of their operations that made their programs successful. (A list of interview participants appears at the end of each case study report.) Each of the incubators is discussed briefly below with an emphasis on the factors that led to its success.
iPark Jordan Technology Incubator

iPark has been in operation for about four years and has provided services to seventeen companies during that time. A small facility (under 10,000 square feet) it is situated on a university campus with two other universities in the immediate area. During its brief history, it has focused exclusively on ICT companies and is well known in the MENA (Middle East/North Africa) region. It has served a total of seventeen companies and is currently home to seven client companies (in addition to a start-up incubator).

Like the other incubators in this study, the iPark founder has been a major factor in its development and his involvement helps make the point that a committed founder can be a key success driver in the ideal ICT incubator. The business model of iPark is that of a government–run organization. The Higher Council on Science and Technology is its prime sponsor and provides iPark with a building, and administrative and financial support. Receiving annual operating funds from the government, iPark is considered sustainable absent a major change in the government’s support.

Key aspects of the iPark model that are considered valuable are its emphasis on a strong management relationship with the tenants, flexibility in its approach to solving problems (and recognition of the fact that ultimately the incubator will not be successful if the client companies are not). In addition, iPark’s effort to recruit previously successful (serial) entrepreneurs in order to have a mix of entrepreneurial experience in the facility is considered a key attribute. (In fact, two successful client entrepreneurs subsequently returned as investors in other tenant companies.)

Viasphere

Viasphere is located in Yerevan, Armenia. It is privately owned, having been started by its parent, Viasphere International a Silicon Valley company. The entire Technopark is about 160,000 square feet (about 86,000 square feet currently in use for incubation) and serves ten tenants. Its ICT industry involvement is a consequence of having been a Soviet-era research facility.

As a privately owned and operated facility, the incubator does not readily share its operational details; however, its operating budget is about $500,000 per annum. Viasphere client companies have received some equity financing, at least a portion of which is attributable to outside foreign investment.

Decisions to admit a company to the Viasphere rest solely with a Board that meets to review the business plans of the company seeking admission to the program and ensures that new recruits are not competitors of existing clients. The incubator maintains a strong relationship with local universities but does not consider itself as a university-related program. Numerous business services are offered by Viasphere including: program and project management assistance and training; staffing; mentoring; sales and marketing support; legal and accounting help. It does not have a graduation policy. Perhaps Viasphere’s most important attribute is its intensive use of the Armenian Diaspora to promote its companies in international markets. Its successes must be viewed favorably in that respect.
SmartXchange

The SmartXchange ICT incubator is a City of Durban-funded incubation program that has been in operation since July of 2004. This incubation program supports itself through rent of its commercial space – about 124,000 square feet are commercial rentals and about 16,000 square feet are utilized for incubation. The rent from the commercial space is used to offset the operating costs of the incubation program. This strong real estate model provides SmartXchange with the operating funds it requires, and provides the ability to be situated in the central business area of downtown Durban, adjacent to a mass transit hub.

A key element of the SmartXchange program is in its broad relationships with commercial companies that are leaders in the ICT industry (Microsoft, IBM, Cisco etc.). These large companies are providing the incubator with training and certification support that is extremely beneficial to the client companies in the facility. The ability to obtain technical certifications is especially attractive to incoming clients and there is also the possibility of a contract with one of them as well. As with most of the incubators in this study, the fact of SmartXchange having reliable electrical power and Internet access is an important attraction to new clients as well.

SmartXchange has established its own branding. This is important to client companies as a means of seeking business because it makes them appear to have the backing of a strong regional brand. This instantaneous credibility makes the association with SmartXchange very valuable to early stage client companies.

Octantis

The only virtual incubator that was examined in this study is Octantis, a program of the Universidad Adolfo Ibanez in Santiago, Chile (and supported by the Chilean Economic Development Agency, CORFO). Octantis has established an excellent vehicle for connecting with other markets in Latin America and the US by maintaining offices in Miami, FL, which is emerging as the financial hub of Latin America. Using this Spanish-speaking network, Octantis companies can access US markets, make connections with sources of financing, and be introduced to potential partners.

The Octantis facilities include offices, meeting rooms and temporary work space in the Universidad Adolfo Ibanez on a short term, as-needed basis. In addition, clients have access to a business library as well as laboratory space. Excellent broadband access to the Internet through submarine cables, domestic satellites, and access to the Intelsat system coupled with what is reportedly the best telecom infrastructure in South America make Chile a highly competitive regional center for ICT.

Octantis is specifically targeted at high growth companies with potential for 50 or more employees and is not exclusively in the ICT sector, but supports some bioscience companies as well. Octantis was instrumental in the establishment of the “Southern Angels” network of angel investors. This source of equity financing is coupled with a soft loan program of CORFO in which it guarantees bank loans to the client companies.
As in the other incubators examined, branding plays a key role. The Octantis name provides credibility and opens doors for the tenants. More than interviewed client suggested that the instant credibility of the Octantis name was the most important benefit of association with the organization.

**ParqueSoft Centers**

The ParqueSoft Centers is a network comprised of 14 incubators scattered across the country and managed from a headquarters building in Cali, Colombia. The founder of ParqueSoft is a highly charismatic individual who utilized his expertise in ICT to establish ParqueSoft for the purpose of providing social development through business creation. There are over 270 businesses in the ParqueSoft network, each of which is an element in of interlocking business entities providing internal (as well as external) consulting, marketing, and training support.

A commission of 20% of each sale by a member company is remitted to the ParqueSoft parent in addition to the grants, in-kind donations and rents and service fees collected. This allows ParqueSoft to pay for advertising, maintenance on its building in Cali, and other overhead expenses. Local universities provide the office space in each location except Cali.

The ParqueSoft brand is known internationally and is associated with high quality services. This allows the start-up companies to obtain larger contracts that are effectively subcontracted to the member companies. The use of cubicles in ParqueSoft buildings provides for more intense networking and interaction by the companies. This builds the ParqueSoft brand, and makes each company seem competitive with larger, more established companies, it should be pointed out that it also diminishes the efforts of the individual companies to establish their own identities and brand equity.

ParqueSoft is largely self-sustaining, though only through seeking grants and contributions in addition to revenues. Its growth to 14 centers proves it is scalable, and it has required very limited public sector support other than real estate.

**Summary Observations**

In the experience of the team, the key issue with respect to successful operation of the incubator is the ability to pay the rent (or service the debt) on the facility. The real estate constraint is usually the most significant hurdle for the management as it is frequently the largest item in the expense section of the income statement. Four operating models were observed in the five incubators studied. These were:

1. The fully government funded incubator such as iPark, which receives all but a fraction of its operating expenses from government grants.
2. The partially funded model, for example Octantis, where funds from CORFO and provision of offices and other facilities are provided by the Universidad Adolfo Ibanez.
3. An incubator that derives its operating expenses from a combination of rents and service fees as is the case with ParqueSoft, and SmartXchange.
4. The private incubator that rents space to companies (and in most cases is an investor in the client as well) as is the case with ViaspHERE.
There are advantages to each model. The first is viewed as a government program to stimulate the development of an entrepreneurial class and it has been successful in the sense that graduates of iPark have already achieved success and returned to invest in other companies. Considering the relative youth of Jordan’s efforts to establish a technology economy, this is understandable. The iPark management stated that they prefer to be small and serve only 10-12 companies in order to provide as much personalized attention as possible. The incubator is size-limited, so growth beyond those numbers will be difficult unless a new building is constructed.

The combination of government and university participation is one that, as demonstrated by Octantis, can produce excellent results. Stimulated by the funding of CORFO, and with access to university offices and meeting space, Octantis has been free to allocate resources to business development and innovative means of attracting clients, such as access to US and Spanish markets through its field offices in Miami.

SmartXchange and ParqueSoft have the freedom to carry on a successful program by generating sufficient revenue to meet their needs through commercial rents and fees for services. The additional revenue generated by the combination of SmartXchange’s rents from commercial tenants and fees for services make it financially sustainable over the long term. This is an excellent example of an early investment by the public sector that continues to pay for itself in terms of job creation, tax base appreciation, and the other indirect benefits of incubation programs to their public sponsors.

Finally, the great benefit of a private sector incubator is that the investor gains on the appreciation of the real estate, and the equity he holds in the portfolio companies. Real estate in the Former Soviet Union is still reasonably inexpensive (with a few exceptions) and Viasphere International’s management apparently realized that an investment would provide an excellent location to incubate companies, take advantage of a skilled workforce, and appreciate in value over the long term. This model gives credence to the notion that it is possible for risk capital investors to participate in an incubation program. While the rate of return is unlikely to be at the level of most venture investments, the ability to be in close proximity to (and control of) the entire portfolio is one most investors appreciate.

**Comparisons Based on the ICT Incubator Visits**

The economies that support the five incubators that were visited are extremely diverse, ranging from highly advanced (S. Africa, Chile) to mid-sized economies such as Armenia and Colombia to the smallest (Jordan). Yet, all were at least two to three times larger (in terms of GDP per person). The chart below compares them on the basis of several factors.
We note that the degree of mobile penetration, numbers of Internet users, numbers of ISP’s and median age of the target countries of Senegal and Tanzania are in significant contrast to the countries that were visited. Clearly this means that the environment and in the target countries will be significantly more challenging and probably require longer development times to reach sustainability, require additional attention from mentors, and probably require much larger financial investment as well.

**Design for a Model ICT Incubator**

Given the nature of the environment observed and the elements found to be successful in the studied incubators, the following model is proposed:

**Real Estate:** One model for the sustainable and replicable ICT incubator would be to locate in a building that has been contributed or financed by the government (or some other organization within the public sector). As a matter of practicality, we have not observed any successful incubator models in which the incubator is located in a rental facility wherein the incubator leases from a commercial landlord on a master lease, and then subleases the space to clients who must pay market or above market rents. The most successful incubator observed in this study was SmartXchange in Durban, ZA. This facility is sustainable because the City of Durban paid for the initial lease-out of space, and SmartXchange has been responsible for its costs ever since (with a subsidy by the City). Yet, the financial trend of SmartXchange is toward a cash positive operation in the future. Other successful incubator models include the government providing a building (as is the case with iPark) or universities providing excess space for use in incubation (as has been done in the cases of ParqueSoft and Octantis).

However, the situation changes when soft costs can be covered by an investor for the first several years of operation. Then, financial projections turn positive within a 7-10 year period. This means that with adequate, patient, financing, it would be possible to establish an ICT incubator that could survive and eventually prosper. The bottom line for incubation business planning is that the incubator must have control of the real estate and must not have a large rental (or mortgage) payment that becomes the major element in each month’s cash flow planning. The ability of a well-funded parent organization to relieve the financial pressure by covering the soft costs of the incubator while it grows could change the outcome dramatically.
This raises an additional thought: if the IFC or other well-financed organization was truly seeking the opportunity to make a substantial impact with ICT incubation, would it not make sense to take advantage of the economies of scale that might be achieved with the development of a group of ICT incubators, and construct an entire network to serve Sub-Saharan Africa and other target regions? Spreading the expense (and income) over a greater number of sites, could conceivably result in a cashflow-positive operation, and a successful venture. These thoughts are explored more fully in the Network Development Report that is attached.

Spaces for ICT incubators tend to be smaller than that required for other kinds of technology. Excepting the occasional call center or other labor-intensive business that requires larger spaces, the typical ICT incubator will most likely require only about 2,000 square meters. In more developed country incubators it would be typical to have substantially more space for financial self-sufficiency, however, if there is no issue regarding a large monthly payment for the space, it may be possible to operate efficiently on the smaller amount. This also presumes the incubator is not providing specialized space such as wet-lab, manufacturing or warehouse space that require special equipment in order to operate.

**Layout:** The ICT incubator model layout should include spaces such as a break room, and at least one or two conference rooms for clients to meet with their customers, in addition to administrative space. It is very important for clients to have access to well-appointed space to meet with their customers. Companies in the incubator are attempting to give the impression that they are as successful, capable, and well organized as their larger competitors. The brand equity and credibility they gain as members of the incubator organization are squandered if it appears to a potential customer that they are operating on a shoestring budget. Therefore, in order to maximize the benefit or their membership, they should have high quality meeting space available that will make a good impression on their customers.

**Numbers of tenants and staffing:** It is likely that the model ICT incubator will have upwards of twenty clients in the building, and possibly some virtual tenants as well. The incubators that were studied in this project ranged from as few as seven active clients (iPark) to literally hundreds (considering ParqueSoft’s 14 locations). Yet, the typical incubator in almost any venue will have 20 or more tenants. Arriving at this number may take longer than in locations where services are plentiful, and entrepreneurship is a well recognized aspect of the culture. A building of about 2,000 square meters should easily handle twenty client companies. At a minimum, staffing should include a manager who has been trained in incubator operation and has business experience, possibly an administrative assistant, a secretary receptionist, and at least one business counselor. A minimal maintenance staff will probably be required as well, but this will vary by location.

**Management a critical element:** A key factor in the development of a successful business incubator that was identified in virtually every one of the five incubators reviewed by the team is the presence of a skilled manager who can guide the entrepreneurs through the development process and act as their on-site management counselor. In every one of the five incubators, a strong and committed founder / manager was one of the first qualities identified by those who were interviewed. In the model incubator, an important element in setting up the facility will be the selection and training of the manager. This should be a person with at least some business experience, an ability to analyze the issues facing client company entrepreneurs in developing their businesses, the ability to develop networks that will serve the clients, and an ability to work with stakeholders such that their support for the program is retained. An organization chart for the ICT Incubator Model appears below.
Training: As stated by one investor in ICT companies, “we need to teach geeks the elements of business”. The findings of this study indicate that training will be a key element in the operations of the facility. In the ICT incubators observed, the training opportunities may range from comprehensive basic skills training in ICT that allows people with a desire for self-employment to acquire the skills to start an ICT business (as is the case with ParqueSoft). Or, it may be technical skills training by large companies that certify individuals to work on their most advanced equipment or software, as in SmartXchange. Virtually all work in ICT requires at least a modest amount of technical training, and virtually all entrepreneurs can benefit from exposure to the basic skills of managing a technology business. Therefore, the development of training needs, and a plan to meet those needs should be an integral part of the organization’s business plan.
An Investment Framework for the ICT Incubator Fund

A key task of the Sustainable, Replicable ICT Incubator Study was to understand the investment environment in which incubator organizations must operate. Therefore, a number of meetings and interviews were scheduled with individuals whose experience with venture investment and funding early stage technology companies was considered useful in enhancing the Study Team’s appreciation for the financial challenges that entrepreneurs in sub-Saharan Africa face if they are to obtain risk capital. The group of interview participants included investors and ICT experts working in Africa. (The model was later vetted with individuals in Tanzania who operate organizations that serve technology entrepreneurs to ensure its design fits the environment.)

Certain assumptions concerning the companies that would populate the ICT incubators were then factored into the model. These included:

- Tend to be small in terms of numbers of employees (perhaps 2-4), and be primarily owner-operated establishments.
- Be unlikely to be commercializing intellectual property.
- Would probably not have significant assets (although some VARs and related businesses might have inventory that could be financed).
- The owners would be unlikely to have many mortgageable assets.
- After one or two rounds of “friends and family” or angel financing further rounds would have to be sought from outside investors.
- Would probably not have some types of financing available to them that are commonly expected in less challenging environments (e.g., trade credit, business credit cards and factoring of receivables).
- Could potentially benefit from micro-financing, although these often have low ceilings in the $3,000 to $5,000 range and thus, do not meet the larger financing requirements of ICT companies.

The Team then constructed a model of an investment fund that is reflective of the views of those investment and ICT experts who were interviewed. It is offered as one example of how such a fund might be constructed.

What follows is a high-level description of the investment environment as it applies to the ICT Incubator project and a description of an investment fund model. Given the current disruption of the investment environment, it is likely that the current global economic turmoil will have an effect on the sub-Saharan African investment market. To the extent that funds are available, investors are likely to be more risk averse in making investments and less willing to take on the level of risk that would probably accompany the development of an investment facility for early stage ICT companies. However, there is clear recognition by all concerned that ICT proliferation is an appealing strategy for economic development that has to be considered by virtually any country in Africa, including known countries of interest such as Senegal, Mozambique and Tanzania. What follows is a brief outline of two strategies that could be employed in order to provide the funds required for the tenant companies to expand. Described below, they are as follows:

- A working capital loan fund that would provide small amounts of debt financing to entrepreneurs in the incubator(s).
An investment fund that would offer a combination of debt and equity financing for promising early stage ICT companies.

**Working Capital Loan Fund**

It is often the case that companies in incubators require working capital financing to carry them through the early stages of their development. Sometimes this is due to the fact that their larger company clients are not as conscious of their need for cash flow and treat them the same way they do other large companies where the constant ebb and flow of financial payments provides sufficient cash flow to meet daily operations coverage. This is usually not the case for early stage companies where day-to-day cash requirements must be funded by sales revenues and the ability to finance a slow-paying client is constrained or non-existent. For companies at this stage of development, a model that could be considered is to establish a Working Capital Fund that would make short term loans to deserving companies that are established in the ICT incubator.

Working capital could be provided by a fund underwritten by the government (or a surrogate) requiring the participation of several of the larger banks that have existing SME or SMME loan funds. As a partner bank will be sought to work with the venture capital fund described in the next segment of the report, it should be assumed that the partner will also play a lead role in organizing the loan fund. The government could agree to provide a significant percentage of the capitalization (perhaps as much as 50%) and the group of banks, led by the partner, would pool their capital to achieve the required size fund. In this case $200,000 is suggested as an example.

Each of five banks would pledge $20,000 to the fund which, coupled with $100,000 in government funds would represent total available capital of $200,000. The fund manager and loan officer representatives of the bank would comprise a Loan Committee. Entrepreneurs would make a business plan presentation to the Committee, and if approved, the fund manager would disburse the funds to the incubator company. If a default occurs, the government would agree to absorb up to 50% of the loss, effectively reducing the level of risk for each of the contributing banks and leveraging their funds. This type of soft fund has been used successfully in the United States and represents a strategy that could be applied effectively in support of the ICT incubator companies. The fund might operate on a revolving basis where loans would be repaid to the group and used to fund additional working capital debt for incubator companies, thus having the characteristics of an “evergreen” fund.
The assumption is that the fund would only loan up to ten percent of the capital to any one applicant, and only on the favorable vote of the members of the loan committee. The incubator manager would be responsible for preparing the entrepreneurs to make their loan presentation. Funds could be utilized for any reasonable business purpose including acquisition of office equipment, paying for marketing/advertising, covering expenses while awaiting payment by a larger company, etc.

In summary, a working capital fund for ICT incubator entrepreneurs would comprise one element of the financial framework. This fund would loan on the basis of a favorable vote by the loan committee after presentation by the entrepreneur and would be used for gap financing, or other day-to-day needs of the clients.

**ICT Incubator Investment Fund**

A second strategy would be to raise an ICT incubator investment fund that would provide a combination of debt and equity financing for early stage companies through a capital pool raised for the purpose. The ICT Incubator Investment Fund could be created by IFC floating a tender to provide up to $50 million in debt financing to a professional venture fund manager who would have to raise at least $50 million in equity. The new $100 million fund would be required
to invest up to 10% of the total ($10 million) in promising incubator companies and incubator graduate companies, and to provide up to $250,000 per year for seven years, to each of the incubators in the system (up to five) for technical assistance, manager training, marketing, etc. Upon liquidation, IFC would receive the same payout as other limited partners in the fund minus the amount of technical assistance funds paid out during the seven years of incubator support. It is assumed that, as in the case of the working capital fund, a partner bank could be responsible for assisting with management of the fund on the ground. As a test of concept, this model has been vetted with established African venture investors and met with favorable reactions as it would leverage their investment funds without undue effort being expended on what are typically high risk/high touch investments (i.e., the incubator companies). The figure below shows the potential investors, management and recipients of the fund.

It is likely that a combination of investors would be sought to capitalize the Fund. This could depend on the location of the incubators in the network and the preferences of major investors, but it is likely that pension funds, banks, and private wealthy individuals could be approached as potential investors.

Corporate sponsors might also find it attractive to have a stake in the companies as they are likely to be major beneficiaries of the incubator in the sense that their products and services would very likely be used by the tenant companies.

The life cycle of a venture fund of this type is illustrated in the accompanying diagram. The time periods assumed are typical of venture funds in the developed world and could be extended in the African environment, however, it would be premature to make such assumptions until a fund manager is identified and a proposal put forth. Generally, the life of a fund is divided into three phases: an establishment phase wherein the business plan is developed and funds raised
the investing and managing phase during which time the fund selects companies in which to invest, and then the exit in which the fund is liquidated and capital and profits are returned to the investors.

It should be stressed that the figures shown are merely examples and used for purposes of illustration. The amounts would be dependent on the numbers of incubators that would have to be supported, the interests of the fund managers, and the availability of capital.

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<th>Life Cycle of an Investment Fund</th>
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<td>Year 1</td>
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<td>Formation</td>
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<td>Fund Raising</td>
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<td>Portfolio Investment</td>
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<td>Portfolio Management</td>
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<td>Portfolio Exit</td>
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The key points of the investment fund concept are as follows:

- Management of the fund should be performed by professional fund managers and should come from the private sector.
- Oversight in the incubator countries might be accomplished through a partnership with a cooperating bank.
- Investments in the fund could be tiered, based on the size of the investment and the high level of risk associated with companies in incubation programs. For example, given the high mortality rate of companies at this stage of development, it might be necessary to restrict early stage tenant companies to debt financing only, up to a ceiling of $100,000, and require a minimum level of revenues in order to qualify for the financing (it might also be limited to asset-based loans for companies at the earliest stages of development).
- Equity investments could be considered when the companies are more developed, perhaps towards the end of their tenure in the incubator.
- The fund manager should not be restricted to investing solely in incubator tenants but should have the flexibility to invest a large percentage of the capital in more secure, lower risk investments that will provide assurance to investors that the fund is diversifying the risk and has some prospect of realistic venture returns.

It should be pointed out that other elements in the incubator “eco-system” that support early stage company development such as a network of competent service providers, a skilled manager, on-site advisory services and training are all integral aspects of the program would also need to be present. These are discussed in other portions of this report.

**Investment Fund Summary**

The foregoing is intended to outline an investment framework that could be considered in raising a fund to support the companies in the ICT Incubator program. Two types of strategies that could be employed were discussed: a loan fund derived from a pool of capital that would be raised from participating banks, and an investment fund that could be raised from a variety of
investors and invested in qualifying companies in the incubator, and other less risky investments external to the incubator. Using one or both of these techniques could be considered to meet the financing needs of the tenants.

**Training: a Key Component**

The Innovative Partners consulting team observed that training of personnel in the incubator is a primary concern to the management of all five of the ICT incubators that were visited to observe best practices. Provision of a training program is a significant element in any well run business incubation program; training should not be confined solely to the workers in the client companies. Technical competence should also be the responsibility of the management of the facility. It is likely that a start-up incubator in any of the IDA countries under consideration by IFC and infoDev will hire its manager and other personnel from the local service area. If properly managed, this will benefit the incubator significantly, as the manager will bring with him/her a network in the local business community that could be invaluable to the client entrepreneurs.

However, management of the facility, experience in meeting the challenges of early stage business operation, understanding how to help entrepreneurs prepare to seek financing, conduct business planning, do market research, and deal with investors is incumbent on incubator management as well.

It is likely that a system for overseeing the training and mentoring of incubator managers will be required for the ICT incubators being contemplated. This would be provided in part through the technical assistance fee discussed in the investment framework wherein the investment fund would allocate about $250,000 per year to support for the incubator which would include training and support of management as well as clients.
The Model in Summary

Business Incubation has been a highly successful economic development strategy embraced by organizers of all kinds throughout the world. The World Bank’s infoDev organization is a major player in this movement, having supported over 150 incubators in 70 countries. The effort by infoDev to establish a group of sustainable and replicable incubators in Africa focused on Tanzania and Senegal in addition to South Africa as locations for potential ICT (information and communications technology) incubators that would assist technology entrepreneurs in developing successful companies supporting this industry. ICT companies serve virtually every sector of the economy in African countries including government, medical, agriculture, tourism, education, entertainment and banking.

The Team recognized that in order to have a successful incubator, certain environmental aspects of incubation need to be in place as well, e.g., reliable, high speed Internet connectivity, a supportive banking and finance community, adequate numbers of service providers who can work with the entrepreneurs, and real estate that can be developed, renovated or acquired. The Team was assigned the task of studying five “good practice models” that were deemed successful incubation programs to determine if there were specific practices that could be incorporated into the model for sustainable and replicable ICT incubators in Africa. Thus, incubators in Jordan, Armenia, Colombia, Chile and South Africa were visited and interviews conducted. Implications considered important from the African perspective were then identified and incorporated into the model.

The importance of finance to young technology companies cannot be overstated, and a separate element in this study was to develop a workable finance model to serve the clients. That model is also summarized below.

The Team confirmed that, as is the case with most incubation programs, the following are the primary economic drivers in developing the sustainable, replicable model:

- Real estate is the primary cost driver – in almost every case the incubation will require assistance in some form, be it through government grants, private investment, or donations.
- Corporate sponsors will play an important role – the ICT companies that will benefit from the work done by the incubator’s client companies should be involved as stakeholders and can be very helpful in providing training and equipment as means of in-kind support.
- Brand identity is especially important to the client companies as the incubator gives them credibility in seeking customers.
- Incubator client companies typically require ongoing support from the incubator organization in terms of marketing and sales, accounting, legal assistance and mentoring/counseling.
Because of they recognize the value of the services that exist in incubators and they come to rely on the incubator’s internal network, graduation is often not a priority for ICT incubator clients.

Most incubator client companies will not be commercializing technology from a university, although the role of local universities as partners in each of the “Five Good Practice Incubators” was significant in all but one case. Moreover, most client incubator companies will not require assistance with intellectual property protection, either.

The incubator will become a safe, stable, and secure location to establish ICT business; create employment; promote development of a free market system; enable access to equipment and training; and become a focal point of entrepreneurial activity in the service area.

Economic impact of the ICT incubator must be measured in order to justify its contribution to the economy. This will most likely be done by tracking employment creation by the incubator companies (both direct and indirect); tracking aggregate client company turnover growth of the current resident companies and the graduates; and some measure of the ratio of annual investment to aggregate annual income generated.

The financial model example assumes that two types of financing should be provided through the incubator: short term debt made available through a partner bank, and longer term risk capital which could be provided to qualifying incubator clients and graduates through a venture capital firm partially capitalized by IFC. One extraordinary aspect of the IFC venture fund would be that the Fund, run by a professional investment firm, would provide an annual technical assistance payment to each incubator in the system. The purpose of this financial support would be to cover the costs of consulting assistance to both managers and tenants in the incubators. The investment of said technical assistance funds would be subtracted from the IFC’s payout when the venture fund is liquidated.

In terms of a facility, it is anticipated that:

- The incubator would be managed by a small staff of 3-6,
- Serve about 20-30 clients (possibly some virtual clients as well),
- The facility would be about 1,500 to 2,000 square meters in size (although it is likely to be smaller), and,
- The incubator would require about ten years to achieve financial sustainability.

Finally, if a group of incubators was constructed and operated as a network, a cashflow-positive situation could eventually be achieved. This means that instead of what has typically been the case, (single, under-capitalized incubators are established without the resources to survive) a network of incubators is developed with consistent operating policies, well trained management, access to capital and professional advisors, the chances of success will be much greater, and the impact significantly higher.

In summary, the sustainable, replicable ICT incubators would have a role for both public and private sectors, require patient (long term) financing to be made available to the tenants, employ a trained manager with a capable staff, service providers and supportive stakeholders. Follow-on opportunities for graduating companies should be considered an integral part of the entire business plan so that eventually, a process for starting, growing, and graduating companies becomes a standard model for the program.
Next steps in the process include:

- Briefing the results of this study to appropriate decision makers in infoDev and IFC
- Selecting countries for establishing incubation programs
- Examining the specific target countries to ensure they have all or most of the requisite programs, real estate, and people and preparing a feasibility study and business plan for each.
Annex 1: Incubator Country Reports
**iPark Jordan Technology Incubator**

**Overview**
This report describes the iPark Jordan Technology Incubator, one of the ICT incubators visited in the course of conducting the infoDev African Replicable and Sustainable ICT Incubator project. The objective of the visit was to gain an understanding of the operations of iPark, identify those attributes that make it an outstanding example of a successful ICT incubator, and learn which of those features could be adopted for use in designing a model for future ICT incubators to be located in Sub-Saharan Africa. This visit was conducted during the period of September 1-5, 2008, at the iPark facilities in Amman, Jordan. The consultant was hosted by the iPark Interim Director, Dr. Wissam Rabadi, who also set-up appointments with the former Director (and Founder) Omar Hamarneh and a number of other individuals. (A list of appointments appears at the end of this document.) A standardized outline of topics to be discussed was utilized in conducting the interview of the Director and other principals of the facility. Lessons Learned in the formation and development of iPark were of particular interest.

**History and Administration of iPark**
The iPark was established in 2003. It is owned by the Higher Council on Science and Technology which is presided over by Prince Hassan, and has a Board of Directors comprised of representatives from eight Jordanian Government ministries. The incubator was established by Omar Hamarneh, a graduate of Brigham Young University in the United States, and three associates who believed that an ICT incubator would benefit the Jordanian market by producing seasoned early stage companies, and could create employment and commercialize technology (Jordanian and non-Jordanian). Mr. Hamarneh and his co-founders had visited incubators in the United States and believed that the concept could be replicated, on some scale, in Jordan. Some seed funding was provided by the US Agency for International Development (US-AID). The Higher Commission on Science and Technology (HCST) also provided funding for three incubators in addition to iPark under a partnering agreement with the European Union. The HCST provides numerous services for the incubator including accounting, legal, marketing and public relations. Stressed several times throughout the visit was the strong, trusting relationship between the founding manager and the management of HCST. This relationship allowed the founder to operate with a significant degree of autonomy and still retain the support of the bureaucracy. It is noteworthy that in interviews, the manager was often identified as the “buffer zone” between the incubator and the government. HCST also manages the finances of the incubator.

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3 It is worth noting that a previous study conducted by the USAID in 2000 had concluded that a Jordanian technology park would not be competitive and would fail. Nevertheless, some seed funding for iPark was provided by USAID.
Strategic Environment Summary

The iPark Jordan Incubator

As incubators do not operate in a vacuum, a primary objective in this (and other visits to ICT incubators) was to understand the environment, or “ecosystem”, in which the incubator and its tenants operate on a daily basis. The ecosystem is comprised of a number of elements including the following:

- Business Environment / Culture
- Availability of Real Estate
- Availability of Financing
- Support for Entrepreneurship
- ICT infrastructure, (Wireless and Wire-line)
- Government ICT Regulatory Policy
- Labor Force
- Government Tax Policy with respect to Investment and Small Business
- Offerings of Academic Institutions and Training Programs
- Incubator Staffing
- Incubator Board of Trustees and/or Advisory Board

Throughout the course of the project, these elements of the local ecosystem were investigated in each location to determine if the environment is favorable to ICT incubation. They are addressed in summary fashion below.

The business environment for small technology companies in Jordan is best described as challenging. Jordan ranks 101 or 181 in the annual World Bank Group “Ease of Doing Business” survey having lost a modest amount of ground from 2007, dropping from 94th place. However, in the “Starting a Business” category, its rank is 131, which was an improvement over 2007.

While there is a growing culture of entrepreneurship in Jordan, it appears generational and quite limited in scope. Some individuals who were interviewed commented that many Jordanians seek the security of government employment, and entrepreneurship is only recently becoming culturally acceptable.

There is a limited amount of debt financing available for entrepreneurs; however most of it is asset-based lending requiring (ownership of assets) that can be pledged as collateral for the debt, or at interest rates that are not practicable for entrepreneurs. A limited amount of micro-financing is available through the members of the Microfinance Association of Jordan, but these loans are for amounts ranging from $700 to $4,200, and hardly enough to provide much help to a start-up ICT company. Support for entrepreneurship is strong in the presence of the TechConnect program sponsored by the Queen Rania Center for Entrepreneurship. The organizers of TechConnect state that they hope the events will surface the “next generation” of technology start-ups, business experts, and investors.4

Resource poor in terms of petroleum and water, the Jordanians say they are rich in educated people. There are numerous technology training programs at the university level, and Jordan is reputed to have the highest percentage of PhD’s in the MENA region. The Jordanian Diaspora provides highly skilled people to ICT companies overseas, and many come back to Jordan with the intent of working in their

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home country. (As an example, both the founder and the current Interim Director have worked extensively in the US.) Yet, the ability of the labor force to sustain early stage technology development is unknown. Jordan has an official unemployment rate of 13.5%, but some of those interviewed stated that it may in reality exceed 30% (confirmed by the CIA’s World Fact Book). The labor force has been described by the Anima Investment Network as “an educated, highly competitive, young and skilled labor force of 1.4 million”.

As a poor country with almost no natural resources, Jordan is dependent on external sources of petroleum and foreign direct investment. Jordanian industry is split among agriculture, clothing, pharmaceuticals, potash, phosphates, and fertilizers. Jordan is the third largest exporter of potash and phosphates in the world. Yet, employment in the extraction industries is quite low, and agriculture employs about 5% of the labor force. Services (including most ICT-related work) account for 70% of Jordanian GDP.

In 2007, the Ministry of ICT of Jordan created the National ICT Strategy (2007-2011). This strategy included three strategic objectives to be achieved by 2011:

1. Increase Internet penetration in Jordan from 11% to 50%
2. Increase numbers of persons working in the sector from 16,000 to 35,000, and
3. Raising the ICT Sector’s revenue to reach $3 billion

Eliminating regulatory challenges to business was listed as a key objective of the ITA-Jordan. The ITA claims that the government has promoted the ICT sector by easing investment regulations, and passing legislation to protect intellectual property rights.

Thus, it is in the services that promotion of ICT-related businesses may offer the most promise. At a minimum this could mean developing products such as local content for cell phones, electronic games, and other forms of telecommunications. (As an example, one tenant of the iPark is a company that produces audio content tourists can use for self-conducted tours of the Petra historical site.) It would be fair to say that iPark is targeted at a market segment that is rich with opportunity.

ICT infrastructure in the country is comprised of one major ISP, four mobile operators, and one fixed line operator. The chart below illustrates the company names and areas of services. Note that Batelco also owns Umniah a mobile service provider, and thus offers mobile services as well. So, there are three mobile providers and one fixed line operator. The fact that there are multiple providers in the market is considered a result of the government’s liberalizing of telecom regulation. The market for telecom is reported to be growing – as much as 50% in 2007. While this may have been affected by recent economic perturbations in the economy, the fact of strong growth in ICT is useful in analyzing the impact of the iPark.

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<th>Jordan – Telephone Service Providers</th>
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5 Refer to www.anima.org.
6 Refer to ITA website, www.intaj.net.
7 Africatelecomnews.com
**Physical Characteristics of the Incubator**

The size of the iPark building is about 750 square meters and presently houses seven tenants, although it should be noted that tenants of another incubator are also in residence on a temporary basis. Currently, there are about 7-8 companies in the facility. Management stated that the tenant list is usually in the range of 10-12 companies, but as the iPark is hosting the aforementioned other incubation program, an allocation of space has been made to accommodate the other program’s space requirement.

The construction of the building is masonry with an inner core of offices with temporary walls, and offices around the periphery of the facility. (A layout is attached.) The building has one floor and contains 17 offices, a reception area, cafeteria, service space (copier, etc.), a meeting room, and an administrative space with offices for the Interim Executive Director and Office Manager. An auditorium occupies the remaining space. The building is the property of the Royal Scientific Society, which is under the guidance of the Jordanian Royal Family.

**Project**

**As of September 2008 the following economic impact statistics concerning iPark are reported:**

- Aggregate job creation (tenants and graduates): 338 FT, 57 PT employees
- Companies created: 7 current, 17 graduates (since 2003)
- Tenant company revenues from local customers (USD): $466,924
- Tenant company revenues from international customers (USD): $645,487
- Intellectual property created: 4 US patents, 11 Jordanian patents
- iPark tenants have a total of 52 local and 95 international clients
- One venture financed company since inception
- Annual budget of the program is about $140,000, comprised of $20,000 in rents and $120,000 in subsidies (all USD).

**The Incubation Program at iPark**

The incubation program provides high quality office space and services to early stage technology companies. Various facets of the incubator program are described below:

**Location**

The iPark facility is located in an area of the City of Amman that is rich in academic resources. The building is owned by the Royal Scientific Society, and is on the grounds of one university, with a second university in the immediate vicinity (Princess Sumaya University and Jordan University). Being under the guidance of the Higher Council on Science and Technology, iPark enjoys the benefits of close location to sources of intellectual property without being part of the university infrastructure. Even so, it is noteworthy that most of iPark’s tenants come from outside academia.

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8 Being established by HCST was described the management as something akin to establishing a US incubator in the National Science Foundation.
Admission to the Incubator
The admission process begins with the prospective tenant filling out an application that includes a business plan. This is evaluated by the Executive Director, who then schedules a face-to-face interview with the tenant. Management states that these face-to-face meetings are important to have prior to the final decision concerning admission of the company to the incubator.

However, admission to iPark is but the first of several milestones in the process. Management also believes that the personal relationships between the Executive Director and the tenant company entrepreneur is a particularly important element of their program and have close working relationships between tenant and management – addressed again in the summary of this document.

It is noteworthy that the iPark management believes that their desired tenant mix of serial entrepreneurs (one-third), and new entrepreneurs (two-thirds), is critical to their success. They believe that such a ratio to new entrepreneurs facilitates the transfer of knowledge. This attribute certainly distinguishes iPark from other incubation programs in our experience.

Management
The current Executive Director has experience in technology business, and a doctorate in Computer Engineering. He worked for several years in the United States for Texas Instruments, Inc., and is very familiar with the industry. He has recently taken over the program from the founder (who is an entrepreneur about to commence his own business venture). Management is perhaps the most important aspect of the iPark environment. The program is in transition from a founding manager to an individual with a considerably different background, and would be expected to experience some difficulties typical of a change in management from a founder to an outsider. Yet, there appears no loss in continuity, the founder is still involved as an outside advisor, and enthusiastically made himself available for an interview. Discussed later in this report, it was clearly apparent that current and former tenants found the management to be perhaps the most important asset of the iPark program.

With respect to iPark staffing in addition to the Executive Director, there is also an attorney, office manager, and a messenger. Much of iPark’s administrative support is provided by the Higher Council on Science & Technology, thus, extensive staffing is not required.

Tenant Interviews
Interviews were conducted with a number of iPark tenants to obtain their views on the successes of the program, the types of amenities and services they believe to be important, and also gain insight as to their experiences in the facility.

In the interviews, it was noted that many individuals with ICT training were previously employed by the government and now seek private sector employment. References to ICT training in Jordanian business
media also suggest that most ICT training in Jordan is largely intended to train government employees, so the training programs result in more able entrepreneurs as well as government employees.

Some key observations:

- Tenants were extremely supportive of the iPark management and the level of service and attention they received from the incubator.
- They were highly impressed by the flexibility of management and the willingness of the manager to assist them in making contacts, finding investors, understanding investor expectations and operating as a business instead of a hobby.

Sorting through their many favorable comments concerning the operation of the incubator, a few are especially compelling:

“Moving into a ready office, and working the next day is priceless.”

“Effective people can get around the bureaucracy. Omar (Hamarneh, founding manager) made it so easy…He set a standard everyone has to respect.”

From a graduate company: “iPark changed the life of many people. We started as three people, now we support more than ten families…” (from the business the company has developed).

When asked why a company should locate in the iPark, one woman business owner opined that the environment at iPark was “more comfortable, more secure. Everyone is in ICT and we can use the experience of colleagues to help each other…The presence of donor agencies such as JEDCO, NAFES, etc., to provide training, financing is an advantage unavailable elsewhere”.

Other attributes perceived as advantages by the tenants:
Rent is reasonably priced. One tenant opined that on a per square meter basis, the rent might be slightly above market, but considering the services offered it was a bargain.

iPark provides (at least some) furniture and equipment. The comment of being able to rent one day and be in business the next is exactly on target. One of the more difficult aspects of starting a new company in Jordan is the “registration” (i.e., filing of official documents) so that one can then begin operations.

Having “the right people in the room is especially important to entrepreneurs because of the lack of seed and early stage investment capital in the region”. This comment was in the context of the partnerships and network that the iPark management brings to the table due to the respect others in the Jordanian business world have for the incubator and its management.

“Patient management” is an important attribute. One tenant commented that on occasion the management was willing to wait two to three months for rent payments when the tenant company was experiencing cash flow problems. The fact that the Executive Director had entrepreneurial experience himself, understood the situation, and was willing to be at risk with the company was a benefit in the mind of this tenant.

Recommendations: During the course of interviewing both tenants and graduates, several recommendations were made that could be explored in the continuing effort of iPark to provide a full range of services, among them the following:
1. With respect to entry/exit from the incubator, it was recommended that the process become more formalized, perhaps employing a true Admissions Committee.

2. The second comment has both favorable and unfavorable implications. It was observed by one tenant that iPark is very informal (in terms of its business culture) and that the tone of operations could be construed as “unprofessional”. However, the history of the software industry has always included an informal aspect. Thus, management walks a fine line in maintaining the proper amount of distance, while at the same time retaining the trust and confidence of the tenants.

Tenant Survey
A survey that supplemented the interviews was prepared for administration to the tenants and graduates of iPark. A total of seven responses were received from six tenants and one graduate company. The survey asked respondents to discuss why they decided to establish their business at the incubator, what their expectations were, to show on a checklist what services they used and to what extent they valued the services, to list the things the incubator could provide that it does not presently offer, and to list what, in their opinion, is the one most important attribute of the incubator. The responses were comparable to other incubators in the analyst’s experience.

Tenants listed the following attributes as particularly helpful:

- That the incubator management doesn’t interfere with the tenants’ businesses.
- That there are numerous and useful networking opportunities (in fact several mentioned how much they looked forward to the interaction with other tenants).
- That lease terms are flexible – a point of discussion that deserves further comment as some tenants were critical of the fact that there is no formal graduation policy.
- Therefore, it was pointed out that some tenants have been in the incubator for a much longer time that is generally the case in other programs.
- And, most important, that the tenants were able to rent an office, and begin business by the next day – an item of considerable concern in a region of high office costs and significant levels of required paperwork in order to commence doing business.

Services
Services offered by the iPark are described briefly below. It should be noted that most services are provided from external sources.

Customized Training / Networking:
- TechConnect, based on the University of California San Diego Connect program, is operating and has quarterly meetings
- Young Entrepreneurs Association – networking events and conferences
- Business Plan Competition
- Young Arab Leaders – part of the World Economic Forum

Services Provided by External Organizations:
The USAID-funded TATWEER Program provides client support services and programs to small and medium enterprises (SMEs) in seven industry sectors, and serves a broad client base through four industry associations. TATWEER also supports two innovative programs:
- Maharat Internship Program which recruits and trains promising recent university graduates for internships or future employment with SMEs, and the
- Faculty-to-Facility Program which promotes cooperation between academia and industry.
Lessons Learned by iPark Management

The development of iPark has left the management with a number of observations concerning their success. Among them are the following, some of which may or may not have an impact on the development of a sustainable and replicable ICT incubator in Africa:

1. While a formal selection process is important, the management of iPark believes that a face-to-face interview is more important in terms of evaluating the management team than reading a business plan.
2. Computerized incubator management systems are very beneficial, but face-to-face meetings with tenants have perhaps greater importance and should not be limited by reviews of data.
3. The numbers of tenants in the incubator (presuming a situation similar to iPark) should be limited to 10-12, in effect setting a span of control to that number of companies – to prevent the development of sub-groups within the incubator. ⁹
4. Incubator management should concentrate on business development, because companies ultimately succeed or fail more due to business than technical challenges.
5. Incubator managers need to exert maximum effort to develop networks from the entrepreneurial community.
6. Incubator managers should be chosen for their capabilities in business, enterprise development and entrepreneurial development skills, not simply technical skills.
7. Incubators should try to maintain about 30% occupancy by serial entrepreneurs to promote the transfer of knowledge and experiences from within.

Summary

The iPark Jordan Technology Incubator has successfully weathered the first few years of operation and is an established, financially sustainable program that is limited only by the size of its facility. This program has a growing market to serve, and excellent relationships that must now be nurtured under new management. The extensive liberalization of the Jordanian ICT sector will provide many exciting opportunities for ICT companies developing content, offering web services of various types, customized software development, etc. This is particularly true for those companies that are serving the mobile phone market, but virtually all of iPark’s tenants should benefit from this change in government policy and find opportunities filling niches in programs ranging from e-government to proliferation of telecommunications services.

With respect to management’s observations concerning the lessons they have learned, we believe the following should be considered in evaluating the lessons for application in sub-Saharan Africa ICT incubators:

1. **Face-to-Face Meetings.** Clearly the tenant management process, including frequent face-to-face meetings, is important. But, this also presumes that incubator management will be experienced enough to provide sage guidance and support of entrepreneurs. That would seem to indicate the need for a support program for incubator managers as well as tenants. Trained managers who can deal with business problems and act as consultants to the client entrepreneurs are the most important result.

2. **Focus on Business Development.** This observation appears to be a result of the specific experience in Jordan. One suspects that a more training-oriented management style will be required in sub-Saharan Africa ICT incubators where technical skills may be in shorter supply.

⁹ This topic merits further discussion as there are pro’s and con’s to the notion of limiting the numbers of tenants to 10-12.
3. **Support Networks.** There is no question that iPark’s support networks are greatly admired by tenants and outside observers alike. In Jordan it has been possible to tap into emerging business networks due in part to the proliferation of ICT technology, but also the relative youth of the population. This may be less likely to occur in Africa as there is generally less enterprise support in the local business “ecosystem”.

4. **Need for Skilled Incubator Managers.** Clearly, skilled incubator managers are best. Perhaps this indicates that, absent managers who have the background and experience to advise the tenants effectively, a training program for incubator managers should be developed as part of the investment.

5. **Serial Entrepreneurs.** We have great respect for serial entrepreneurs and their contributions to others who find themselves establishing new companies. They may be in short supply in the target countries, but their presence is important. Possibly the role of mentor can be filled by others with appropriate experience.

The infoDev Sustainable and Replicable ICT Incubator program provides an opportunity to apply the most appropriate of the lessons learned in the development of other infoDev incubators to raw start-up situations. In that regard, iPark is a strong contributor and source of both inspiration and encouragement.
## Appendix

### Interview Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>2/9/08</td>
<td>Dr. Wissam Rabadi</td>
<td>iPark Interim Director</td>
</tr>
<tr>
<td></td>
<td>Mr. Omar Hamarneh</td>
<td>iPark Founder and former Director</td>
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<tr>
<td></td>
<td>Mr. Faris Gammoh</td>
<td>Consultant at iPark</td>
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<tr>
<td></td>
<td>Mr. Mahmoud Ali Khasawneh</td>
<td>CEO, Quirkat</td>
</tr>
<tr>
<td>3/9/08</td>
<td>Mr. Ammar N. Mardawi</td>
<td>CEO, Kindisoft</td>
</tr>
<tr>
<td></td>
<td>Mrs. Hala Zawati Katkhoda</td>
<td>Managing Partner, easyinfo</td>
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<tr>
<td></td>
<td>Khaldoon Tabaza</td>
<td>Managing Director, Riyada Ventures</td>
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<td></td>
<td>Ennis Rimawi</td>
<td>Managing Partner, Catalyst VC</td>
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<td></td>
<td>Abdul Majied Qasem</td>
<td>CEO, Razor View</td>
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<td></td>
<td>Khaled Khalaldeh &amp; Mr. Tawfeq</td>
<td>Co-founders, KETAB Technologies</td>
</tr>
<tr>
<td>4/9/08</td>
<td>Dr. Anwar Batekhi</td>
<td>Secretary General, Higher Counsel on Science and Technology</td>
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<tr>
<td></td>
<td>Laith Al-Qasem</td>
<td>Enhanced productivity component leader, SABEQ</td>
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<td></td>
<td>Omar Kudsee and Laith Zraikat</td>
<td>Jeeran</td>
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<td>Emile Cubeisy</td>
<td>Venture Capitalist</td>
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<tr>
<td></td>
<td>Samer Al-Jabari</td>
<td>Co-founder, FOCUS Solutions</td>
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</table>
Viasphere Technopark

Overview
The Viasphere Technopark is a commercial technology park in Yerevan, Armenia, providing infrastructure to local start-ups, and Information and Communications Technology (ICT) companies worldwide, looking to extend their core development offshore.

The Technopark, a wholly owned subsidiary of “Viasphere International” (incorporated in the US), has been operating at the Yerevan site since July 2000. The estate was previously a Soviet facility dedicated to electronic and related research.

The Viasphere Technopark currently houses ten companies working in a variety of ICT fields, and is also looking to expand into the green energy sector.

Strategic Environment Summary
The Armenian government aims to build a Western-style parliamentary democracy with a Presidential head of state. It has universal suffrage above the age of eighteen, and voters have their choice of a multi-party system. Executive power is exercised by the federal government, and legislative power is vested in both the government and parliament. The single-chamber parliament is currently10 controlled by a coalition of four political parties.

Like other newly independent states of the former Soviet Union, Armenia’s economy suffers from the legacy of a centrally planned economy, and the breakdown of former Soviet trading patterns. The conflict with Azerbaijan over Nagorno-Karabakh, and other enclaves, has not been resolved. GDP fell nearly 60% between 1989 and 1993, but since that period has been in a growth pattern. Armenia has an on-going dispute with one of its most important neighbors, Turkey, over the mass killings that occurred in Armenia between 1915 and 1917. Yerevan wants the world, and particularly Turkey, to recognize that the killings perpetrated by the Ottoman Empire of hundreds of thousands of Armenians, constituted genocide. Turkey opines that there was no genocide and that the dead were victims of World War I. The two countries have no diplomatic relations and the land border is closed.

The government has, however, been able to make wide-ranging economic reforms that have paid-off through lower inflation and steady growth. The 1994 cease-fire of the Nagorno-Karabakh conflict has also helped the economy. Armenia has had strong economic growth since 1995 and been able to develop new economic sectors. Examples of new sectors include: precious stone processing, jewellery making, information and communication technology, and even tourism. These sectors are beginning to supplement the more traditional sectors in the economy, such as agriculture. Poverty is still an issue in Armenia, but the tide of economic reforms has contributed to a significant reduction. Between 2004 and 2007, the overall incidence of poverty decreased from 34.6% to 25.0%, while the incidence of extreme poverty decreased significantly from 6.4% to 3.8%.11

A liberal foreign investment law was approved in June 1994, and a law on privatization was adopted in 1997, which has included a program on state property privatization. Foreign investment in real estate is

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10 As of December 4th 2008.
relatively straightforward, although after strong economic growth over the last few years the market is suffering from the effects of a recent global turndown. The ICT sector is currently dominated by foreign investors such as Synopsys, E-logic Systems, Lycos, Synergy and Virage Logic to name a few. Notably, approximately 80% of ICT output is exported.\textsuperscript{12} International service companies that have invested in Armenia include HSBC, British Airways, Glaxo and Coca Cola; although these companies are largely operating sales offices rather than production or research facilities.

Although there is a historically strong focus on attracting inward-investment, the Armenian government is developing a system to support investment for domestic ICT start-up companies. This system uses government funds to match funding up to 50% of an initial investment, and private investors are providing the remaining funds.

The “Doing Business” project ranks Armenia 44\textsuperscript{th} in the world for ease of doing business. Armenia has particularly favorable building and construction regulations but is held back by a complex tax regime. General attitudes to free market business and competition are positive. The current government holds an aspiration of moving the business and investment environment of Armenia up to the level of top ten best countries, by 2012.\textsuperscript{13}

The Armenian telecommunications system has been extensively modernized since the Soviet era. It is now 100% privately owned and undergoing expansion. A mobile/cellular services monopoly was terminated in late 2004, and a second provider began operations in mid-2005. There are reliable modern landlines and mobile/cellular services across Yerevan and other cities. International communications is provided through both fiber and microwave links, and internet access is widely available.

Armenia has 64,370\textsuperscript{14} students (≈2% of the population) in Higher Education providing a significant potential talent pool for domestic and foreign direct investment. In Yerevan there are nine institutions serving approximately 26,000 students. There is a heavy bias toward sciences, and the State Engineering University of Armenia alone accounts for approximately 10,000 students.\textsuperscript{15} However, it is open to debate as to how many students will remain in Armenia after graduation. Armenia has lost up to a full quarter of its population since its independence, as young families seek what they hope will be a better life abroad.\textsuperscript{16}

\textbf{Project} \n
The Viasphere Technopark is a commercial technology park in Yerevan, Armenia, providing infrastructure to local start-ups and ICT companies worldwide looking to extend their core development offshore. The Technopark is developing into a center for companies looking to capitalize on Armenia’s technical capabilities.

The Viasphere Technopark provides the facilities and infrastructure services to companies in support of cost effective, speed-to-market and scalable solutions. The Technopark interacts with technical universities and institutes in areas of advanced research with commercial applicability in Europe and the

\textsuperscript{13} Panorama AM, January 2008  
\textsuperscript{15} State Engineering University of Armenia, http://www.seua.am/eng/index.html  
\textsuperscript{16} BBC Country Profile: Armenia, http://news.bbc.co.uk/2/hi/europe/country_profiles/1108052.stm
US. Viasphere offers extensive management and consulting support to tenant companies (see Business Services below), as well as significant networking opportunities described as the “Viasphere biosphere”. The “Viasphere biosphere” is a network of Private Industry; Angel Investors; Venture Capitol Funds; the Technopark itself; and an Academic network and links with multinational companies in Armenia.

Potential tenants, wishing to enter the program, must provide a written business plan and it must fit the technical profile desired by the incubator management. Potential tenants may not participate in activities that would impinge on existing tenants. The incubator will also assess its own ability to meet client demands as part of any decision to accept or reject a potential tenant. The final decision to accept or reject a company rests with the Technopark management board.

In both an international and national context, the management relies largely on printed promotional leaflets, presentations, and the website as their marketing collateral. In reality, the Incubator is overwhelmingly marketed through networking opportunities; although the website has also produced relevant inquiries. Tenants have also been known to refer new clients. Viasphere has a strong PR element, and has been able to develop a high profile in Armenia.

The Incubation Program

Location of the Incubator
The Viasphere Technopark is located within the City of Yerevan, the capital of Armenia, between the airport and the city center, in a mixed but mostly industrial area. The incubator enjoys excellent road and public transport connections, and is within close proximity of a major railway station. Zvartnots International Airport (EVN), Armenia’s main international airport and the hub of the national carrier Armavia; roughly 6 miles away.

Yerevan itself is the mainstay of the Armenian economy, accounting for approximately: 33% of the national population; 50% of industrial output; 80% of the registered retail turnover and 76.3% of services. Yerevan’s manufacturing capabilities include chemicals, primary metals, machinery, rubber products, plastics, textiles, and processed food. The city hosts the headquarters of major Armenian companies, and of a number of international players, and is seen as a potentially attractive outsourcing location for Western European, Russian and American multinational companies. Yerevan is also the country’s financial hub, home to the Armenian National Bank, the Armenian Stock Exchange, as well as some of the country’s largest commercial banks.

The climate of Yerevan is relatively continental, with dry/hot summers and cold/short winters. The intensity of the summer sun, with temperatures regularly reaching 40°C (104 °F), is one of the primary reasons there is a push to develop solar energy technologies.

Physical Properties of Incubator
The Viasphere Technopark is a campus incubator of conventional block-concrete low-rise construction. It consists of ten buildings of various sizes, mostly in good condition. The general environment of the incubator is well kept and pleasant.

The incubator rents office space to tenant companies and makes available other facilities (see below) on demand. The site is extensive and there is a total of around 15,000M² (≈160,000 ft²) available, which

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includes a kitchen and underdeveloped space. Incubatee occupied space is estimated at 8,000 M² (=86,000 ft²).

Beyond the availability of office space, the physical site services include a kitchen, parking space for 200 cars and constant security.

**Facilities and Services**

The facilities available to the Viasphere tenants include: a clean room development environment (with an isolated LAN and electrical supply); convention and conference facilities; and internet services through both broadband and satellite access. Turnkey telephony services are also available.

**Business Services**

Viasphere operates a full suite of management support services for its tenants. These include:

- **Business Assessment**: Management will assist in assessing the value of the company in terms of strategic vision, mission, technology, available market and business models.
- **Product Strategy**: Assistance in formulating product roadmaps for the development of specific products or product sets.
- **Company Structure Support including**: company formation, company capital structure (stocks), establishing a Board of Directors, establishing corporate agreements, etc.
- **Staffing**: The Viasphere will assist tenant companies in finding qualified executive talent.
- **Program and Project Management**: Assistance and training in program execution through rigorous program and project management.
- **Sales and Marketing**: Assistance in the identification, development and exploitation of marketing and business channels worldwide.
- **CFO Functions**: The Viasphere can offer assistance with developing Balance Sheets, Income Statements and Cash Flow analyses as well as with Armenian annual tax reporting requirements.
- **General Council Functions**: Assistance in legal matters such as IP protection, non-disclosure agreements and other legal matters.
- **Funding Sources**: Assistance in identifying worldwide funding sources and particularly Armenian Angel Investors; Venture Capitol Funds, government grants; and tax incentives.
- **Board Membership**: The Viasphere management (or appointees) may serve as a member of a tenant company’s Board of Directors.
- **Advisory Services**: Regardless of whether companies use the Viasphere appointees on their Board, the incubator offers hands-on mentoring for senior management.
- **Exit Strategy**: Assistance through the exit process to realize investment whether through a merger, acquisition, public offering or other means.

The Viasphere has developed relationships with multiple training resources, and created strong ties to universities specifically. Both business and technical consulting services are available to tenants from the Russian-Armenian University (RAU) and the American University of Armenia (AUA), along with access to testing and development laboratories in the RAU, and access to the main library at the AUA. Additional university links include the National Academy of Sciences of Armenia, Engineering Academy of Armenia and the State Engineering University of Armenia.

The Viasphere provides advice on funding sources, but does not of itself invest. The Viasphere Stakeholders are free to finance tenant companies.
Tenants:
Transistor Plus, LLC - Semiconductor and Testing Devices Design
Epygi Labs Armenia, LLC - Networking Software
Synopsys ARDA CJSC - Electronic Design Automation
UniCad, CJSC - Electronic Design Automation
DVA Group Armenia, CJSC - Broadband and Digital Television
Transistor Delta, CJSC - High frequency Semiconductor Research
Sonic Armenia Holding, Inc. - Electronic Design Automation
Damaris JSC - Electronic Design Automation
Rubin L. Tech CJSC - Optical Devices Design
M-Possible CJSC - Electronic Design Automation

Tenants speak well of the incubator management, facilities and services which are commented to be accessible, visible, and appropriately tailored to business needs. Further, tenants state that the leases are suitably flexible to meet their needs, and that the incubator is serviced by professional staff.

Organizational Structure
The Viasphere was founded in 1998 as an incubator and accelerator with offices in the US (Mountain View, California) and the Technopark itself in Yerevan, Armenia. The US management team has a track record of working with start-up companies and has founded, funded, managed and helped guide several in their development process. The team also has experience working with multinational corporations.

“Viasphere International” owns and operates the Viasphere Technopark.

Management
The management team has appropriate financial experience for the market in which they operate and posses strong resource and project management backgrounds. The manner in which both strategic and business planning is delivered is also pertinent to Armenian business culture.

The local management consists of a team of nine, headed by Dr. Aram Vardanyan who serves as General Director of Viasphere Technopark in Armenia. Mr. Vardanyan is a seasoned technologist and business executive, having served in lead positions in semiconductor research and Armenian development, and formerly held a position in the Soviet Union as General Director of the Transistor Research and Development Center for Power Semiconductors.” There are an additional staff of fifty including maintenance, security and other service personnel.

Board Members
The Technopark has no Board in the usual sense of the word. The management team fulfills most of the board-type roles by developing the strategic direction of the incubator and managing its higher functions.
Budget and Funding
The incubator’s annual budget varies slightly but is about US$500,000 per annum. There is an annual plan for job development, maintenance of the facility, and stimulating business. The plan is stated to be clear, current, achievable and detailed. The incubator is making a slight operating profit which is re-invested in the operation.

There are currently no tax liabilities as the operating profit on which tax would be levied is re-invested in the incubator. The incubator is regularly audited by external professional accountants.

Approximately 60% of the incubator’s budget is achieved from rent, with the remaining 40% coming from the recharge of professional services listed above.

Graduation Policy
There is no graduation policy as it is conventionally understood. Although tenants are issued with five-year leases, they are able to extend those leases as desired. The longest serving tenant has been with the Viasphere for seven years. There is currently no government support for companies graduating from the incubator. However, the government recognizes the need to provide graduation support systems that will include adequate follow-on space and allow companies to assimilate more easily into the general economic environment.

Conclusions

Information Not Mentioned Above
The Viasphere Technopark enjoys an influential group of sponsors who may provide non-financial support, minor financial support or significant promotion. Significant supporters include:

- The (Armenian) Chamber of Commerce and Industry
- The National Academy of Sciences of Armenia
- The Engineering Academy of Armenia
- The American University of Armenia
- The State Engineering University of Armenia
- The Russian-Armenian University

In addition to the Sponsors listed above, Viasphere also lists the following institutions that promote and support the incubator in a non-financial manner.

- American Association for the Advancement of Science (USA)
- International Association of Science Parks (Spain)
- National Renewable Energy Laboratory (USA)
- International Engineering Academy (Russia)

In addition to the above the incubator has previously received World Bank financial support for feasibility studies. Viasphere is also supported by the national government, although the government does not contribute financially.
Implications for the ICT Africa Sustainable, Replicable, Business Incubation Model

The Viasphere Technopark has successfully developed a model that works well in its environment. It is not a ‘traditional’ incubation model. By integrating well into local economic circumstances the Viasphere has developed an effective, wide-ranging, support scheme. Widening models of business incubation in this manner can be relevant to a number of other economies, particularly those that are developing in challenged circumstances.

While Armenian business development has been limited, the Viasphere has excelled in attracting foreign investment into a non-traditional market. Undoubtedly, the presence of a strong Armenian diaspora has assisted the Viasphere offer, but the incubator has out-performed many other incubators around the world by establishing foreign direct investment (FDI), and succeeding in keeping those inward investment companies within their territory. While incubation in economically challenged countries has often focused on the development of domestic business, the Viasphere highlights opportunities for FDI in a country not previously considered to be viable geographically, or in a business development sense.
Overview
Owned by the Universidad Adolfo Ibáñez (UAI) and supported by the Chilean Economic Development Agency, CORFO, the Octantis supports 26 businesses in varying stages of development. Its many attributes make it an outstanding example of programs that can be adapted as an incubation and investment model for Sub-Saharan Africa. Approximately twenty people were interviewed to include entrepreneurs, investors, incubator staff, university and government representatives (see Appendix A).

Octantis has an extensive network of supporting organizations and individual contacts mostly in Chile, but also across the American continents and in Europe.

Strategic Environment Summary
Chile is a democratic republic with universal suffrage at 18 ranking 32nd out of 167 countries in The Economist’s 2008 democracy index. Politically and financially stable, it is widely regarded as the pre-eminent South American economy.

According to the “Doing Business Project”, Chile is the easiest place in South America in which to start and operate a business. Within the greater Latin American context it leads in terms of competitiveness, quality of life, political stability, globalization, economic freedom, low perception of corruption and comparatively low poverty rates. It also ranks high regionally in terms of freedom of the press, human development and democratic development. It is the region’s richest country in terms of gross domestic product per capita (at market prices), slightly higher than Mexico. Real estate pricing, often a good indicator, has shown steady growth over the last five years.

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18 http://www.doingbusiness.org
20 http://www.doingbusiness.org/economyrankings/?direction=Ascandsort=8
21 Commercial Intelligence Services, http://www.businessmonitor.com/yb/chile.html
Part of the economic success is due to the continued high price of metals, especially copper, in which Chile abounds, but much of it is due to sound economic policy and practice. The Doing Business survey ranks Chilean tax policy as the least restrictive in the South American continent,\textsuperscript{22} a situation reflected in much of Chile’s business law. Investment systems are broadly comparable with developed countries and the development of free and fair markets is represented in social and political attitudes and visible in Chile’s attitude to trade. Chile is strongly committed to free trade and has signed free trade agreements (FTAs) with a whole network of countries, including an FTA with the United States, which was signed in 2003 and implemented in January 2004.

A consequence of Chile’s trade policy commitment has been the large amount of foreign investment. In recent years, due to the strong growth and stability of the Chilean economy, many multinational companies have chosen Santiago as the place for their regional headquarters. Companies such as HP, Reuters, Procter and Gamble, Intel, Coca-Cola, Unilever, Nestlé, Kodak, BHP Billiton, IBM, Motorola, Microsoft, Ford, Yahoo!, and others have located there. Foreign investment in Chile from January to August 2008 amounted to $2.35 billion U.S. dollars, according to the Chilean government.\textsuperscript{23} The research company, “Commercial Intelligence Services” (part of Business Monitor International) believes that there are now 730 foreign company subsidiaries, across 34 industry sectors in Chile. The list includes American, British, French, German, Japanese, Australian, Italian, Swiss, Belgian, Indian, Spanish, Swedish, Finnish, Norwegian, Danish and Dutch companies.\textsuperscript{24}

Sustainable economic development is invariably built on skills and knowledge. Higher Education in Chile was extensively reformed in the 1980s and is still the subject of political debate. Traditional establishments consist of 25 fully autonomous universities coordinated by the Council of Chancellors of Chilean Universities and employing a single admission process. There are a further 38 independent universities. The higher education system as a whole is currently formed by a total of 229 institutions: 63 universities, 48 professional learning institutes and 117 technical training centers.

Overall, the higher education system, based on enrollment rates for 2004, served a population of 594,247 undergraduate students and 15,181 graduate students. Total undergraduate enrollment can be broken down as follows:

- Traditional universities: 246,286
- Private universities: 177,271
- Professional learning institutes 101,674 (2003)
- Technical training centers: 63,932\textsuperscript{25}
- Together with the above, there is also official recognition for higher education establishments run by the Armed Forces which are linked to the state through the Ministry of Defense. In all, around 4% of the population was in higher education in 2004 providing a significant talent pool of skilled employees and future leaders.

\textsuperscript{24} Commercial Intelligence Services, http://www.businessmonitor.com/yb/chile.html
Chile also benefits from a modern telecommunications infrastructure regarded as the most advanced system in South America.\textsuperscript{26} The system is based on extensive microwave radio relay facilities and links; a domestic satellite system with three earth stations; submarine cables providing links to the US, Central and South America; and two Intelsat satellite earth stations. Fixed-line connections have dropped in recent years as mobile-cellular usage continues to increase, reaching a 2007 level of 85 telephones per 100 persons.\textsuperscript{27}

**Project**

The Octantis incubator is a program specifically targeted at high-growth companies with the potential for more than 50 employees. The participants are primarily technology companies, (especially IT and bioscience) although there are other less prominent sectors covered such as tourism and food. The sectors currently participating are represented in the diagram below.

Octantis’ primary objective is increasing “Sales”, the aim being that by 2011 the sum of all portfolio companies’ turnover will exceed US$100Million annually. Other impacts, such as projected jobs created, are inferred from this target but are not hard targets. In 2007, Octantis had achieved 30% of its goal. The figures for 2008 are not yet available, but the current projection for the end of 2011 is US$85Million against US$100Million target with an expectation that the US$100Million target will be met in 2012.

**Incubation Program**

**Location of the Incubator**

The incubator operates primarily as a virtual program where incubator tenants do not have access to office space. The program does, however, provide meeting rooms at two university locations:

1. Adolfo Ibáñez University (UAII) offices on Avda. Presidente Errázuriz, Las Condes, Santiago;
2. The university’s postgraduate center in Peñalolén.


Partner companies supporting the incubation program may also provide access to facilities.

The Octantis program also has access to a shared research laboratory, “Venture Lab”, a platform for internal firms to perform studies and tests enabling foreign companies and agencies to hire them for project work. Venture Lab is located at the Peñalolén campus.

**Physical Properties of Incubator**

Octantis is a virtual incubation program and has use of meeting rooms, staff offices and laboratory space on an as-needed basis at the UAI campuses.

**Facilities and Services**

As a virtual incubator Octantis’ main thrust is the provision of high-quality business support services to its clients. This includes high-level strategy, networking, marketing and preparation for investor assistance. Its links with the Adolfo Ibáñez University and wide-ranging network across Chile and beyond have enabled numerous innovative services to be provided to their clients.

**Physical Facilities**

Physical facilities are quite limited, and are composed of access to the University’s business library, entrepreneurial laboratory, meeting rooms and parking. Additional meeting rooms and other minor services (e.g., faxing or copying services) are available at some sponsoring company sites.

**Specialist University Services**

The close relationship with the Adolfo Ibáñez University (Universidad Adolfo Ibáñez, “UAI”) has enabled significant opportunities for high-level education and international networking. Entrepreneurs in the Octantis program can, for example, work towards a U.S. degree or a Masters in Public Policy and Finance though the University’s Miami campus. In March 2009 a similar facility with similar opportunities is to be launched in the Basque region of Spain. UAI MBA’s run a consultancy operation in collaboration with the Wharton University in the USA which allows opportunity to study entry into US markets.

**External Support through Partners**

Accountancy is provided for more established companies through a partnership with PricewaterhouseCoopers. Legal services are provided at a discount through sponsoring legal firms.

**Services Provided by Octantis**

Business consulting is the main element of Octantis’ program. Octantis staff or associated experts will work with a company to identify needs, aspirations and gaps and help them to develop core strategies for business growth. One interviewed client, WiseConn, found the strategy development services particularly useful while another client, LUF, directly credits the consultancy service with enabling them to get from the idea stage to being a trading business.

An important element of the business consultancy program is the Octantis Mentoring program whereby Octantis uses experienced entrepreneurs to help support companies through key stages of their development.

Early stage Business Planning is also a key feature of Octantis’ services. The management of File TV, a client of Octantis for about 18 months, emphasized that business planning and the early stage training were key elements in their success. Business planning services are comprised both of classes and one-on-one consultations, to ensure companies get the best possible start.
Advice on raising finance, including grants, loans and investment is another strong part of the Octantis services. WiseConn, for example, has received extensive support for finance and development, advice on grants, and introductions to the Angel Network and other investors. Soft loans issued by banks such as Banco Credito Inversiones and guaranteed by CORFO, the Chilean economic development agency, are another specialization of the Octantis team.

Networking is another of Octantis’ key strengths. Octantis helped WiseConn with a number of introductions to potential customers. They introduced LUF, a publishing company, to a printing company who met with them in the Octantis offices. WiseConn was also introduced to other suppliers, representatives of the entertainment industry, and potential foreign customers in Argentina, Mexico and elsewhere. As well as the core services listed above, Octantis provides customized training, which clients described as, “forcing you to take business apart, study difficult situations” and as helpful to new companies confronting the reality of commercial management. Octantis can also provide outside Directors, and even whole Advisory Boards.

A testament to how well the program is integrated into its environment however came from the management of LUF, who believed Octantis’ door-opening ability was a key attribute: “the most important element was the way the Octantis name opened doors…we’re taken seriously by being part of Octantis”.

Tenants
Octantis’ current clients are listed below:

**File TV** specializes in distribution of high resolution video files using an access controlled service that enables companies such as Warner Bros, 20th Century fox, etc to upload and share large multimedia files with high download speed.

**Superficies Iluminadas** provides LED solutions in lighting and energy efficiency.

**Label Chile (LC)** manufactures self-stick labels and tags through a flexographic system to big Chilean brands in Spirits, Wine and water industries. LC designed the machine used in their processes and have sold over US$280,000 in their first year.

**Pensado para Radio** is an Internet platform to interconnect local radio stations (in the whole country) and connect them with the demand for advertising from large corporate customers. In this way, Pensado para Radio builds a large virtual radio network composed of many small radio stations.

**CODAL** manufactures and distributes soda and fruit juice beverages.

**Alta Dental** is a network of dentists that permits low income families to have access to quality dental service, thanks to innovations in the service delivery.

**Biomec** offers a mobile service for monitoring biometric variables in order to improve the sport performance of human body to new limits.

**Rethink** developed and owns a device to extend the life of high quality grapes for exportation (Chile accounts for 18% of world grapes production, with 100 million grape boxes exported at a value of US$1 billion in value).

**VPT** has developed an informational system that integrates with voice recognition applications in call centers to improve service quality.

**Masas de Chile** manufactures dessert products to be served with ice cream, fruits or alone.

**Visuali** has produced products using 3D imaging applied to marketing and sales in tourism, and real state markets.

**Chilean Sky** seeks to provide remote astronomic observation of southern skies for amateurs and students from the northern hemisphere.

**Bleu Organique** manufactures and commercializes organic beauty products made of sea algae, without chemical and artificial ingredients.
Recycla is an electronic and metal recycling company which incorporates clean production technologies. Founded and supported by Octantis since 2003, the company’s 2007 sales were US$3 million.

Surikat is a design company focused on high impact and innovative medical devices.

WiseConn designs and integrates robust wireless sensor solutions to enhance productivity in agriculture processes as well mining (preventive maintenance) and forestry (fire warning).

Aquafood specializes in the development of Krill products.

Media Control provides a system for distribution of multiple audio signals using data transmission networks, and replacing dozens of analog cables. Their market is comprised of TV and music studios.

Defensas Judiciales provides legal assistance through a call center.

Emporio Nacional distributes gourmet beverages and high quality food from all Chilean provinces.

Mallas de Acero is a company dedicated to the design, manufacture and marketing of specialized collapse protection solutions for tunnels and mining galleries.

Bluemax is dedicated to creating the first large extended network of marketing and public outreach, which allows the delivery of free content to mobile PCs equipped with Bluetooth.

FMF is an online library of incidental music selling into the audiovisual productions industry.

Galyleo offers knowledge management in learning and academic entities, such as schools, colleges and universities, through a digital platform.

MTW produces audio-visual entertainment content for children’s education programs, focusing on the production of animated films and series for Spanish-speaking audiences.

LUF is a publishing company launching comic books into the Spanish speaking market.

Organizational Structure:

Management

The management structure is illustrated in the diagram below.
Board Members

The Octantis Board is formed by an experienced team comprising of:

- Ramón Molina – Executive Director of the School of Businesses and Director of MBA programs for UAI. A Director of “Southern Angels” Angel investment network.
- Jorge Arancibia – Vice President of risk capital company Latin Valley Securities
- Alfonso Gómez – Dean of the School of Business of the University Adolpho Ibáñez
- Germán Echecopar – Professor of pre-degree and postgraduate studies at the UAI and a previous Director of the Center of Entrepreneurship
- Gastón Galleguillos – A Civil Engineer by training with extensive experience in business planning.
- Emilio De Giacomo – Qualified Public accountant and Company Administration Lawyer

Budget and Funding

Octantis is funded through receipt of tenant service fees and by the university. Longer term sustainability is through the liquidation of equity held in client companies. Income is roughly broken down as one-third Seed Fund, one-third membership fees, and one-third “special projects” such as the internationalization program.

The last three years operating expenses (including seed capital fund) have been: 2006 – US$600,000; 2007 – US$700,000; and 2008 – US$1 Million. Octantis is currently running a deficit. The company made US$250,000 in 2007, and projects a US$150,000 deficit in 2008. Management expects to break even by the first quarter of 2010.

In achieving longer term sustainability the management of “special projects” will be key, particularly the development of international contracts in the USA and elsewhere including Colombia and Peru. Other special projects include various economic development agency initiatives such as encouraging entrepreneurship for women, training workers re-entering the workforce, etc. The ability to sell shareholdings in incubator tenant companies is, however, the overwhelming key factor in the longer term and requires the development of a corporate presence in external capital markets. A critical task is to internationalize the companies sufficiently that options can be sold in foreign markets.

Graduation Policy

Companies do not “graduate” as such, but remain in the program until Octantis is able to realize their investment. Thus, the relationship is long-term. Clients can be dismissed from the program, and any such decision would be made by the staff members acting in committee.

Conclusion

Additional Information

Octantis is closely associated with the program “Disruption Coming from The South” which is also run by UAI. The “Disruption Coming from The South” (DTS) program is based in Miami and aims to assist the introduction of Chilean companies into North American markets for both trading and investment. This provides a “soft landing” for companies and is seen as a major support mechanism for those expanding into new markets. This “Latin Diaspora” functions as a support network for companies entering the US market, for example in making sales referrals and introductions.

Southern Angels is the angel investor network in Chile and is a competitive funding alternative to debt financing such as bank loans, and CORFO-guaranteed loans. Octantis and other incubators regularly
prepare companies to make venture presentations to Southern Angels which can provide financing in the range of $25-250,000 USD in risk capital.

Octantis is also closely associated with the program “Engine Up” which aims to fast-track Web 2.0 ideas into small companies with intensive tutoring and mentoring over a period of two weeks. Successful companies may graduate into Octantis.

Implications for the ICT Africa Sustainable, Replicable, Business Incubation Model

The virtual model of business incubation has always been a debate. Almost all programs operate from fixed premises and while the virtual has always been a compelling theoretical model few examples of successful virtual incubators exist. Viability of virtual models is usually seen as challenging due to the dispersion of the clients. To state it differently, conventional incubator operations wisdom is that keeping clients within easy reach enables better oversight. Be that as it may, the Octantis model is working well and is an excellent model for other virtual incubation projects.

In many ways Octantis is also an incubator of other support programs. There is a symbiotic relationship with Disruption Coming from The South, and a close working relationship with Engine Up. Enabling smaller economic development projects within the supervision of a larger operation is an interesting idea for replication elsewhere.

Octantis is very focused on sustainable company success. Success is measured by turnover and their only target is to have their portfolio of companies exceed US$100 Million in turnover by the end of 2011. However, economic development agencies often measure success in jobs created, somewhat in opposition to Duncan Bannatyne’s famous dictum that, “A good entrepreneur employs as few people as possible.” If one is to focus on producing sustainable companies, then profitability is the key output, and Octantis’ single minded pursuit of that particular goal is also interesting as a replicable concept.

The stakeholders, academia and government are important. UAI provides Octantis a parent relationship, in-kind free space, and conference rooms. Access to laboratory, student interns, professors and training programs are all hugely beneficial and would be in Africa as well. As is the case with CORFO, the economic development arm of the government is vital for loan guarantees, branding, and access to other programs.
“ParqueSoft” Centers

Overview

This report is designed to be an information resource about ParqueSoft centers in Colombia, suggesting the best attributes for use in the creation of a model of ICT incubation and investment for Africa. The study included meetings with 40 individuals (see Appendix A) including ParqueSoft founder, Orlando Rincon, and executive teams from several of the centers, prospective center managers, university representatives, and several incubated companies. Additionally, attendance to an “all-hands” executive director’s meeting for strategic planning, international outreach and education took place. All meetings were arranged by John Restrepo, ParqueSoft’s international liaison. Initially, the report will examine the strategic environment to better understand some of ParqueSoft’s external factors that either promote or diminish their business development efforts. Examples include government policies, available labor and the investment environment to name a few. The primary focus of the report is on the ParqueSoft Centers: organizational structure, statistical analyses, center budgets, business training programs, educational ties, funding sources, and projections for the future. A review of the facilities, and an understanding of their physical attributes, will also be included.

Founder

With a background of computer sciences and software engineering, Orlando Rincón started his own company, Open Systems, Ltd., in 1984. Open Systems became one of the leading examples of Colombia’s emerging Software industry. It was at Open Systems that Orlando developed the idea for ParqueSoft. From the outset, he wanted to build an innovation park that would, “draw young entrepreneurial minds from poor communities, with talent in software development and a commitment to their communities...Social responsibility is the first and foremost goal – then company development” (Source: Orlando Rincón)
**Strategic Environment Summary**

President Uribe’s economic policy has been one of fiscal temperament, with a push to open markets for economic expansion. From this policy Colombia has experienced GDP growth at a rate of 8.2% in 2007, and has had substantial growth for the prior 4 years. Additionally, Colombia’s lawmakers are interested in fostering entrepreneurial development and have been looking to craft new laws accordingly. This is all of great benefit for ParqueSoft’s growth opportunities.

The unemployment rate in Colombia was approximately 11.2% in August, 2008, and when this is coupled with a substantial under-employment rate the availability of labor is high for the variety of skills needed in small business development. ParqueSoft has designed programs that provide business networking opportunities and be a hub for the software industry. In turn, labor collaborations, with the associated cost savings is the standard. Additionally, each of their 14 regional locations is chosen within educational centers (mainly universities) and an internship program (“Seed Bed of Research and Entrepreneurship”) has been developed where students are paired with Program companies.

ParqueSoft tenants are under the same income tax policy as all Colombian businesses, with both corporate income tax, and long-term capital gains running at 35%. There are 11 free trade zones that exist in Colombia and provide tax relief to companies manufacturing for export. Value Added Tax is 16%; however modified rates can range from 7% for specific food products up to 25% for alcohol. Other taxes that can apply include: excise and import duties, transfer duty, stamp tax, municipal industry and commerce tax.

In November, 2008 Canada ratified its trade agreement with Colombia. However, as of December, 2008 the US free trade agreement with Colombia continues to receive intense scrutiny in the US Congress, and current indicators are that it will not successfully pass into law. Colombia is already part of free trade pacts that are associated with the US (such as SAFTA) and Colombian companies already have the ability to trade with modified restrictions. In wider scope, by deregulating its telecom industry there has been intense competition from international players to gain access to the Colombian market.

The Uribe Administration is interested in completing a unique Free Trade Agreement with the US, with the goal of expanding Colombian exports. However, Colombian social unrest towards the Bush Administration’s unstated goals in Colombia is prevalent.

Colombia works under “written” law, as opposed to “judicial” law, as is the case in the US. It is the Colombian Commercial Code that is the defining documentation in the area of Business Law. The Code in its current form is seen as not enhancing entrepreneurial development. With the need for reform being evident, legal change is already underway within the government. It is with particular regard to entrepreneurial entities, similar to ParqueSoft, that this has an effect and future changes will be anticipated to positively develop this sector. It should be known that the US Dep. of State has concerns, ‘over deficiencies in Colombia’s licensing and copyright protection practices. 

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31 US Department of State: Background Note- Colombia http://www.state.gov/r/pa/ei/bgn/35754.htm
Colombia’s foreign investment has been in a growth pattern, and notably, in 2005 SABMiller made a substantial investment in Colombia’s beer industry that almost doubled the economy! By providing businesses incentive programs (e.g., tax breaks) foreign direct investment (FDI) is actively promoted. Also, international agreements are designed to provide protection. With cocaine output being lower than anticipated in 2007 the opportunity for greater FDI is anticipated to be fourth coming.

Colombia: Foreign Direct Investment inflows (1998-2007)

<table>
<thead>
<tr>
<th>Year</th>
<th>US$ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>2,829</td>
</tr>
<tr>
<td>1999</td>
<td>1,508</td>
</tr>
<tr>
<td>2000</td>
<td>2,436</td>
</tr>
<tr>
<td>2001</td>
<td>2,542</td>
</tr>
<tr>
<td>2002</td>
<td>2,134</td>
</tr>
<tr>
<td>2003</td>
<td>1,720</td>
</tr>
<tr>
<td>2004</td>
<td>3,016</td>
</tr>
<tr>
<td>2005</td>
<td>5,661</td>
</tr>
<tr>
<td>2006</td>
<td>6,453</td>
</tr>
<tr>
<td>2007</td>
<td>7,562</td>
</tr>
</tbody>
</table>

Source: Central Bank of Colombia

As is the case in most developing countries, there is no culture of Angel or Venture Investment in Colombia, although there is clearly a desire to engage in it. For this reason, the ParqueSoft model provides funding for both product and company development. Orlando Rincon has worked to encourage the region’s wealthy individuals to invest into ParqueSoft funds and in turn receive a tax advantage that is superior to a standard write-off.

In August 2007, Colombia’s Ministry of Communications substantially relaxed its policy towards long distance telephony and internet use with the goal of bringing new investment into the market. ParqueSoft works with many telecom-related companies, and is poised to take advantage of this growth. With the government’s stated goal of merging seven telecom service providers, Colombia is ready to create another major provider in the region (UNE). It should be known that the success of a merger on this scale has been viewed with some skepticism.

The poverty line has continued to remain steady since 2006, with 49.2% of the population being below that level. Life expectancy is 72.3 years of age and adult literacy runs at 92.8%. Welfare services have been in place since the 1930’s. Social security compensation programs include health and maternity benefits, workers’ compensation, and allowances for the disabled or those unable to work. Housing is generally in short supply, and results in noticeable amounts of “makeshift” housing. To mitigate the

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32 United Nations Development Program: HDR Statistics
http://hdrstats.undp.org/countries/country_fact_sheets/cty_fs_COL.html
issue, the Housing Institute has been directing construction efforts to areas where low-income is most prevalent.

ParqueSoft has established close ties with the regional universities in order to support career paths that are in line with the needs of the Software industry. To date, ParqueSoft’s “Preparatory for the Software Industry” program, in conjunction with the institutions of higher education, has enabled the development of student talent with the required competencies to build the Colombian ICT market.
Project

Statistics Published by ParqueSoft as of November, 2008 appear below:

- Entrepreneurs trained and hired by industry: 460
- Companies created: 270
- Software products developed: 877
- Companies and software packages certificates in quality (including ISO): 126
- Generated direct uses (average per year): 225
- Generated indirect uses (average per year): 80
- Total sales (USD): $47,931,000
- Domestic Centers: 14

Note: ParqueSoft has business offices in Bogotá and an international business office in Panamá, Miami (Florida), San José (California) U.S.A.

Incubation Program - Program Overview

ParqueSoft is a non-profit organization established in December 1999, with the purpose of creating and developing new ventures that will provide goods/services to the Information and Communications Technology (ICT) market and has a focus on software development. The development of new business is in turn designed to create social uplift through training, education and financing. The program provides a shared network of education, incubation and acceleration services to all participants within the system. The ParqueSoft center in Cali was the first center whose organizational model has been replicated in 13 other locations, mainly in Colombia’s southern region. The ParqueSoft program is designed to be one of Colombia’s primary economic development tools for the ICT sector.

ParqueSoft, as a large entity, uses its leverage to provide “co-signing” authority for agreements and loans on behalf of incubated entrepreneurial ventures. Each ParqueSoft center owns their equipment and assets, which includes: computers, training equipment, phone systems, copiers, scanners, etc. All centers are located within a donated space provided by a University or educational institution; with the exception of ParqueSoft’s center in Cali. The institution with which each ParqueSoft works usually provides desks and some equipment.

Location of the Incubator

The ParqueSoft center in Cali (organizational headquarters) is located in a building they own, although the 13 others are housed in buildings donated by a local university, or other educational institution. Educational locations are chosen to gain access to: student interns, research materials, labs, and opportunities for mentorship from professors. However, the primary reason is that an institution’s sponsorship includes space that is rent-free. All centers are built with an open plan of cubicles (see photos) and a reception area at the entrance that directs phone calls and receives visitors. Office space is rented at different rates depending on the office size and the location. Further, centers vary in regard to the facility size, and are subject to university space allocations.

When the center in Cali was purchased the building had to be redesigned into an incubator and is currently owned outright by ParqueSoft. Management stated that they are, “facing financial difficulties due to the purchase and build-out costs, and are now looking for an infusion of cash.” However, with excellent availability of adjacent real estate for development, the goal is to grow the Cali center into a business park. Tenant companies would expand into these buildings and remain in the system.
Cali ParqueSoft cubicles. Enterprises take space in an open floor plan of cubicles with desk space. The open space system allows for continuous informal exchanges within and across each enterprise.

**Physical Properties of ParqueSoft Centers**

- **Building** – Centers are generally a floor within a building at an educational institution, with full electrical/phone/data and utilities available
- **IT Capability** – All centers have high speed internet services
- **Equipment Availability** – Each incubated company owns their equipment. Some centers have AV equipment available for use
- **Conference Rooms** – Conference rooms are available in all locations. Some centers also have training rooms
- **Tenant Space** – All centers use cubicle style office space
- **Reception** – Available in all locations and provides phone answering, guest greeting and mail receiving and distribution services
- **Copy** – All centers have a central copy service

**Business Training Programs**

There are currently more than 20 workshop programs in a variety of business disciplines, with approximately 240 hours of training. This is achieved through the wide spectrum of knowledge and professional expertise available within ParqueSoft. The following are those programs: Infrastructure and Support for the Innovation, Productivity and Competitiveness:

**List of Training Programs**

- DIN- Start-up Infrastructure Development
- SJN- Legal Support for Business
- STI- IT Services and Support
- DCC- Corporate Communications Development
- ETH- Team Building
- SPI- Seedbeds for Industry
- PIC- Preparation for the Knowledge Industry
- ACF- Import and Export
- IA+D- Applied Research and Development
- CCA- Quality Assurance
- FCR- Risk Capital Fund
- FFE- Venture Formation Fund
- SEC- Corporate Finance Support
Youth Training
To foster an entrepreneurial social culture, ParqueSoft invites 900 youth each year, for an 8 week stay, to participate in the “Seedbed of Research and Entrepreneurship”. The program provides internship opportunities within ParqueSoft companies according to student interests. The program is designed to create an understanding of what it takes to develop a business and provide a seedbed of new entrepreneurs. With the connection to ParqueSoft in place the hope is that they will emerge as potential tenant companies.

Tenants
ParqueSoft tenants are organized as a community of entrepreneurial ventures that support one another’s business development needs. With a policy of “no bureaucracy” most administrative functions are subcontracted to other tenants. This brings costs for rent, electricity, communications and maintenance to a minimal annual cost of US$300 per person. Tenant companies develop software products for different sectors of the economy in categories such as: health, environment, public utilities, industry, government, education, services, business management, business intelligence, banking, entertainment, tourism, telecommunications, bio-information technology, security, identification systems, digital media, transportation, and information technology support. These products are sold in 42 countries.

Strategic Support Model
ParqueSoft has created a strategic support model that encompasses five macro-objectives, and 16 strategies that support enterprise development. Tenants are provided hands on training as needed to obtain full understanding, although training programs are regularly scheduled.

The macro-objectives and their corresponding strategies are as follows:
1. Infrastructure for the development and support of businesses
   a. Competitive infrastructure
   b. Technological support (Telco, Networking, Videoconference, Date Center)
   c. Effective Communications (Internet, Intranet and Media)
2. People provision for the ICT Industry
   a. Empowerment of human talent
   b. Preparation for the Software Industry
   c. Seedbeds for research and entrepreneurship
3. Reliable and competitive products for the market
   a. Quality (Products, Processes)
   b. Applied investigation and development
4. Financing
a. Funds for promotion
b. Risk capital
c. Savings accounts
5. Business development
   a. Market intelligence
   b. Creative marketing
   c. Industry and trade know-how
   d. Businesses development
   e. Business and personal (day to day) support

Selection Process
The selection of entrepreneurs is based on an interview between the candidate and a committee of 12 ParqueSoft entrepreneurs (the Management Group). The most important criteria for selection are the entrepreneurial characteristics of the entrepreneur and their colleagues, including a willingness to invest their talent, time and energy. The content of the product they propose to develop is important, but not as critical as the aforementioned criteria for acceptance. Notably, the least important criteria are the existence of a business plan and the resume of the entrepreneur. It is during the development process that ParqueSoft assists enterprises with the development of business plans.

Collaborations
Through its “Human Talent Empowerment” strategy, ParqueSoft is providing competences to its enterprises and staff members in essential areas of professional development. ParqueSoft has developed one of the most innovative work environments in the ICT Industry, conducive to attaining high levels of productivity and competitiveness.

Successes:
1. **Green SQA**, a ParqueSoft enterprise, is in charge of the implementation process of its quality assurance management system. Green SQA developed a strategy, adapting it to ParqueSoft practices, and those companies producing software, in order to guarantee stability for those products offered in the market.
2. **Manglar** is one of the more developed companies from ParqueSoft. The company invented and patented software that corrects distortion in a projected image that arises when a projector is poorly placed. According to iSuppli/Stanford, a consultancy, the worldwide market for projectors is growing at a substantial pace
3. **Immersion Software**, which from its start three years ago began to create applications for the construction and security industries. However, a little more than a year ago the company began to develop video games. “After much effort, Immersion closed a deal with a big US firm that, between royalties and production agreements, could mean $2 million in revenue,” according to Ernesto Galvez, Immersion’s 28-year-old president. Mr. Galvez’ 11 employees come from academic backgrounds as varied as sociology and electrical engineering.
Comments
Having interviewed many of ParqueSoft’s entrepreneurs, central themes resonated from their comments. Examples appear below:

- “Becoming a member of ParqueSoft was the best thing I ever did. The environment allows for a strong image, great branding and economies of scale.”
- “Being part of the system gives the appearance of being larger than one actually is. Using the corporate brand (ParqueSoft) provides a great image and goodwill.”
- However, it was also clear that using the ParqueSoft brand to go to market minimizes individual company branding, which can be counter-productive over the long term.

Organizational Structure
The management team is made up of the Executive Director and/or Founder and a team of four Directors. Each of these Directors plus their subordinates provides an “Entrepreneur in Residence” activity. This consists of advice, introductions and mentoring. They are all entrepreneurs themselves with companies they have started within the ParqueSoft system. They attended all training programs and seminars, and participate within ParqueSoft, often for years, prior to being chosen for executive management. Further, there are now regularly scheduled executive level meetings designed to share information and provide support for each of the Center’s management team.

Staffing Model
The staffing model requires that all incubator managers and the executive team be entrepreneurs within the system prior to holding these positions. The management team defines the policies, strategies and programs.

Board Members Capacities and Authority
Each ParqueSoft creates relationships to build a Board of Advisors with its stakeholders, to include the local University, Chamber of Commerce, City, private industry and others. Board members only
provide advice to the Center and clients, and have no executive decision making power or financial responsibility. Board members are local successful businessmen, City, University, Chamber of Commerce, and private industry representatives to assist with legal and other issues.

**Affiliations with Other Organizations**

ParqueSoft has made strategic alliances in research and technology transfer with the leading global corporations in the software industry including Microsoft, IBM and Oracle. And, ParqueSoft is allied with the global production centers of Freeware and Open Source Software (a list of alliances is attached).

ParqueSoft has forged solid alliances with the regional and international universities, and research centers. This has made possible the existence of 11 research laboratories in the areas of Computer Science and Information and Communications Technology.

In alliance with ICONTEC de Colombia (Instituto Colombiano de Normas Técnicas y Certificación), ParqueSoft and 15 of its main enterprises have received (or are in the process of achieving) ISO-9000 certification. The goal is to certify all ParqueSoft enterprises in the next four years.

ParqueSoft has signed several strategic alliance agreements with important governmental and private organizations, productive thinking centers, and strategic market players for Product Development, Process Complementation, and industry knowledge appropriation.

**Budget and Funding**

Most of the ParqueSoft centers report that they are operating at break-even, and are looking for ways to generate additional income. Lower overhead expense on a per-tenant basis is due to the fact that tenant service fees are shared. Full sustainability is the goal, and the management is interested in creating plans to achieve it. The centers are audited annually to ensure proper allocation of funds.

Some of ParqueSoft’s revenue is brought in by projects in collaboration with local government and members of the business Chambers (website development, market research, software development). Many are socially-responsible projects.

ParqueSoft is currently receiving investment into their Risk Capital Funds enterprises (Venture Capital). These funds are being applied mainly to strengthening the marketing and sales areas, with the goal of ParqueSoft’s enterprises becoming more commercially aggressive and gain a larger market share. ParqueSoft has a sales and marketing team that is used by tenants, and receives a commission of 20% of sales revenue. Also, there is an internal consulting group available to tenants comprised of more than 20 ICT industry professionals.

ParqueSoft has completed projects for national, international, and multilateral agencies such as:
1. World Bank,
2. Inter-American Development Bank (IDB),
3. United States Agency for International Development (USAID),
4. United Nations Development Program (UNDP), and the
5. European Union (EU),

Graduation Policy
Tenants are incubated indefinitely and therefore do not graduate from the program as with most incubator models. The idea is that as tenants grow within ParqueSoft, new buildings will be created to fulfill their needs. Ultimately, ParqueSoft centers would grow into a business park. ParqueSoft has no affiliation program for tenants that leave.

Conclusions
The strategic environment in Colombia is increasingly helpful to entrepreneurial ventures like ParqueSoft. The tax policy is manageable by small business and lawmakers have been deregulating industry to support economic development. Clearly, the scale of foreign direct investment has been increasing, and if the security situation can be controlled this is expected to escalate. Socially, education is considered to be very important, and the ParqueSoft program has been filling educational gaps with their programs associated with universities and other educational institutions. The model is admired and many governments study it and request assistance in duplicating it, as evidenced by the Venezuelan and Cuban delegates encountered there. The impact on the poor is evidenced by the creation of companies, both ICT and administrative, and large number of participants in the program.

As a business development model, ParqueSoft has been successful for the following reasons:

1. The revenue generation models are successful, and have generated US$47,931,000 total sales, and developed 270 companies, as of November 2008.
2. The centers are able to manage their budgets effectively.
3. The staffing model is both functional and effective.
4. The majority of the available office space is being used.
5. Facility services to tenants meet their needs – reception, mail, data lines, etc.
6. The 240 hour training program available to tenants is exceptional.
7. Sales and financial support services are provided directly through ParqueSoft.
8. 14 centers have been developed and are fully functional.
9. ParqueSoft has effectively identified and collaborated with key institutions.
10. ParqueSoft has a history of successful projects with globally recognized organizations.

As a model of investment, ParqueSoft provides direct capital infusion into tenant companies through their Risk Capital Fund. Additionally, ParqueSoft will act as a guarantor for incubated businesses to achieve bank loans. The value of being able to achieve funding for small business in Colombia is realized to be a huge benefit. The program itself is able to achieve funding through their sales support mechanism, and achieves 20% of tenant sales revenue. Having this type of service support is of great value for technical entrepreneurs who may not have marketing and sales capacity in-house. Also, the program is able to achieve funding for social development projects from both domestic and international organizations/agencies.
Implications for the Sustainable, Replicable ICT Incubator Model

Below is an outline of strategic environments and business models through which ParqueSoft has developed a set of best practices used in their incubation program. These recommendations are implications for a sustainable incubator model in Africa.

1. Having both federal and local government partnerships and support with the will to develop an entrepreneurial market through deregulation of industry, direct investment and favorable tax laws (to name a few) is directly supportive of incubator development. This is more significant when it is coupled with the infusion of foreign direct investment (FDI). ParqueSoft has taken advantage of this environment by having an ICT market focus where both deregulation and FDI have occurred.

2. As a business development arm of the Colombian government the ParqueSoft centers are actively fulfilling that objective... It is imperative for sustainability to grow national as well as international markets. Further, the ability to combine both local and international resources to support development is an essential function of a successful management style.

3. The creation of social development through business development is an excellent model, based on the 270 newly created businesses, and the sales generated. The ParqueSoft model is growing ICT companies as well as marketing, sales and administrative firms all highly valuable skill sets for the community of ParqueSoft and the region.

4. As a model of investment, ParqueSoft provides funding to the entrepreneurs at the idea stage in order to create a project prototype, and later direct capital infusion into tenant companies through their Risk Capital Fund. Additionally, ParqueSoft will act as a guarantor for incubated businesses to achieve bank loans and by signing other agreements of importance. The value of being able to achieve funding for small business in a developing country is realized to be a huge benefit.

5. ParqueSoft center managers receive unique training by the fact that they are entrepreneurs themselves and attended all the training programs (240 hours) providing the understanding of business and ICT development. Individuals cannot become managers until they have been within the system; often times for years.

6. This system is specifically designed to create serial entrepreneurs all of whom remain within the system to support new business growth. The center is designed to build out new space to compensate for company growth. Regular and on-going mentorship to entrepreneurs and their companies by ParqueSoft executive team members is a major key to success.

7. Constant internal networking provides for strong relationships in support of each business in the system. The variety of on-going programs continues to provide opportunities to network, exchange ideas and become an even greater part of the ParqueSoft and regional community. The cubicle office set-up further aids networking.

8. ParqueSoft centers provide tenant support in the form of 240 hours of training marketing and sales support, advice, information and introductions. This support model is extensive, and allows incubated companies to have a greater opportunity to be successful in an environment where business education may be lacking.
9. The ParqueSoft program is financially sustained by the following: 1. 20% of tenant sales revenue supported by ParqueSoft; 2. government grants; 3. in-kind donations; 4. project work; 5. rent and service fees.

10. The ParqueSoft brand is a known entity globally. Companies usually are marketed under this brand as they are known to have strong capabilities and high standards. Firms have to be careful not to diminish or lose their own branding in this model.

11. The partnerships and alliances developed by ParqueSoft are extensive and have international reach. In turn, these alliances have enabled the center management to support tenant companies to achieve contracts mainly around social development projects. This achieves social development through business development. Alliances are very important to the development of incubators and their tenants, and should be explored to the fullest capacity when available.

12. Support networks, particularly those developed with local universities, have enabled ParqueSoft centers to achieve: in-kind free space for business use; access to labs; student interns; research materials, professors and more. Additionally, a university location has an entrepreneurial spirit by its very nature. This is considered to be an excellent structure with symbiotic tones, and is recommended highly for an African incubator model.

13. Access to professional services (legal, accounting) is available to all clients of ParqueSoft. Also, many host universities have trained staff that can provide mentorship, or fee-for-service, at this advanced level of business support. Easy access to professional services must be considered when choosing an incubator location, and managers can often negotiate preferred rates for volume service.

14. A founder such as Orlando Rincon with the following attributes is more likely to be successful in incubation development:
   a. Industry expertise
   b. Enthusiasm for small business
   c. Connections in the business, government and academic communities
   d. Links to investors
   e. Business start-up to exit strategy experience
   f. Personal in-kind donations of money and time
   g. Vision for social development

15. Stakeholders in ParqueSoft centers include local and federal government, Chamber of Commerce, University or educational centers, and each and every participant in the system.

It should be considered that the opportunities for incubator development are tied to the strategic environment in which the incubator is located. Therefore, the ability to implement best practices will vary. Additionally, not all stakeholders will believe all best practices should be implemented.

**ParqueSoft’s Future Plans**

ParqueSoft’s objective for the year 2012 is to develop 1,100 Information Technology enterprises that will export their software goods and services to international markets. This is anticipated to create 6,500 permanent jobs, and to contribute more than US $200 Million to the regional economy.
SmartXchange

Overview
SmartXchange is a technology incubator specializing in support of the national Information and Communications Technology (ICT) build out effort. The facilities are located in Durban, South Africa.

SmartXchange is a not-for-profit organization, as created under South African law, and presently provides services to 47 companies, of which 19 are resident and 28 are virtual tenants. All of the companies are, in one way or another, offering services and products to the ICT sector. While most companies offer their product and services within the country, they also are attempting to expand their markets in the region and globally if possible.

Strategic Environment Summary
South Africa is a middle-income, emerging market of approximately 48 million people, with an abundant supply of natural resources; well-developed financial, legal, communications, energy, and transport sectors; a stock exchange that is 17th largest in the world; and a modern infrastructure supporting an efficient distribution of goods to major urban centers throughout the region. While economic growth has been good, there are daunting economic problems that remain from the apartheid era, with particular regard to poverty and a lack of economic empowerment among the disadvantaged groups. South African economic policy is fiscally conservative but pragmatic, focusing on controlling inflation, maintaining a budget surplus, and using state-owned enterprises to deliver basic services to low-income areas as a means to increase job growth and household income.33

South Africa has a well-earned reputation for being a good place to do business on the African Continent. It is rated number two in the Sub-Saharan region, and 32 when compared to all nations falling just below France. Only Mauritius, on the African continent, has a higher rating in the World Bank’s Doing Business Survey.34

The government of South Africa has a policy to grow jobs and create opportunity for its formerly disadvantaged citizens. The policy is called the Broad Based Black Employment Equity (BBBEE) Act,35 and companies interested in doing business with the national and local government must comply and meet specific targets represented as a “score card”. In Durban, 67% of the spending for ICT is purchased through the local government, and companies see compliance with the act as a necessary requirement for obtaining contracts. The regulation has stimulated the opportunity for incubator tenants to offer services to larger companies seeking business in the region.

Durban (Zulu Name: eThekwini) is the third most populous city in South Africa, forming part of the eThekwini metropolitan municipality. It is the largest city in the KwaZulu-Natal (KZN) province and is famous for having the busiest port in Africa. It is also a major center of tourism due to the city’s warm subtropical climate and beaches.

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34 http://www.southafrica.info/business/trends/empowerment/bee.htm
According to the 2007 Community Survey, the city has a population of almost 3.5 million. Durban’s land area of 2,292 square kilometers (884.9 sq mi) is comparatively larger than other South African cities, resulting in a somewhat lower population density of 1,513 inhabitants per square kilometer (3,918.7/sq mi).36

Durban’s City Administration has, since 2004, been focused on building infrastructure with the objective of attracting business to the city. They have conceptualized the plan as a “Smart City” where access to inexpensive ICT services will be the magnet to attract the business community within the country, and from the southern region of Africa.

The published unemployment rate is over 23% in the country, but the true figure is likely to be a good deal higher. Jobs are harder to find the further down the skill ladder one goes. The ICT sector is seen by government, and by the people interviewed, to have job growth opportunity. For some jobs the skill level needed is not very great (e.g., pulling CAT5 cable to set-up local networks in office space). For other jobs the skill level demanded is quite high, such as software programming, convergence technologies and advanced network administration.

The national telecommunications system is the best developed and most modern in Africa, having a combined fixed-line and mobile/cellular teledensity of nearly 110 telephones per 100 persons. This consists of carrier-equipped open-wire lines, coaxial cables, microwave radio relay links, fiber-optic cable, radiotelephone communication stations and wireless local loops. Key telecommunication centers include: Bloemfontein, Cape Town, Durban, Johannesburg, Port Elizabeth and Pretoria.37

The mobile phone sector is highly competitive, but the land-line business is highly regulated and shows little in the way of a competitive presence. Mobile providers in South Africa by rank in terms of Q1, 2007 numbers of subscribers are: Vodacom (23M), MTN (13M), Cell-C (3.35M), and Virgin (.1M).38 South Africa is considered a relatively mature mobile market. There is a plan to greatly increase bandwidth in the next two years, but to date access and bandwidth is limited and costly.

Almost every major international company is represented in South Africa, and many are suppliers or service providers for the ICT sector. Consequently, these companies see the national program for the ICT build out as a growth opportunity, but to do business in the country they must comply with the BBBEE policy. Therefore, foreign companies are a ready customer for the incubator tenants and are generally supportive of the incubator’s work. In some cases, companies have contributed resources in support of SmartXchange.

Conducting business in South Africa is relatively easy for international firms and the legal system is well developed, being based on the British Law. Contract Law is seemingly well understood and the courts appear to be impartial arbitrators in such legal matters. For the most part the business practices are similar to Western Countries.

Project

SmartXchange is a not-for-profit incubator supported by Durban’s City Government. It provides services for 47 companies that employ over 241 people. The incubator offers services in the form of training and counseling for business planning, building basic business skills and a verity of specialized services.

tenant needs. The incubator is located in the business district of Durban, and is within reach of public transportation.

**Incubator Physical Properties**

The physical facilities include two office buildings with a connecting atrium providing a total of more than 13,000M², of which about 11,500M² is devoted to space for commercial tenants and offsets the operating cost of the incubator. The remaining space of about 1800M² is for the incubator tenants. In this space SmartXchange provides: office space, lab space, conference facilities, meeting rooms and break-rooms. General office services are provided and include: telephone, receptionist, copy services and internet access. Parking is under the building and tenant companies are given space for one car. Public parking is available a few hundred feet from the building.

Companies intending to enter the incubator must meet admission requirements, and includes that they have complied with the following:

- Have formed a legal entity
- Are owned by previously disadvantaged people
- Demonstrated the needed technical skills to carry out the business function
- Begun to sell their product or service
- Obtained a Tax Clearance Certificate
- Developed a Business Plan

The final decision to accept or reject a company rests with the management of the incubator.

The incubator is marketed through brochures, media exposure, fund raising activities and informal means of communication. Also, marketing is achieved through strong visibility with the general business community by virtue of its location. Tenants have reported having found the incubator by reading about it, and friends telling them about it. In one case, it was from living near one of the incubator managers and having a conversation about starting a business.

**Transportation**

The location is well served by public transportation for city travel, and two airports for travel to more distant places. Durban is a very active seaport offering the ability to ship goods overseas as well.
**Incubation Program**

The SmartXchange has a three tier support policy and the tiers correspond roughly to a three year period of support. Graduation is expected at the end of the third year. The following Table describes the Three Tier Support Policy.  

<table>
<thead>
<tr>
<th>Tier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>This stage is characterized by developing the initial concept for the business and taking it to the reality of trading. Businesses at this stage of development have few formal structures, are owner managed with most decision based on 'gut feel'. A key emphasis rests on building the client base and cash income.</td>
</tr>
<tr>
<td>Tier 2</td>
<td>At this stage the need for a business to be trading and expanding revenue is of key concern. There is far more awareness of cost and the need for quality products/services. Simple management structures exist and communication is informal due to the size of the team. Capital expenditure can be problematic, and there is a greater emphasis on sales versus profit.</td>
</tr>
<tr>
<td>Tier 3</td>
<td>Emphasis on coordinating the resources and maximizing the use of assets. The conflict of informal versus formal management style creeps in. Methodologies that worked previously now need to be replaced with formal structures, policies and procedures. This stage of growth is characterized by needing to spend time consolidating the business in terms of sales and customer satisfaction. Also, there is a need to spend time developing systems and procedures to ensure that a quality product/service is offered, costs are contained and resources utilized effectively.</td>
</tr>
</tbody>
</table>

The incubator reports that it has no special relationship with local schools or universities. However, they do have personal contacts at the university level and make these available to the tenants as needed.

**Tenants**

The incubator companies consist of two groups, those in physical residence in the incubator (19 companies), and those that are ‘Virtual’ incubator clients (28 companies) and reside off-premises. Almost all of the companies are in the professional service businesses and are connected to the ICT infrastructure.

Tenant companies are a mix of contract development firms, and those having developed proprietary solutions and are marketing them to a wide range of domestic and international clients. Few of these companies appear to have proprietary solutions that have led, or will lead, to patent or other forms of Intellectual Property protection. Few of the companies would meet the expectations of being high growth potential companies as we might expect to see in other incubators. However, these companies all seem quite viable in the context of the country's needs.

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39 Excel Spreadsheet showing the Tier System for SmartXchange, created by SmartXchange management.
economic system, and all appear to have a moderate to good opportunity for continued business within the country and region.

A sample of six tenant companies was interviewed for this report. Each company related their reasons for joining the incubator and these varied. Notably, one company was only seeking good affordable office space, and the others seeking credibility conferred by being at the incubator, and using incubator linkages to the business community. The clear expectation for these companies was to expand their client base through SmartXchange contacts, which seemed to be successful for at least two of the six companies.

Expectations that the companies had for membership in the incubator were largely met and include access to: offices, conference facilities, meeting rooms, a location in the business district and incubator contacts with the local government and their connected business entities.

A review of ratings assigned to the amenities and services available at the incubator show that most companies made use of the physical facilities, and these were for the most part deemed to exceed expectations (a rating of 5 out of 5 points in a tenant survey). This is consistent with the interviews where satisfaction seemed to be highest with the location, address and physical plant offered by the incubator.

Uniformly, the companies thought that the incubator management was exceptional and provided sound and significant support. The only area where expectations were not fully met was regarding opportunity to meet and develop business relationships with customers coming as referrals through the incubator. Though, even here, the expression of the need was not associated with criticism of the incubator or its highly regarded management.

**Organizational Structure**

As noted, the incubator is a not-for-profit organization under South African Law.

**Management**

The incubator has a small but effective management team. The team is led by a CEO who was an entrepreneur who sold her business to a larger firm. The leadership team is organized by function, and includes five positions of which four are currently filled. They are:

1. CEO, Robynne Erwin
2. Manager, Rajesh Neerachand
3. Financial Person, Samke Zondi
4. Support Person, Zola Nebwehu

The team reports directly to the CEO who in turn reports to a Board consisting of six Board Members plus a Board Secretary.
**Board Members**
The following chart shows the present board members and their role and expected value to the incubator.

<table>
<thead>
<tr>
<th>Board Member</th>
<th>Position</th>
<th>Strategic Value Add</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonathan Naidoo</td>
<td>Chief Operating Officer of Trade &amp; Investment KZN (TIKZN)</td>
<td>TIKZN is responsible for bringing a number of international investors to KZN and these delegations visit SmartXchange creating business opportunities for SMMEs.</td>
</tr>
<tr>
<td>Dan Ncwane</td>
<td>CEO of the State Information Technology Association (SITA)</td>
<td>SITA is responsible for outsourcing Government ICT tenders and thus having representation on board allows SX to lobby for the inclusion of SMMEs in the tender writing process.</td>
</tr>
<tr>
<td>Themba Ngcobo</td>
<td>Business Owner and Board Member of Ushaka &amp; ICC, previously Chair of Chamber of Business</td>
<td>Prominent local business man. He is a potential champion of SmartXchange in the business community.</td>
</tr>
<tr>
<td>Reggie Govender</td>
<td>CEO of University of KwaZulu-Natal (UKZN) Innovation Company (commercialization of research)</td>
<td>UKZN is a strategic partner for addressing the skills shortage. Plus the Innovation Company commercializes research so that it is also a strategic partner for innovative SMMEs.</td>
</tr>
<tr>
<td>Mary Nontuthuko Magoso</td>
<td>HR Lawyer - runs her own practice</td>
<td>Access to legal advice in the field of HR.</td>
</tr>
<tr>
<td>Clive Manci</td>
<td>CEO of Evaluations - deemed to be the next president of the Chamber of Business</td>
<td>Prominent local business person and a potential champion of SmartXchange in the business community.</td>
</tr>
<tr>
<td>Martin Cele</td>
<td>Business Owner and previous CEO of SmartXchange</td>
<td>Previous CEO of SmartXchange and a champion of the program.</td>
</tr>
<tr>
<td>Mac Mia</td>
<td>Vice Chair of UKZN Council, Chairman of UKZN Finance Committee, previous president of SA Chamber of Businesses</td>
<td>Strategic relationship with UKZN at board level.</td>
</tr>
<tr>
<td>Fikiswa Pupuma</td>
<td>General Manager, Provincial Dept of Economic Development</td>
<td>Assists in building relationship with the Provincial Government. SMME development falls under economic development.</td>
</tr>
<tr>
<td>Atish Sanjowan</td>
<td>Company Secretary (Gobodo)</td>
<td></td>
</tr>
</tbody>
</table>
Stakeholders in SmartXchange

The Stakeholder analysis shows that there are at least seven groups that might be categorized as stakeholders in the SmartXchange Incubator. Of these, the most critical is the Smart City Program launched by the City as an initiative to dramatically increase the access to Broad band communications with the expectation that that will drive industry and commerce in coming years. The policies put in place by this project are one of the driving forces in helping to establish the incubator.

The City Government through its Telecom policy and regulatory policy is also a significant stakeholder in the Incubator. Much of the current power to affect the SmartXchange is based on the current law governing Black empowerment and the requirements that city is under for vetting contract firms and suppliers who can meet these requirements. This National Law is implemented at the local level through a “Scorecard” that is kept on each potential supplier of services and equipment to the City. Thus, to secure contracts with the city, the company must meet minimal requirements and the SmartXchange program is providing a cadre of Black Entrepreneurs who meet these requirements.

The Telecom Service providers and the Telecom Equipment and Software System Providers have recognized the large stake they have in seeing that the Incubator tenants are successful and therefore have a very large impact on the SmartXchange Incubator through funding, direct support and supplies of equipment technology and know how. These companies are operating under the local regulatory structure and therefore are required to employ disadvantaged individuals and groups to meet these regulatory requirements. As such they have a strong incentive to support the programs at SmartXchange and provide contracts for funding development work through these entrepreneurial businesses. In the case of some of the Equipment and Software Systems Providers, some of these stakeholders have taken the further step of taking office space at the incubator, offering direct training for the incubator tenants and providing equipment and software at substantial discounts to these tenants who then can profitably resell it to local companies and organizations. They have become partners of the Incubator in recognition of their stakeholder status.

Local Business Community is a diverse one ranging from Tourism to International Shipping. Their stakeholder role is as beneficiaries of the rapid growth of ICT services and competent communities of ICT technical support personnel, who can install, maintain and repair the ICT infrastructure. The principle sectors currently receiving this benefit are Shipping, Banking, Construction, and Manufacturing and Assembly firms currently operating in the region and planning to enter the region. For these firms, a stable and well ordered inexpensive Telecom and Internet infrastructure are essential components of their respective businesses.

Universities and Colleges within the local Province and within the City have established ICT programs at several levels from single course offerings to graduate programs in ICT related areas. These academic institutions are stakeholders in that their students find positions within the tenant firms at the Incubator.
Budget and Funding

As a not-for-profit corporation, all revenue is devoted to services and overhead expenses of the program. The annual budget for SmartXchange is approximately 7 Million Rand, of which the city provides approximately 4 Million Rand. The remainder of the operating expense is provided by the rental of space in the building to commercial tenants, active fund raising carried out by the management with sponsor companies, and grants from the government, and others, as the opportunities are available. Sponsor money often comes with restrictions concerning how the money is to be spent, and that usually involves training, SMME awards and conferences. Another form of support from sponsors and partners is in the form of outsourced contract work for the tenant companies. In 2008, contract work amounted to more than 10 Million Rand. Local tax rules require managing the not-for-profit organization at a zero balance each year, forcing the incubator to either spend the excess, or roll the excess into contracts to be carried out in the following year. The subleasing of office space in the facility brings together commercial companies that can have a relationship with the tenant companies, are service providers to them, or have potential to become customers. The rents from commercial tenants provide a substantial offset to the operational costs of the incubator, and help make the operation financially sustainable.40

Graduation Policy

The graduation policy is set at three years, and is summarized above under the Three Tier Policy.

Conclusion

Information Not Mentioned Above

The tenure of the present CEO will end in 2009. She is tasked with training her replacement who is, as of yet, unnamed.

Implications for the ICT Africa Sustainable, Replicable, Business Incubation Model

1. **Shared Commercial Tenant Space:** There is a benefit to having a sector incubator in which almost all tenants are focused on the ICT industry. This facilitates networking for the tenant companies and generates a substantial cash flow for the incubator. It would appear that in almost all cases, real estate will be a cost driver for the incubator.

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40 SmartXchange Board Meeting documentation, 19 September, 2008
2. **The Incubator as a Brand:** The brand identity of this incubator is another idea worthy of comment. By being tenants of SmartXchange, the small companies have an identity that transcends their own capabilities and is known to the local business community under the SmartXchange brand. This branding includes an attractive location in the business district, the use of the facilities for customer meetings and the overall imprimatur of brand strength as it is perceived in the business community. The notion of branding carries with it some additional attributes. Since all companies are associated with the SmartXchange brand, there seems to be a high degree of mutual support among the incubated companies. This carries even to the point of providing services to each other, and supplying resources and people to help fellow SmartXchange companies meet changing business conditions. They will in fact, cross sell their services and take a commission for such sales. One result of this style of branding is the collaborative and cooperative nature of the resident companies. It is as if they are all sharing in the success of the venture called SmartXchange. It would appear that this type of branding was instigated by the present CEO, and ties back to the way in which the administrative structure is organized. The term Cooperative Venture seems to describe this incubator. Further, it is an adaptive organizational form for companies in this environment and may well have implications for other incubators.

3. **Expanded Business Services for Incubator Tenants:** The absence of legal, accounting, business development and human resource support seems to be acutely felt by tenants in the incubator and is perhaps based on an expectation engendered by having a strong brand identity with the incubator. From a business point of view, this expectation makes sense since most of the companies we interviewed could not afford such services on their own. While in South Africa, there were reports in the local press that there is a need to have more trained accountants. Seemingly, these skills are in short supply and therefore sharing the cost of acquiring such skills would no doubt make good business sense.

4. **Critical Location and Access to the Business Community:** Location is clearly a critical factor in the success of this incubator. It has excellent public transportation available at the front door, it is in the heart of the business district and one can walk to most customers. And, with the location comes a recognized address that has status associated with it; recognized throughout South Africa. This incubator can be seen, and is prominent at street level. This is in sharp contrast to a visit to another incubator in a suburban area that was not near any public transportation. It was for all intent, in a great location if one wants privacy and seclusion. It had few tenants and seemed to have difficulty recruiting new ones.

5. **Corporate Sponsors and Partners:** These companies play a very significant role in this incubator. Since sponsors are among the major beneficiaries of the talent pool represented in the incubator it is reasonable for them to provide support for these early stage companies in the form of training, channel distribution agreements, equipment and customer introductions. The build out of ICT takes substantial resources and it needs to come from local people due to the issues of language, customs and local regulation.
6. Thus, having a facility that can develop small companies to provide skilled and well trained infrastructure development staff in the local environment makes good business sense. In some ways, these incubator sponsor companies are providing the resources that one might expect from members of the investment community, but are not forthcoming because the risk reward is not sufficient to justify a high rate of investment. Whereas, for international players like Microsoft, IBM, and Cisco to name just three, the reward is in enhancing their local distribution channel at a relatively modest cost and at very low risk.

Acknowledgement

The writers extend their sincere thanks to the management and staff of each of the five incubators that were visited in the development of this report. Their willingness to devote time to our research, answer our questions, set appointments and host the team members was most appreciated, as is their contribution to the community of Business Incubator developers.
Annex 2:
Network Development Report
Sustainable, Replicable ICT Business Incubator Network

Introduction
The purpose of establishing the sustainable, replicable ICT business incubator network for sub-Saharan Africa is to ensure that the incubator concept is adapted to fit the environment in a manner that will maximize its utility to African entrepreneurs (and for other locations where the model is applied). The use of ICT for Development (often labeled “ICT4D”) is considered by many to be the best possible means for Africa to catch up with the developed world and broaden national economies that are driven almost exclusively by mineral extraction, tourism and agriculture to include technology. Growth of ICT in Africa has not been as rapid as may have seemed inevitable given the substantial growth in ICT services in the past few years. It is opined that the closer Africa comes to achieving universal service, (i.e., developing critical mass in use of ICTs) the more rapid will be the changes wrought, but critical mass is still in the future. Therefore the development of an incubator (even a generic one) provides additional impetus to the process of reaching the next level of development.

Why Incubation?
The business incubation concept provides a method for developing successful small companies that will create employment, pay taxes, purchase goods and services on the local market, and in general, cause more dollars to flow through the economy. Economic impact studies in the United States clearly demonstrate that incubator tenant companies create jobs for less money than do job training programs, and provide their small company clients with the tools they require to survive the hostile environment of the business world, achieving higher survival rates after five years than is experienced by non-incubator companies. In fact, organizations as close to job creation as the Kauffman Foundation report that in the current economic slowdown, 10-20 percent of displaced workers are reported to be considering self-employment. Further, as an economic development strategy, incubators offer high return for modest investment, benefitting the public, the business community, and the government.

African Challenges. Africa is different from other locations in need of economic development. The challenges for start-up companies are even more significant than in more developed parts of the world. There is a clear lack of the entrepreneurial infrastructure that would be taken for granted, for example, in the United States or Western Europe. Service providers who can adequately advise entrepreneurs are in relatively short supply, and financing is always an issue. As an example, in Tanzania it was observed that interest rates for small business loans may range from 11-18% (if loans are available at all which is in stark contrast to rates in the developed world which are currently around 5%). In addition, entrepreneurs leasing space in Tanzania could be required to put up as much as a year of rent in advance – perhaps one of the most frustrating barriers to entry. In addition, it was also observed that the majority of companies that could become likely incubator tenants are not commercializing technology but rather are utilizing it (occasionally in innovative applications) or supporting its development through service organizations. Therefore, protection of Intellectual Property does
not appear to be a significant barrier to entry. It was concluded that most early stage ICT companies in that region will not be “scalable” except in rare cases where a new technology is developed, and that the primary mission of an incubator will be to rapidly grow small companies that will create employment to support the rapid expansion of ICT to the general population. This means that most companies in the network of incubators proposed will probably reach their maximum capacity at about 50 employees (excepting organizations such as call centers, and business process outsourcing companies).

**Profitable Incubation**

Can incubation be a profitable endeavor? In most cases, incubation programs have been established and managed by local public sector organizations. Their objectives and ability to fund operations are typically locally or regionally focused, undercapitalized, and absent of any desire to replicate their success. Most are undercapitalized because the agencies that fund them are unable to guarantee continued support for the period required to make them sustainable. The funding for public sector organizations tends to be driven by annual budgets, and there is seldom an ability to plan for multiple-year funding and acquisitions. For this reason, while there are many examples of sustainable incubators, there are few that are replicable because they are almost always formulated as one-time projects, rather than systems. This proposal seeks to ensure that the required capital for the group of incubators is allocated, and that there is understanding of the economies of scale and economic impact that can be achieved by establishing the system, and putting into place management standards that will provide adequate support for the system.

Some examples of successful and sustainable incubators appear in the table. We note that:

(a) Each is privately owned,
(b) 3 of the 4 are focused on technology,
(c) 3 of 4 were started by entrepreneurs,
(d) Each provides capital to the clients it accepts in addition to other services.

Each of those shown below is a private sector endeavor. There are many public sector incubators that are self-sustaining but almost all of them required funding for some period of time (typically 5-7 years) in order to achieve that goal.

<table>
<thead>
<tr>
<th>Organization Name</th>
<th>Location</th>
<th>Type Incubator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rose Tech Ventures</td>
<td>New York, NY</td>
<td>Technology (chiefly IT)</td>
</tr>
<tr>
<td>Raizcorp</td>
<td>Johannesburg, ZA</td>
<td>Multi-use (products and services)</td>
</tr>
<tr>
<td>ViaspHERE</td>
<td>Yerevan, Armenia</td>
<td>Technology (chiefly IT)</td>
</tr>
<tr>
<td>Idealab</td>
<td>Pasadena, CA</td>
<td>Technology (chiefly IT)</td>
</tr>
</tbody>
</table>
Incubator Models Considered

In formulating a plan for a sustainable, replicable, ICT incubator, it is quickly surmised that the key economic driver in almost any incubation scheme is the cost of supporting the real estate. Different approaches to overcoming that barrier have been developed, but in the end there are three alternatives: building a new facility, renovating an existing building, or establishing a virtual program that serves companies without providing rental space. All three have advantages and disadvantages, and they are discussed below. In this model it is assumed that the public sector, either through national government, local government, or possibly a university, will be a player in the establishment of the incubator. The reason for this is that the model relies on the public sector making available land or buildings (or both) that can be utilized in constructing (or renovating) the incubation facility. The reason a university is used as an example is that in many instances, this has translated into the local university conveying the property to a developer. However, the alternative would be for a government organization to provide redundant land on which a developer could construct a facility.

It was also assumed that in almost every case, the initial incubator for each partner country will be located in a major city with follow-on incubators developed regionally. In some locations it may be most desirable to be in the Central Business District (CBD) because that is where other businesses tend to be located, such as large company partners, service providers and banks. On the other hand, an incubator on a university campus puts the companies closer to sources of intellectual property, student and faculty entrepreneurs (and labor) and may be considerably cheaper in terms of overhead costs. The alternatives of new construction, renovation, or a virtual model are discussed below.

New Construction

The first alternative, building a new facility, provides the most opportunity for creativity in developing the business model. To be most efficient, the model assumes that the public sector can make a substantial contribution to the project by contributing land in a desirable location such as the central business district of a major city, or a plot of land in close proximity to a technology university likely to develop intellectual property that will require commercialization. This concept will assist with accomplishing a number of goals:

- The university will have a path for commercializing technology in a location where faculty and student entrepreneurs can remain affiliated with the university.
- The incubator will be likely to have easy access to students in ICT disciplines that may have an interest in entrepreneurship or at least in gaining practical experience in their industry by working for the tenant firms.
- Other entrepreneurs will be attracted to the area with the prospect of clustering in a community of ICT businesses, and R&D.
- Universities have a requirement for broadband access from which the incubator can also benefit.

Other opportunities to acquire the property may exist as well. In Maputo, a former military facility near the central business district has been under consideration as a building site and was the subject of an infoDev Feasibility Study in 2007.
**Renovation**

The second alternative (renovating an existing building) is also attractive with public sector organizations such as universities because they often have redundant facilities that can be repurposed for incubation. As an example, in Tanzania, the University of Dar-es-Salaam (UDSM) recently acquired an entire abandoned telecommunications training complex that could easily lend itself to development as a technology park with an incubator as the lead client. Development of the incubator could create a need for graduate space and buildings to house other ICT cluster companies and support businesses. Considering the challenging traffic situation in downtown Dar-es-Salaam, the development of a hotel, conference center and additional office space would be a logical next step as that would allow organizations to do business in this emerging area of technology business without the inconvenience of navigating downtown Dar-es-Salaam traffic.

- For a modest investment, unused facilities that were formerly classrooms, libraries or dormitories can find new life in the incubation program with the promise of attracting entrepreneurs, researchers, and concurrently create opportunities for practical experience for the students.
- The presence of a developing cluster often is attractive to larger companies that want to take advantage of the clustering effect and be near local contractors or even potential acquisitions.
- Broadband is also likely to be readily available near a university location. In Dar-es-Salaam, the SEACOM submarine communications cable will be coming ashore in Tanzania on UDSM property and the cable owner will build a backbone to serve the university. This project will improve the UDSM connectivity by an order of magnitude and reduce the cost of connectivity by the same proportion.

Similarly, many overhead costs such as utilities, janitorial costs, and even some amenities such as parking are absorbed by the university, making the setting attractive to incubator developers. Thus, there is a significant advantage to a university location.

**Virtual Incubation**

The third alternative considered is a completely virtual incubator. The primary advantage of this type of business model is that overhead is greatly reduced in comparison to other schemes. The only physical infrastructure that is required is office space and conference / training space so that the entrepreneur clients can benefit from the training, mentoring and other forms of support provided by the incubator. This type of incubator could be located virtually anywhere in the service area that is convenient to visit for the entrepreneurs and others associated with the incubation program.

The virtual program would operate with the objective of readying entrepreneurs to rapidly expand their business by:

- Preparing to seek financing
- Developing a workable marketing plan
- Rounding out their management team
- Assisting them with training and support through mentors, consultants and other advisors

The virtual incubation model is least expensive (and quickest) to establish because the real estate costs are low, but is also the...

...integrate the finance skills of IFC with an experienced construction company and an incubator management organization that can equip facilities, hire, train, and support managers, as well as ensure client service requirements are met.
most difficult to evaluate because the entrepreneurs are located off-site and may be remote to the incubator office. In order for an incubator manager to have sufficient idea of the actual progress of the clients he/she will be forced to visit them regularly and schedule formal meetings to discuss their progress. This form of incubation removes from the equation the daily informal contact that many incubator managers use to understand how the client manages his business. Formal meetings are less insightful and may dilute the manager’s efforts to truly assist the tenant.

**Hybrid Model**

The model chosen for the sustainable, replicable ICT incubator is a hybrid of the foregoing, tying together the elements considered most likely to achieve success in a commercial setting. It is assumed the incubator would have a purpose-built facility of 1,500 to 2,000 square meters, serving 25-30 companies. (The renovation of a redundant building owned by the government could also be considered if the property was available, met the construction company’s requirements for space, and the business model was feasible.) There should also be a virtual element to the operation for “pre-incubation” of companies seeking admission to the incubator.

An agreement should be developed that would integrate three key elements:

- **The skills, experience and funding of the IFC;**
- **The ability of a major construction firm skilled in developing technology parks; and,**
- **The services of an incubator management organization capable of selecting, hiring and training staff, and providing oversight management of the group of incubators.**

These three organizations would comprise an ICT incubator development compact that would conduct the roll-out of 25-30 ICT incubators in selected countries in sub-Saharan Africa and elsewhere.

In order to achieve a successful business operation, the incubator must continue to support graduate companies that do not have adequate expansion space to move to, that will benefit from continued access to the incubator’s network. The following are financial aspects of the incubator business model:

- **The incubator will serve ICT and ICT-related businesses.**
- **It will charge rent for space and additional fees for services provided such as mentors, coaches, technical training, and Business Development Services (BDS).**
- **The incubator will require funding to meet certain soft costs as part of its start-up activities.**
- **Credit access for incubation stage companies would be developed with a cooperating regional bank or consortium of banks.**
- **Longer term funding for business expansion would be available through the various resources of IFC.**

The incubator will operate with a minimum staff as described below and outsource services including accounting, marketing, consulting, coaching, and legal services. With respect to other expenses, the following should be noted:

- **Communications costs reflect broadband connectivity by the most economical means.**
- **The incubator will market its services as described later in this business case, but it is anticipated that costs of marketing will decrease as brand equity in the incubator’s service area grows.**
The incubator will accomplish its mission by delivering high quality services that accelerate the growth of the tenants and virtual tenants (i.e., the value proposition). Success will be measured by the numbers of graduates, employment created, year-on-year aggregate growth of revenues of the tenants, and similar measures reflecting economic impact.

**Post Graduate Facilities a Key Element**

The model developed in this study is somewhat different from others in the incubator industry in that it recognizes the need for space for graduate companies. It was observed during the study that in some locations, graduations are infrequent due to the lack of facilities to which the graduate companies can migrate after graduation. Companies that are ready to leave the incubator may still require some assistance, benefit from the training and most importantly, utilize the *brand equity* built by the incubator to smooth their entry into the business community.

The imprimatur of the incubator provides them credibility, and access to the incubator’s network. These valuable enhancements encourage the graduating company to retain its relationship with the incubator and result in a value proposition that can be monetized by the incubator as a revenue source. Thus, the income statement exhibits a royalty payment to the incubator by graduating companies (5% of revenues for three years after graduation).

**Staffing**

Selecting and hiring the management of the incubator should be a primary responsibility of the organizing committee/founding Board of Directors. The core competencies of the management team will be in providing a secure, stable environment in which businesses can grow, and in training tenants and virtual tenants in business management, finance and technical skills. Each incubator in the network will have a core staff comprised of an Executive Director, Manager, Operations Manager, and Administrative Assistant. Additional staff members (e.g., an IT services Director) might be added as demand and the incubator’s ability to pay require, and it is assumed that CFO services are out-sourced (shown as service providers in the Income Statement). Each position is addressed briefly below.

**Executive Director.** Business experience should be primary in the background of the individual selected as the Executive Director. This could be further defined to include experience in ICT, and in the financing or management of SMEs. Ideally, the Executive Director is the “outside” person who would interact with the public, stakeholders, and sponsors, as well as the primary recruiter of new companies through participation in networking, conferences, and similar kinds of opportunities. With the development of a regional structure, incubators would have upward mobility to manage at the regional level.
Manager. The Manager may be considered an Executive Director-in-training, or may have specific responsibilities such as organizing training programs, assessing the progress of the tenants, hiring service providers, or overseeing the finances of the organization. He/she should also have some business experience and be competent in at least two of the primary tasks of the Executive Director. The Manager is the “inside” person who has the most day-to-day contact with the client companies.

Operations Manager. While the Executive Director and the Manager will have marketing and financing duties, the Operations Manager will be responsible for attending to tenant and virtual tenant needs. He/she will ensure that service providers are competent and supporting the tenants adequately. This person should also oversee the facilities and ensure they are being properly maintained. The Operations Manager should ensure that all tenants have broadband connectivity and be responsible for providing network administration support. In the first few years of operation this person could act as network administrator for the facility – with proper training.

IT Manager. A successful ICT incubator will require network management services and the ability of the incubator to rapidly assist clients in accessing telecommunications of all kinds, but particularly the Internet. It may be that a dedicated IT Manager will not be required until the incubator has begun to grow, and thus this position is shown as a growth position to be filled in the future.

Manager of Post Graduate Services. This person would be hired in Year 3 (or 4) as the requirements for post graduate services become clear. It is possible that these duties could be covered by the Operations Manager for the first year of post graduate operations.

Administrative Assistant. The Administrative Assistant will ensure that all administrative matters such as applications for admission to the program, notices to tenants, execution of leases, filing and secretarial support for the other management team members, and reception activities are carried out.

Board of Directors. Each incubator would have a Board of Directors, comprised of stakeholders and others whose experience or position impact on the incubator’s funding or operations. This might include public and private sector individuals, service providers, and capital providers. At a minimum, the management organization, the regional partner bank, a high level economic development official of the region, a successful entrepreneur, and a representative of the IFC should be members. A separate Board of Advisors who would assist the management team in helping the clients could also be considered.

An organization chart illustrating the reporting relationships described above appears below. Note that the initial management team positions are shaded in yellow. Those with consultative relationships are shown with dotted-line reporting to the Executive Director.
**Business Operations**

The following remarks illustrate how each sustainable, replicable ICT incubator will operate by following the progress of a tenant through the incubation program.

**Admission to the Incubator.** This process will begin when the prospective tenant applies for admission to the program. A process for evaluating the level of development of the company and the entrepreneur’s skills will already be in place. If the company does not meet certain criteria (e.g., have about a year of operating history, be cash flow positive, and have experienced management) the entrepreneur might be encouraged to join the organization for “pre-incubation” in the Virtual Program wherein the Operations Manager (or other designated individual) will work with the company to help it achieve the required level of sales and experience. When determined to be ready for admission to the program (through interviews and a review of its business plan) the incubator management will negotiate a lease with the company and admit it to the program.

**Entrepreneur Business Skills Analysis.** The next step will be to ensure the company has operating funds for some minimal period of time (perhaps six months) during which time the management of the incubator will put together a training program and set mutually agreed upon milestones for the company to achieve in its first 6-12 months as part of the incubation program. The required training might be of a business nature, or could be technical training to be provided in some aspect of ICT business operation that will help accelerate the growth of the company rapidly. The needs of the company will be addressed by an appropriate member of the incubator staff who can perform a gap analysis and determine what training should be provided. If the company management is not at a skill level where it can be effectively incubated, it may be asked to join the “pre-incubator” organization where the company receives training and is brought to a level where it may benefit from the incubator’s efforts.

Another aspect of the initial operating period will be to evaluate the entrepreneur’s skills and determine if he/she requires additional technical or business training that will propel the company forward and help achieve its business goals.

**Training to Compete Effectively.** During its planned three years in the incubator the company’s management team will be exposed to various training and contracting opportunities. At a point where the entrepreneur and the incubator management agree that the company is ready, it will be graduated and expected to move from the incubator to another facility. This may result in relocation to a graduate facility, or to another floor in the same building. The result should be the same, however, as the company will continue to take advantage of the incubator’s network and ability to open doors through its relationship as a graduate of the incubator. Another aspect of training will be the ability of the incubator (as is the case with SmartXchange in Durban, ZA) to attract larger corporate sponsors who have a vested interest in the success of the program in producing stable Value-added Re-sellers (VARs) networking, programming and similar kinds of service companies. Their ability to train their prospective contractors should be fully exploited by the incubator. Enlisting the “system wide” support of a large corporation such as Cisco or Microsoft should be considered part of the overall approach to rolling out the group of ICT incubators.

**Marketing.** In the study, it became apparent that with most of the observed ICT incubators, the branding was an important aspect of the program. Companies benefit significantly in being able to project themselves as part of something larger than two or three persons. Hence, the incubator brand projects an image of many strengths and capabilities is a very important part of the incubator value proposition. Graduating companies will remain part of the incubator
organization due to its ability to help them find customers through a comprehensive marketing and advertising program. As the incubator builds market share the investment in marketing may be less than projected and require fewer financial resources. A second aspect of the marketing of the incubator having a relationship with a large corporation is in the ability of the large corporation to assist in the advertising by officially endorsing the program. That one action would be likely to stimulate the recruiting effort and also encourage mid-sized companies to participate. The presence of Microsoft, Cisco, etc., can establish the cluster in very short order.

Financing Client Companies. Financing for the client companies is critical and must be made available for both short and long term needs. It is assumed throughout this business case that financing for the clients will be available through the establishment of a credit facility with a partner bank, and potentially the availability of equity financing through a venture fund. The report describes models of both funds in detail (i.e., working capital and investment).

Financing Client Companies
- Admission Process
- Business Skills Analysis
- Training
- Marketing
- Financing
- Graduation
- Payment of Royalties

Graduation and Relocation. Incubation clients benefit significantly from their association with the incubator. After the company graduates it will be required to repay the incubator for the value received during its period in the program by contributing a portion of its annual gross revenues to the incubator. This will help the incubator achieve sustainability, and also pay down the debt that may exist for the real estate, equipment, or training programs offered. As companies begin to mature, the need for graduation space to house them will become apparent. The graduate facility (possibly a separate floor in a large building, or a separate building in a technopark complex) would be part of the overall program and integral to the success and continued growth of the incubator’s clients.

Royalty Payments. A key element to the financial sustainability of the incubator implicit in this model is that client companies will pay a small percentage of their annual revenues to the Incubator for a period of three years after graduation. The financial projection assumes this amount to be about 5% of their gross annual revenues and can be considered fair compensation for the services the incubator provides the client companies.

Financial Operations
Each incubator described in this case should operate on a budget of about $500,000 to $700,000 USD per year. This amount should be sufficient to pay the staff, provide training and education for the tenants, and market the incubator’s attributes to a point where other companies will want to participate. The projected income statement that appears later in this document estimates the revenues and expenses the incubator is expected to encounter.

Soft costs associated with start-up that would require additional grant or debt financing, and in the first several years, the incubator would probably operate at a deficit. More important is that the incubator’s clients will require financing in order to expand. A venture fund could be established to support this requirement, and it is described in the main report. In brief, it envisions a process for identifying a venture fund that would take down debt from IFC in order to increase the size of their own fund, but would also be required to invest a significant portion of the additional funds in companies that are tenants or graduates of the incubators in the system. There are other ways to address this need, such as developing an organized angel fund, enlisting private wealthy individuals to invest in the individual companies, etc.
## Incubator Franchise Income Statement

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<td></td>
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<th>Expenses</th>
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<td>$50,000</td>
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<td>Totals:</td>
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<table>
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<th>Net Income:</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>Purchase Incubator Franchise</td>
<td>-$291,620</td>
<td>-$136,832</td>
<td>-$102,276</td>
<td>-$46,322</td>
<td>$17,979</td>
<td>$61,220</td>
<td>$56,589</td>
<td>$103,099</td>
<td>$95,157</td>
<td>$87,656</td>
</tr>
<tr>
<td>Incubator Cash Flow</td>
<td>-$291,620</td>
<td>-$136,832</td>
<td>-$102,276</td>
<td>-$46,322</td>
<td>$17,979</td>
<td>$61,220</td>
<td>$56,589</td>
<td>$103,099</td>
<td>$95,157</td>
<td>$89,099</td>
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<tr>
<td>Soft Cost Support Req’d.</td>
<td>$291,620</td>
<td>$136,832</td>
<td>$102,276</td>
<td>$46,322</td>
<td>$0</td>
<td>$0</td>
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</table>
Total Costs for each facility will approximate $1.5 million. The table shown below incorporates the soft costs estimated in the spreadsheet above as well as a number of capital costs that would normally appear on the Balance Sheet. For example, the costs of building fit-out, furniture and equipment, and cabling and telecommunications equipment is a significant cost item that should be capitalized. The feasibility study is a one-time expense that should be capitalized. Management support would be an on-going requirement for the first ten years of operation.

<table>
<thead>
<tr>
<th>Total Estimated Costsper Incubator</th>
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</thead>
<tbody>
<tr>
<td>Incubator Operations (per spreadsheet)</td>
<td>$400,000</td>
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<tr>
<td>Management Support for ten years @ $50K/yr.</td>
<td>$500,000</td>
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<tr>
<td>Support travel &amp; per diem for ten years @ $15K/yr.</td>
<td>$150,000</td>
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<tr>
<td>Feasibility Study</td>
<td>$75,000</td>
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<tr>
<td>Fit-out of building</td>
<td>$250,000</td>
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<tr>
<td>Cabling and Telecomm.</td>
<td>$35,000</td>
</tr>
<tr>
<td>Total:</td>
<td>$1,410,000</td>
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</table>

Notes:
1. Rents are charged monthly, as a beginning rate of $15/sqm/month.
2. Inflation rate is constant throughout this projection at 3%.
3. Royalties are charged all graduates at 5% of gross revenues for a period of three years following graduation.
4. Personnel costs include the salaries of Executive Director, Manager, Director of Operations, and Admin. Assistant. A Director of Post Graduate Services would be hired in Year 3.
5. Benefits include a mandatory employer contribution of 15% of salaries.
6. Service providers are those who provide legal, accounting, business coaching, and consulting services.
Critical Risks

Each incubator will face certain critical risks that must be considered in its development. Among them are the following key factors that must be given due consideration:

**Location.** The incubator will not serve anyone’s interests if it is unable to eventually achieve breakeven financial operation. As in any real estate transaction, given a choice between a desirable but unaffordable location in the central business district and a less attractive but sustainable location on a university campus there will be choices to make that have financial consequences.

**Tenant Selection.** The incubator must focus on ICT companies, but not exclude companies that can contribute to its bottom line by providing a service or product that will further the cause of incubation and assist the facility in achieving the brand equity that it will require in order to be successful.

**Management.** Incubator Executive Directors are entrepreneurs themselves. It cannot be stressed often enough that properly trained management is a key success factor, and only management candidates who are able to deal with the stress of a new business should be selected.

**Adequate financing** is a requirement. The incubator is a new company itself, and it will require sufficient financing to accomplish its objectives. It must be recognized that the integration of the venture capital and loan funds with the incubator operating plan are keys to incubator success.

**Marketing the incubator to entrepreneurs.** As the incubator builds brand equity; it will also attract successful entrepreneurs to take advantage of the support services.

**Graduate facilities.** To be successful and sustainable, the development and use of graduate facilities is a necessity. These facilities help the incubator companies retain their identity and association with a successful program. They will be more likely to continue to support incubation if they are in some way affiliated with the program. The use of the graduate space is one means of retaining their interest and involvement. It is often recognized that graduate space should be part of the planning process. In this model, it is an integral part. The locations under consideration usually have very little available office space ready to serve tenant companies poised for rapid growth. In order to make this model work well, consideration of a graduate building must be included in the planning. The idea is to create a community of ICT companies with the opportunity for graduating firms to locate in the vicinity of the incubator and remain part of that community. The firms will be strengthened, and can become the nucleus of a potential technology park that would receive incubator graduates as new tenants.
The Roll-out

Incubators have previously been developed on the basis of single transactions that are time-consuming, labor intensive and expensive to create. Organizations such as infoDev have some of the tools, and strive to create more, yet the process and resources to establish more than one incubator at a time do not appear to be in place. This results in inefficiency and added expense. In contrast, this project envisions the establishment of a group of incubators. The objective would be to provide a framework that would support development of the incubators by providing financing, management assistance, and an overall process for establishing each incubator as part of a system rather than an individual activity, frequently ill-supported and often undercapitalized such that failure is a likely outcome. In this sustainable, replicable model, the incubator becomes one of many in a well-supported organization that provides management support and training, selection processes, and operations procedures that will add stability and ensure its survival. The network will be more efficient, will institute a set of standards and reporting procedures that will allow progress to be measured, and ensure that there is a means of scaling the system across multiple locations.

The timetables shown below illustrate a development plan for both a single incubation facility and a roll-out of thirty facilities over a five year period. Financing for the larger roll-out is estimated at about $50 million. A rough budget for the overall program is attached.

Timetable

The development of a timetable that illustrates the incubator’s development from inception to operation is useful in understanding the timing of key events in the design and financing of a facility.

Planning for each incubator must begin at least a year before the facility will open. Key tasks include a feasibility study that brings closure to the open issues raised in this model. For example: selection of a consultant to conduct the feasibility study and manage the project, identification of the location, selection of the management team, confirmation of the level of participation by the host government (or possibly the university) a census of ICT companies that could be potential tenants, and confirmation of the availability of broadband Internet services (and ISPs).

Other issues to be resolved:

- **A feasibility must be conducted** at each location. Although included in the overall estimate, this model does not attempt to provide any sense of the local market at each site, and it should be incumbent on the sponsors to ensure that adequate numbers of potential tenants exist. This might be confirmed through the individual country’s Ministry of Industry or ICT, etc., or other similar organization that registers corporations; or by survey; or through focus groups where a consultant can gain first hand information on the market for ICT services and the kinds of companies that are available to meet the market’s needs.

- **A Request For Proposal for the investment fund must be developed and circulated.** Given the amount of money involved, this should include another brief round of interviews with potential responders to ensure there is sufficient interest to guarantee qualified responses.

…a new asset class for IFC. The concept is that in order to achieve efficiencies of scale and provide proper oversight, IFC would invest in 25-30 ICT incubators across Africa and other selected venues.
• **Identification of a “champion”** for the project within the host government or private sector – this is someone who will take responsibility for the project as representative of the host country and ensure that sponsors are educated and committed to supporting the incubator.

• **Partner banks to be selected by IFC.** This is a critical step because much of the due diligence and support for the loan fund will be provided by the local partners.

• Once a site is selected a **firm budget for construction or renovations** must be developed and a project plan put forward by the host country.

• As the project progresses, a group of **mentors, counselors, and BDS providers should be selected and (if necessary) trained** to ensure high quality in the provision of their expertise.

Upon conclusion of these steps, the incubation project can proceed per the timetable shown in the next section.
### Key Events in the Development of the Incubator

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yr. 1</th>
<th>Yr. 2</th>
<th>Yr. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish Organizing Committee</td>
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<tr>
<td>Select Consultant</td>
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<tr>
<td>Conduct Feasibility Study</td>
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<tr>
<td>Determine Market Demand</td>
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<tr>
<td>Develop Business / Operating Plan</td>
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<td></td>
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<tr>
<td>Site Selection</td>
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<tr>
<td>Acquire Property</td>
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<td></td>
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<tr>
<td>Management Team in place</td>
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<tr>
<td>Marketing / Advertising</td>
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<tr>
<td>Recruiting Tenants</td>
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<tr>
<td>Admissions Committee established</td>
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<td>Training Program Development</td>
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<td></td>
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<tr>
<td>Accept Applications</td>
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<tr>
<td>Admit Tenant ICT Companies</td>
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<tr>
<td>Bus. Skills Assessment (Gap Analysis)</td>
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<tr>
<td>Deliver Bus. Skills Training</td>
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<tr>
<td>Management Reviews</td>
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<td>Investment Fund Formation / Raise</td>
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<td>Due Diligence</td>
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<tr>
<td>First Round of Investments</td>
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<tr>
<td>Raise Working Capital Fund</td>
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<tr>
<td>Make Working Capital Fund Loans</td>
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<tr>
<td>Building Construction / Renovation</td>
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<tr>
<td>Acquire Furniture and Equipment</td>
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<tr>
<td>Manager Training / Audit / Follow-up</td>
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## Roll-out Schedule – Years 1-5

<table>
<thead>
<tr>
<th>Activity</th>
<th>Year 1</th>
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<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
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<tr>
<td>Engage Consultants</td>
<td>Prtnrs. Agrmt.</td>
<td>Rev./Update</td>
<td>Rev./Update</td>
<td>Rev./Update</td>
<td>Review</td>
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<tr>
<td>Develop Feasibility Study Criteria</td>
<td>Dev. Opg.</td>
<td>Rev./Update</td>
<td>Rev./Update</td>
<td>Rev./Update</td>
<td>Review</td>
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<tr>
<td>Develop Operating Criteria</td>
<td>Dev. Opg.</td>
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<td>Rev./Update</td>
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<td>Institute Manager Training Program</td>
<td>Dev. Opg.</td>
<td>Rev./Update</td>
<td>Rev./Update</td>
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Sustainable and Replicable ICT Incubator for Sub-Saharan Africa: Network Development Report

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<tr>
<th>Activity</th>
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<th>Year 5</th>
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<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
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<td>Review Results of Studies</td>
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<tr>
<td>Negotiate Real Estate for Sites 5&amp;6</td>
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<tr>
<td>Construct Incubator Building</td>
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<tr>
<td>Develop Business Plans for Sites 5&amp;6</td>
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<tr>
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<tr>
<td>Conduct Feasibility Studies 7&amp;8</td>
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<tr>
<td>Review Results of Studies</td>
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<tr>
<td>Negotiate Real Estate for Sites 7&amp;8</td>
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<tr>
<td>Construct Incubator Building</td>
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<tr>
<td>Hire and Train Mgmt., Sites 7&amp;8</td>
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<tr>
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<tr>
<td>Negotiate Real Estate for Sites 9&amp;10</td>
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<tr>
<td>Construct Incubator Building</td>
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<tr>
<td>Develop Business Plans for Sites 9&amp;10</td>
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<tr>
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<tr>
<td>Conduct Management Review, Sites 9&amp;10</td>
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</table>
Roll-out Assumptions

The following assumptions are germane to the roll-out example shown above:

1. The roll-out is phased activity, occurring over a period of 8-10 years. This is due to the fact that even though an incubator may be approved for an area, each one will still require at least a brief feasibility study that takes into account the local conditions affecting the outcome. Once a procedure for conducting the studies is approved, these may turn out to be quite short, requiring only a visit from the consultants to discuss local support, assess the market, and meet with potential partners. The process could be completed in 60-90 days.

2. There would be at least 3 - 4 teams of consultants conducting the studies and working closely with IFC, the construction company and any other partners to ensure a “checklist” of items was covered.

3. This process might be overseen by a monthly operations report with a project dashboard describing progress in completing feasibility studies, administration of training, identification and acquisition of real estate, construction, agreements with local bank partners, and business planning for each incubator in the system.

4. Concurrent with the incubator development process would be to put in place a management system that would oversee the start-up and operations of the individual incubators.
Summary

The model described in this business case demonstrates how a system of ICT incubators could serve companies in the selected countries by providing rental space, services, training, and referrals to capital providers. This model offers developing companies the opportunity to take advantage of amenities and services that make the incubation program an important element in the infrastructure.

Some key elements in the program are as follows:

- The plan would develop a network instead of a single incubator.
- The network would provide common business practices, methods, procedures, oversight and reporting for all the incubators in the network.
- The network achieves efficiency of scale through commonality of operations.
- The post graduate facility meets the needs of emerging companies.
- The incubation program described will be new construction or a renovated facility in a building provided by the public sector.
- The incubator will serve a mix of on-site entrepreneurs and virtual tenants (in a ratio of about 4:1).
- Ideally, it will be about 2,000 square meters in size, have ready access to utilities, and a broadband connection.
- A relationship with the local technology university will make the incubator attractive to local entrepreneurs due to the availability of faculty consultants and entrepreneurs, students, and intellectual property (if a university is a stakeholder). In addition, it is anticipated that faculty may represent a significant proportion of trainers for technical certifications.
- Each incubator will provide both short term debt, and longer term equity financing for companies that are near the end of their tenure in the facility, or those that have achieved critical mass and graduated and are ready for expansion financing.
- Marketing of the companies should be provided by the incubator organization in an effort to build brand equity.
- Large corporate sponsors should be actively recruited to be sponsors (potentially even anchor tenants) of the facility.
- Training in business management and technical certifications will be a significant element in the overall outreach of the incubator.
- Hiring a well-trained manager with business experience who can easily adapt to the incubator model and provide the support the entrepreneurs require will be one of the more difficult steps in the process and should be addressed early in the planning.
- Training and support for the management team of each incubator would be accomplished by an oversight organization that manages the incubator effort either as a contractor to IFC and/or infoDev or as a development partner in the effort.
- The financing scheme described in the Report is a critical element that will make a significant departure from previous incubation models.
- The ability of the entrepreneurs to move to graduate space after leaving the incubator while retaining their relationship with the incubator’s network sets it apart as well.

The integration of financing and marketing with training will prove to be a resource ICT entrepreneurs cannot ignore. With the partnership of national government, IFC and infoDev, this model is considered both manageable and scaleable.
Why This Model is Different

The approach described in this document is decidedly different from other incubation programs in a number of respects. The concept is the result of reviewing a significant group of ICT incubators, observing their business models, cataloguing their strengths. The result of that investigation is an ICT incubator model that is flexible, yet requires that the incubators meet standards of operational excellence. Several points should be clear from the foregoing description:

- The model proposed is very similar to a franchise. Incubators could be locally owned and operated with national (or regional) management to assist – described below.

- The document envisions the roll-out of a network of incubators, not the development of a series of individual incubators with independent managements, board of directors, advisors, etc. The incubators would be networked and enjoy the benefits of hands-on management help from experienced incubator professionals.

- Each incubator will operate as a separate entity, but with management support, and guidance from an overarching organization that will assist in recruiting, training, and marketing the incubators.

- Implicit in the use of a management organization is the use of standards (e.g., a common procedures manual, standardized training of managers and clients, use of IT networking tools, etc. that could be contemplated to tie together the various elements in the network).

No one (to our knowledge) has ever developed a network of incubators that would have to meet a uniform set of standards, make regular reports to a management organization and in return receive support in solving management problems, conducting professional business skills training, and obtaining referrals to sources of technical assistance and finance.

Investment End Game

The investment could be cashed out profitably through a management buy-out, acquisition by a larger company, or even a public offering on one of the emerging stock exchanges on the African continent.
Next Steps
The Next Steps for this project are as follows:

1. This document must be expanded and revised to become a detailed business plan.
2. Funds must be committed to the project in order to begin operations.
3. Partner organizations to undertake construction, banking services, and incubator project management services must be recruited.
4. The target locations for ICT incubators must be identified with the recognition that the first incubator established for each region will be a hub for the others and expansion will occur as the hub incubator grows.
5. Feasibility studies for each location will be required in order to make adjustments to the model to account for local conditions not taken into account in this concept document.
6. Initial operation of 2-3 incubators should be considered as a pilot in order to ensure the model is operating correctly so that roll-out of an additional 25-28 incubators can occur.
7. A management team to conduct this roll-out should be identified and put in place.
8. Based on the results of the pilot operation described above, the Timeline should be adjusted to provide a more specific roll-out schedule.
Annex 3

Slide Presentation

On April 29, 2009, the following slides were presented to representatives of infoDev and the IFC. The slides are also available as a PowerPoint file.
Why Business Incubation?

Successful economic development tool in the US, and other developed countries.

- No. of incubators in US ~ 1,000
- No. of incubators worldwide, ~ 7,000
- NBIA membership growth > 10% each year
- 35% of NBIA incubators have begun operations since 2003
- 74% of incubators in UKBI have begun operations since 2000.
Slide 3

Can Incubation be Profitable?

Private Sector Incubators:

• Viasphere – Yerevan
• Rose Tech Ventures – New York
• Raizcorp – Johannesburg
• Idealab – Pasadena

SmartXchange – a technology incubator in Durban, ZA, 5 years old.
• Owned by the City of Durban
• Two buildings, two floors of incubation space, four more of commercial rentals – ideal for graduate companies.
• City subsidizes but the model is trending toward financial sustainability.

Slide 4

ICT Incubator Mission Statement

• Safe, stable and secure place to start and grow ICT companies.
• Create employment in both ICT and other markets.
• Promote development through training and education.
• Strong management and leadership.
• Access to equipment required by the client companies.
• Focal point of entrepreneurial activity; networking; access to the business community and potential partners.
• Referrals to sources of capital.

Slide 5

Key Success Factors

• Scalable incubator model
• Real estate is major cost driver
• Sustainability achieved by: rents, fees, equity, etc.
• Companies need both working capital and expansion financing
• Corporate sponsors important
• Brand Identity = Efficient market reach
• Public and private sectors must be engaged
• Post-Graduate support required (marketing, sales, accounting, legal, networking, other)
• Franchise model
Slide 6

Parameters of Model Incubator

- Management Staff = 3 to 6
- 20-30 tenants
- 2,000 sq. meters
- 7-10 years to sustainability
- Tenants stay about 3 years
- Financed by public sector and partners
- Post Graduate facility integral to the program

Slide 7

Sustainable Incubator Growth

Investment Sources

Co-op Bank

Parent System

Incubator

Post Graduate Condominium

Graduate Company

Graduate Company

Client

Client

Graduate Company

Local Business Community

Graduate Company

Investment Sources

Post Graduate Condominium

Graduate Company

Graduate Company

Local Business Community

Slide 8

Economic Impact

How to Measure Success of Incubator

Measurement of economic impact reflects:
- Employment created / value
- No’s. of client company contracts (Year-on-Year growth of sales)
- Aggregate client company annual turnover
- Aggregate financing raised by clients
- Post Graduation, Year-on-Year annual turnover growth
Slide 9

**Estimated Impact of the Roll-out**

Ten year roll-out:
After five years (22 incubators):
- Tot. Investment = $45M
- Tot. SME’s supported = 175
- Tot. jobs created = 1,970 @ $23K/job

After ten years (30 incubators):
- Tot. Investment = $45M
- Tot. SME’s supported = 475
- Tot. jobs created = 12,060 @ $3.7K/job

IRR= 11% on Operations of each incubator

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Slide 10

**Value of Project to IFC**

- Model creates 475 growth-oriented SME’s leveraging ICT
- Each SME requires:
  - Additional financing for expansion
  - Financing during incubation working capital
  - Technical assistance

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Slide 11

**The Exit Strategy**

Three scenarios for IFC to exit:
- Leveraged buy-out by the incubator management company
- Sell the management company to a large operating company to repay the investment
- IFC takes an equity position and/or assists in taking the company to public market.
Slide 12

**Oversight Organization**

- IFC & infoDev
- Construction Company
- Partner Bank(s)
- Incubator Mgmt. Co.
- Regional Mgr. (Southern Africa)
- Incubator AN #1
- Incubator AN #2
- Incubator TZ #1
- Incubator TZ #2
- Incubator TZ #3
- Incubator UG #2
- Incubator UG #3

Slide 13

**The Model in Summary**

- Management standards and reporting
- Incorporate technical assistance to client businesses
- Integrated oversight of program
- Post-Grad Facilities are essential
- 2-Year pilot with rapid expansion
- Requires “patient” financing (up to 7-10 years)
- Close ties to an investment fund

Slide 14

**Next Steps**

- Develop a comprehensive business plan.
  - Determine target locations and conduct feasibility studies.
  - Select the development team.
  - Initiate Pilot operation.
  - Adjust the Timeline to fit the results of the pilot.
- Execute the Business Plan
Slide 15

Q&A

Innovative Partners, Inc.
Tel: +908-789-3424
E-mail: jeffm@innovativepartners.com
Web: www.innovativepartners.com

Slide 16

Timeline for Pilot Operation*

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* Presumes a completed business plan.

Slide 17

Sustainable Incubator Environment

Goods and services flow between incubator, tenants, and other members of the business community.

Investment Sources: banks, VC, angels, gov't.

Attorneys
ISPs
Consultants
Regulators
Accountants
Telcos
Local Business Community
Annex 4

ICT Incubator Team Biographies
Biographies of the Consultant Team

Below are the biographies of the members of the consulting team engaged in this project:

Jeffrey C. Milanette, Team Leader

Jeff Milanette has over 20 years of business and business incubation experience in management, and consulting including several technology business startups, a turnaround, and successful commercialization of software technology through a university spin-off. For several years, Jeff trained Russian technology entrepreneurs in preparation for participating in the Russian Venture Fair and Forum, a skill he developed as President of the New Jersey Entrepreneurs Forum. Founder and first manager of the Rutgers Business Innovation Center, Jeff has also been the lead or support consultant on more than 35 business incubation projects. In 2006-2007, Jeff served on a consulting team engaged by the European Bank for Reconstruction and Development evaluating potential ICT incubators to be established in several countries in the Former Soviet Union, and has provided consulting services to technology entrepreneurs on behalf of the US Civilian Research and Development Foundation. Since 2005, Jeff has served on the US-Russia Innovation Council on High Technology, a bilateral organization fostering the development of innovative activities between the two countries. Jeff has an MBA in finance from George Washington University, and a BS from the US Naval Academy.

Ingrid Rosten, Senior Consultant

Ingrid Rosten is Executive Director of CleanStart (clean energy technology) and MTI (technology) incubators in the Capital Corridor Region of California. She is Senior Consultant to Innovative Partners, Inc. (IPI) providing Governments, Universities, private industry and non-profit organizations feasibility studies, development, management and training developers and staff of incubators and incubation programs. In 1995 Ms. Rosten was Co-founder and Managing Director of the first International Business Incubator (IBI) in Silicon Valley for which she receives global recognition. IBI helped establish 603 companies, created over 2,500 jobs and received over 25,000 visiting delegates. Ms. Rosten provided training programs on incubation, the Vice President and team from El Salvador. In the latter years she spent time supporting the development of foreign government incubators/centers (10). Prior to the creation of IBI, Ms. Rosten was a key member of the team that created international business and engineering exchange programs for Hewlett Packard. As a member of the National Business Incubation Association (NBIA) and Science Parks Innovation Center Experts Group (SPICE), Ms. Rosten continues to expand her connections and knowledge.

Dr. Paul Ross, Senior Consultant

Paul Ross is an accomplished inventor, manager, and entrepreneur. He holds five patents and was Principal Founder and Director of several technology companies while serving as a general manager of an authentication system business for Lucent Technologies. A research psychologist by training, Dr. Ross is the inventor of several security-related systems and wireless telephony devices including a unique finger-imaging sensor chip using capacitance. He has extensive experience in organizational psychology and consulting with early stage companies, and has led systems engineering teams on major development projects for the DOD and for and commercial computer and communications systems. He serves as a member of the Board of Directors and as Chief Technology Officer to AuthX, Inc. A member of the Venture
Association of New Jersey, Dr. Ross holds BA and MS degrees from City College of New York and earned his Ph.D. at Fordham University.

Evan Jones, Senior Consultant

Originally an independent sector Television Producer, Evan Jones launched a multimedia company in the early 90’s and his first web company in 1996. Following a spell with a Canadian telecommunications company developing new Internet products, he was part of the management buyout team that successfully spun the division out into a significant new company operating in the Internet & mobile telecommunication fields. Originally a for-profit incubator Manager Evan now runs two incubators in South Wales and mentors a number of others. Passionate about early-stage companies and a regular international speaker on entrepreneurship and business incubation Evan is a Board member of the American National Business Incubation Association.

Karla S. Milanette, Chief Financial Officer

Karla has more than 20 years of financial management, consulting and supervisory experience. From employment and training program design to incubator market research, she has provided planning expertise to public and private organizations. Her background in finance is well-founded, closing major deals in commercial and residential real estate, and authoring business plans and marketing strategies. For the past 15 years, she has provided operational and financial management as business administrator for a large K-12 school district in New Jersey, responsible for a $110 million operating budget, maintenance of more than a million sq. ft. of real property, a multi-million dollar investment portfolio, and payroll for 800 faculty and staff. Karla earned an MBA in finance from Rutgers University, and undergraduate degree in education from the University of Nebraska.
About infoDev

infoDev is a research, capacity building and advisory service organization that seeks to help developing countries and their international partners use information and communication broadly and effectively as tools of poverty reduction and sustainable economic growth. infoDev is a partnership of international development organizations and other partners, facilitated by a secretariat at the Global Information and Communication Technologies (GICT) Department of the World Bank Group.

infoDev has a global innovation and entrepreneurship network consisting of over 270 business incubators in more than 80 developing countries dedicated to supporting the growth of sustainable small and medium sized enterprises. Business incubators nurture start-up enterprises by providing a common environment for entrepreneurs where they have access to shared infrastructure, coaching, business and financial services, and linkages with domestic and international markets. infoDev’s Network has effectively assisted more than 20,000 enterprises which have directly created over 220,000 jobs.

infoDev is proudly sponsor and funded in part by the following donors: Brazil, EU Commission, Finland, Germany, India, Korea, Switzerland, United Kingdom, and the World Bank Group.