Paving the way for ICT Growth through Business Incubation in Tanzania

An Outcome assessment of infoDev-supported Dar Teknohama Business Incubator in Tanzania
This Outcome Assessment was produced by the Center of Partnerships for Development (CAD) and commissioned by infoDev, a global partnership program with the World Bank. The report features an analysis of the outcomes generated by the Dar Teknohama Business Incubator (DTBi) in Tanzania, one of the projects under the Creating Sustainable Businesses in the Knowledge Economy (CSBKE) program, funded by the Government of Finland in partnership with Nokia.

This report was made possible thanks to the valuable contribution of DTBi’s management and staff as well as resident and virtual companies and startups, pre-incubatees, government agencies, donors, and other incubation centers and product users that were generous enough to participate in in-depth interviews and share quantitative and qualitative data on performance. Above all, the CAD Team would like to give a special thanks to George Mulamula, CEO of DTBi, Makange Mramba, DTBi’s Finance Director and Collin Gumbu, DTBi’s Business Development Manager, for their warm welcome and active support during the assessment and for their invaluable help, patience and guidance.

While conducting the assessment, the team was able to meet with a number of passionate and busy entrepreneurs eager to make a difference. We are highly indebted to them for their time and inspirational insights. We would also like to express our gratitude to the people who agreed to share their personal experiences in the use of products and services and to the organizations that shared their views on the Information Communications Technology (ICT) entrepreneurial ecosystem in Tanzania and the DTBi’s role in it.

About infoDev and CSBKE

infoDev, a global trust fund program in the World Bank Group, supports growth-oriented entrepreneurs through creative and path-breaking venture enablers. It assists entrepreneurs to secure appropriate early-stage financing; convening entrepreneurs, investors, policymakers, mentors, and other stakeholders for dialogue and action. Among other initiatives, infoDev implemented the Creating Sustainable Businesses in the Knowledge Economy (CSBKE) program, a trust fund established by the Government of Finland with the objective to increase the growth of small, innovative and technology-based business, primarily in the ICT and agribusiness sectors. The CSBKE program was designed as a public-private partnership between infoDev, Finland and the Nokia Corporation and covers the period from March 2010 to June 2014.

About CAD

CAD (Centre of Partnerships for Development) is a network of international experts specialized in international development, local economic development and public-private partnerships, with a focus on SMEs in developing countries, entrepreneurship, Base of the Pyramid and Monitoring and Evaluation tools and methods.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>6</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>10</td>
</tr>
<tr>
<td>2. SCOPE AND OBJECTIVES</td>
<td>12</td>
</tr>
<tr>
<td>3. CONTEXT AND INTERVENTION</td>
<td>14</td>
</tr>
<tr>
<td>3.1 THE CONTEXT: ICT AND ENTREPRENEURSHIP IN TANZANIA</td>
<td>14</td>
</tr>
<tr>
<td>3.2 THE INTERVENTION: DAR TEKNOHAMA BUSINESS INCUBATOR (DTBI)</td>
<td>17</td>
</tr>
<tr>
<td>4. ASSESSMENT OF OUTCOMES</td>
<td>22</td>
</tr>
<tr>
<td>4.1 ECONOMIC OUTCOMES AND DEVELOPMENT IMPACT OF PRODUCTS AND SERVICES</td>
<td>22</td>
</tr>
<tr>
<td>4.1.1 ECONOMIC OUTCOMES</td>
<td>22</td>
</tr>
<tr>
<td>4.1.2 DEVELOPMENT IMPACT OF INCUBATEES’ PRODUCTS AND SERVICES</td>
<td>28</td>
</tr>
<tr>
<td>4.2 INTERNATIONALIZATION SERVICE DEVELOPMENT AT ENABLERS</td>
<td>34</td>
</tr>
<tr>
<td>4.2.1 OUTCOMES ASSOCIATED TO THE EFFECTS AND INFLUENCE OF DTBI</td>
<td>35</td>
</tr>
<tr>
<td>4.2.2 BROADER EFFECTS OF DTBI ON THE WIDER ICT ENTREPRENEURIAL ECOSYSTEM</td>
<td>37</td>
</tr>
<tr>
<td>5. CONCLUSIONS</td>
<td>41</td>
</tr>
</tbody>
</table>
ANNEXES

Annex 1. Assessment methodology 43
Annex 2. List of people and organizations interviewed 45
Annex 3. Data on performance metrics by type of incubatee 46

Table 1. Factors affecting entrepreneurship in Tanzania 16
Table 2. The project 19
Table 3. Incubatees offering products with actual and potential impact 28
Table 4. Types of data and data collection methods 44

Figure 1. Doing Business Ranking 2014 15
Figure 2. DTBi’s client portfolio (October 2013) 20
Figure 3. Aggregate data on performance metrics by type of incubate 25
Figure 4. Population pyramid in Tanzania 38

Box 1. Glossary of key definitions 20
Box 2. Main features of the DTBi’s incubation program 21
Box 3. What is an Entrepreneurial Ecosystem? 34
Box 4. Pros and cons of hosting DTBi at COSTECH 36
Box 5. Facts: Increase in enrolment rates 39
infoDev has supported the startup and growth of business incubators in more than 70 countries for more than a decade. During this time, infoDev has garnered significant insights and lessons with regard to key success factors for business incubation and the various business models that can be pursued. Since most business incubators struggle with financial sustainability—they are dependent on some form of subsidization—infoDev set out to derive and test new business models to ensure a greater likelihood of financial sustainability.

In 2010, infoDev set out to pilot a royalty-based business model for new information and communication technologies (ICT) business incubators in Senegal and Tanzania. This was the first ICT business incubator to be launched in both respective countries. Implementation of the business incubator in Senegal was funded by the International Finance Corporation (IFC), whereas implementation of the business incubator in Tanzania was funded by the Ministry for Foreign Affairs of Finland.

Preceding the set-up of the two business incubators, infoDev conducted in-depth assessments for the needs, gaps, and feasibility—engaging a wide range of stakeholders representing entrepreneurs, industry, financiers, government entities, and academia. The draft service offering, governance structure, and business model was then designed, along with the requisite selection criteria and processes for identifying and selecting candidates for the business incubation process. At the implementation stage, a seed grant along with extensive technical assistance was provided to the local partner over a two-year period. In Senegal, the local stakeholders created a new non-profit organization, which became the local implementing partner. This new non-profit organization had strong support from both government and industry. In Tanzania, the Commission for Science and Technology (COSTECH) was selected as the local implementing partner, with the view that COSTECH would “incubate” the incubator, but then spin it out as an independent non-profit. A board was established with participation from the public and private sectors, as well as academia.

The outcomes of the initiatives in Senegal and Tanzania differ substantially. These variations can be attributed to the differences in the local market conditions as well as the very different approaches pursued by the local implementing partners. This report analyzes the outcomes and lessons learned from the implementation in Tanzania.

The overall goals of the assessment are to identify and analyze the outcomes generated by the Dar Teknohama Business Incubator (DTBi) in Tanzania nearly two years after its establishment and explain the drivers behind them. This is a very short timeframe to assess outcomes of a newly created organization and more specifically to see impact. Nevertheless, the analysis does provide insights into the trends to-date as well as some emerging lessons.

Outcomes

The Outcome Assessment presents two levels of analysis:

- The analysis of the influence of DTBi on the ICT entrepreneurial ecosystem. This level of analysis assesses two aspects: the difference DTBi made for the incubatees and the impact DTBi had on the ICT entrepreneurial ecosystem at large.
- The analysis of the economic and socioeconomic effects generated by DTBi client companies. This
level of analysis covers economic outcomes as well as the development impact of incubatees’ products and services.

In summary, the DTBi contributed substantially to policy development and advocacy, thus setting the groundwork for replication and promotion of both the incubation approach and the development of necessary and relevant ICT solutions. The current revision of the government’s ICT policy is taking into account the DTBi experience. The DTBi management played a role in advocating for the elimination of entry barriers for early-stage ICT entrepreneurs. COSTECH has been encouraged to replicate the model in the Agribusiness sector and the Ministry of Communication Science and Technology wants to replicate it at the regional level. Several of the enterprises incubated by DTBi have also launched products that have had, or are expected to have, substantial development impact. That being said, the observed business performance of the client enterprises (incubatees) is lower than projected. These outcomes are explored in further detail below.

**Immediate outcomes for the proximate entrepreneurial ecosystem**

The most significant outcome is that the DTBi has enabled incubatees to reach customers and access new markets that they were not otherwise able to tap into. Notably, DTBi made a difference by playing an important role in overcoming some of the barriers that impede small companies from accessing opportunities offered by the Government as a buyer of ICT solutions. Additionally, DTBi created an internal network of B2B linkages between the incubatees, which resulted in important cost-efficiency gains for incubatees. The outcomes of the DTBi operation for the first two years could have been higher if there had not been challenges in implementation, including a delay in the provision of strong business development support focused on improving incubatees’ performance during the first period.

**Broader effects of the DTBi on the wider ICT entrepreneurial ecosystem**

In less than three years the DTBi has made, and is making, several key contributions to the ecosystem at large. The incubator is directly involved in the review of the ICT policy in the country and it is playing an important advocacy role on issues affecting the entrepreneurial ecosystem at large — such as accepting intellectual property as collateral for loans and changing the rules for SMEs to participate in public tenders. Moreover, COSTECH has been asked to replicate the model in the Agribusiness sector and the Ministry of Communications, Science and Technology wants to replicate it at regional level. Additionally, DTBi played a key role in positioning the business incubation concept as a valuable tool to support entrepreneurship in the country.

**Economic outcomes**

The modeling infoDev carried out when designing the business model assumed that the starting revenue of the entrepreneurs would be at least USD20,000 per annum. It was estimated that about 80 percent of the companies would succeed. First year estimated growth rates were modeled as an average of 114 percent coming off a low base; the second year growth rate estimates were modeled at an average of 82 percent; and the third year were modeled at an average of 44 percent across the portfolio of companies.

At the time of assessment, DTBi was running an incubation program benefiting 42 incubatees, including 13 pre-incubatees, 15 startups, and 14 companies. The starting revenues of these clients ranged from USD10,000 to USD140,000, at an average of USD49,200 for companies, and from zero to USD30,000, at an average of USD2,333 for startups.1 Incubatee growth rates stand out for a few companies and the trends are irregular. In aggregate, the revenue growth rate up to December 2012 was 95 percent but aggregated revenues fell by 32 percent since then and up to the end of the third quarter of 2013. Two years after the launch of the Incubator, 380 contracts were secured by the incubatees, several of them with the help of DTBi. Values for the investment attracted are still very modest and only 4 enterprises secured investments. In aggregate, 116 direct jobs and 3,000 indirect jobs were created within the project period. A few incubatees created most of the new jobs; indeed, one company alone created all the indirect jobs and 82 percent of the direct jobs.

The high variability among firms is not uncommon in business incubation or in early-stage investing. However, the relatively modest performance in economic outcomes may be explained by implementation challenges that resulted in DTBi not having a full-fledged and manned business development program in place for the first two years. Therefore, the DTBi activities with the most tangible influence were financial advisory and brokerage services, ad hoc mentoring, and market linkages. Indeed, all interviewed incubatees said that the facilitation, networking, leverage, guarantee and brand recognition elements offered by DTBi were key factors.

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1. Pre-incubatees are at pre-revenue generation stage when they join the Incubator and therefore there are no starting revenue streams for this group.
that resulted in securing contracts. DTBi mediation led to increased linkages with government and private sector institutions as well as enhanced levels of trust between incubatees and these institutions, ultimately resulting in new contract deals and access to new markets. DTBi now has business development staff in place, which should improve the number of clients meeting their growth targets.

**Development impact of incubatees’ products and services**

Entrants into the business incubation program were selected on the basis of their growth potential. While it was not a selection criteria, one third of the companies and startups served by DTBi offer products and services that have an actual or potential social development impact—defined as improving the general conditions of people and the functioning of society as a whole. Three of these companies have already generated tangible impact and address problems of critical relevance for the country (see text box). The experiences of these three companies are becoming a reference as well as a source of inspiration for other startups and for the ecosystem at large. It illustrates how local entrepreneurs can find good private sector solutions to development challenges. The DTBi played a role in positioning these companies so that they could generate this development impact. There are currently five additional incubatees with products featuring a high potential to contribute to the socioeconomic and/or political development of the country at large, including a product that facilitates the flow of agricultural market information, a biometric voting system, a solar powered cell phone charging system, a mobile-based bus ticketing software, and an online spot market and auction house for commodity buyers and sellers.

**DigitalBrain Co. Ltd**

The Problem: Paper-based system for student registration resulted in efficiency problems, lack of transparency, mismanagement practices, and ultimately, inequality.

The Solution: A fully automated software solution for admission of applicants that can be accessed by Internet and through Mobile Phones.

The Development Impact: The solution allows the practical implementation of governance, transparency, and equity principles in access to education.

**Maxcom Africa Co. Ltd**

The Problem: Institutional payments in Tanzania (for water, electricity, taxes) were slow, bureaucratic, and located far away from the users, resulting in considerable time and transport costs.

The Solution: A technological platform that processes any payment option for supported bank card customers, mobile bank customers and mobile money agencies.

The Development Impact: Creation of substantial indirect employment, improved public services revenue collection, and improvements in citizens’ quality of life.

**DayOne Softcom Technologies**

The Problem: Very low tax collection rates in Tanzania due to a narrow tax base, the non-taxing of informal sector, corruption, and tax exceptions.

The Solution: A software information system used for managing revenue collection in the local government authorities (LGA).

The Development Impact: Substantial increases in LGA’s revenue collection, resulting in increases in social infrastructure (schools, health facilities).

**Insights**

Given the alternative selection criteria and process used by DTBi, as well as the low level of business development support during the first two years, the DTBi experience was not a good test of a royalty-based business model as originally envisioned. However, the DTBi has generated useful outcomes and a number of insights and lessons can be derived from the experience.

One core lesson stands out: the close government affiliation of DTBi worked both to the benefit as well as to the disadvantage of the endeavor.

Positive aspects, which are many, are described as follows. COSTECH was able to co-finance the start of the initiative, thus providing DTBI with a larger funding base.
than the grant financing from infoDev alone. The DTBi was also able to leverage its association with COSTECH, a well-reputed government institution in the country, to make DTBi a gateway to procurement with government, which is currently a major buyer of ICT solutions in the country. Ministries and government agencies grant incubatees a certain level of trust because they know they receive coaching and support from DTBi, which in turn is under the COSTECH umbrella. The fact that DTBi is a quasi-government organization has also allowed obtaining waivers for incubatees to access public contracts. Other advantages of being a quasi-government institution include preferential ordering and obtaining expedited customs approvals for equipment.

DTBi used its network to organize visits from parliamentary committees and utilized these opportunities to highlight the role of incubation. As a consequence, the role of ICT as a solution provider helping to generate more public revenue and the role of business incubation were mentioned in parliamentary sessions. This not only meant a considerable boost for some incubatees such as Maxcom and DayOne in terms of public recognition as serious enterprises offering valuable solutions, but it also resulted in a raised awareness of the profile and possibilities offered by business incubation. In July 2013 the Smart Partnership Dialogue for Heads of State from Africa and Asia², COSTECH/DTBi and the business incubation program in particular received explicit recognition from the country’s President in the opening speech.

On the flip-side, government policy priorities affected the selection criteria applied to entrepreneurs, which resulted in the need for a different business model and one that would be reliant on continuous subsidization. Furthermore, the incubation staff was often asked to engage in policy discussions, thus reducing the time available for ensuring the client enterprises received the necessary business development services. The government affiliation also proved to be an initial barrier to attracting angel investors, as well as mentors from the private sector. Government affiliation is thus a two-edged sword. It provides many benefits, but it can also distract from the core focus on growing enterprises, unless pro-active mitigators are put in place.
It is a hard fact of business life that most startups fail. Even many of those entrepreneurs who ultimately succeed have stories of personal challenges, unsuccessful companies, and difficulties along the way. Business incubators are important economic resources/institutions to foster and boost the growth of firms, be it from early start up or in strengthening established organizations.

According to different sources, there are about 7,000 business incubators worldwide. Their models have been adapted to meet a variety of needs, from fostering commercialization of university technologies to increasing employment in economically distressed communities or serving as a vehicle to encourage investment in emerging companies.

infoDev has been supporting different business incubation initiatives across the world for more than a decade.
Business Incubation is a methodology used to achieve the establishment of sustainable enterprises, which is one of the focuses of the Creating Sustainable Businesses in the Knowledge Economy (CSBKE) program, implemented by infoDev with support from the Government of Finland and in partnership with Nokia. The CSBKE program emphasizes the mobile and agribusiness sectors as well as the use of business incubation as a tool, enabling entrepreneurs to access knowledge, information, and skills. Through CSBKE support, infoDev has created new incubators in Cambodia and Tanzania, strengthened existing incubators in ECA, and piloted a Virtual Incubation Program in Vietnam. This report focuses on the outcomes generated by the Dar Teknohama Business Incubator (DTBi) in Tanzania.

This Outcome Assessment is part of a broader project aimed at capturing and understanding lessons learned and effects generated by various pilot initiatives featured in the CSBKE program. In addition to this report, the project includes the documentation and description of successful experiences in a wide variety of knowledge products (case studies, videos, infographics, assessment methodologies, toolkits). The project complements and provides input to several other ongoing infoDev led initiatives linked to the development of methodologies, toolkits, and training manuals.
2. SCOPE AND OBJECTIVES

The goal of the assessment is to analyze the outcomes generated by the DTBi Incubator in Tanzania nearly two years after its establishment and explain the drivers. This includes the analysis of the economic and socioeconomic effects generated by the companies supported by DTBi (the incubatees or “clients” of the DTBi), the developmental impact of their products and services, and the effects of DTBi on the ICT entrepreneurial ecosystem in the country.

The Outcome Assessment features two levels of analysis:

- The analysis of the economic and socioeconomic effects generated by the companies
  This level of analysis addresses two areas. The first is the assessment of a series of variables corresponding to the quantitative success metrics of the CSBKE program, namely: revenue growth, investment attracted, contracts secured, jobs created (direct and indirect), and customers reached. The second area of analysis includes an assessment of products and services (developed by the incubated entrepreneurs) with an actual or a potential development impact.

- The analysis of the influence of DTBi on the ICT entrepreneurial ecosystem
This level of analysis also addresses two areas. The first assesses the immediate outcomes generated by DTBi for the proximate entrepreneurial ecosystem, that is, for the clients of DTBi incubation programs. The second area assesses the effects of DTBi activities on the wider ICT entrepreneurial ecosystem, that is, beyond the clients of the incubation program.

Chapter 4 on the assessment of the outcomes is structured and organized on the basis of these two levels and four areas of analysis.

The geographical scope of the assessment is Tanzania, although the analysis focuses mostly on the capital, Dar es Salaam. The reason being that two-thirds of the incubatees and most of the ICT ecosystem actors linked to DTBi’s activities during the period were based in Dar es Salaam.

To carry out the assessment, the methodology combined desk review, primary data collection through face-to-face interviews and group discussions, and the analysis of quantitative data on the performance of the companies. Fourteen companies and fifteen startups provided input for the assessment and sixteen people were interviewed in-depth. See Annex 1 for a detailed description of the methodology. Annex 2 includes the list of people and organizations interviewed, and Annex 3 presents data on performance by type of incubatee.

This outcome assessment took place two and a half years after the creation of the incubator and just two years after it had effectively started operations. This is quite a short timeframe to assess the outcomes of a newly created organization and more specifically to see impact. The findings in this report should therefore be interpreted and appraised against this backdrop.
3. CONTEXT AND INTERVENTION

3.1 The context: ICT and entrepreneurship in Tanzania

The depth and breadth of the outcomes generated by DTBi’s intervention are better understood when they are framed within the ICT and entrepreneurial context in the country. The particular context of the ICT sector in Tanzania makes DTBi outcomes more significant.

Quick overview of the ICT sector in Tanzania

Until the mid-1990’s, the minimal telecommunication services in Tanzania were provided and regulated by the Tanzania Posts and Telecommunications Corporation, a state-run organization. The Tanzanian Communications Act of 1993 initiated the first steps towards the promotion of the use of mobile devices, computers and ICT services. Several licenses were granted to ICT providers during the decade of the 90s and the sector began to receive particular attention from 2000 onwards. The government of Tanzania implemented its first national policy on ICT in 2003. This policy addressed ten pillars, one of which was the use of ICT within the public service to enhance service delivery to the general public.

At the end of 2013, the estimated mobile penetration rate was 75 percent in a context where mobile money transfer and m-banking services are becoming a fast developing source of revenue for operators. In mid-2013 Bharti Airtel estimated that 10 percent of the Tanzanian Gross Domestic Product (GDP) is transacted through mobile commerce. The estimated Internet penetration rate is 14 percent, which is low compared to other countries in the region (32 percent in Kenya and 14.7 percent in Uganda). This is apparently due to illiteracy, poor infrastructure, unavailability, and high costs of Internet services in semi-urban and rural areas. Internet access in urban areas accounts for 80 percent of the total Internet access in the country and the government plans to invest USD10.8 million to enhance rural telecom infrastructure and improve Internet access in rural areas.

Currently, ICT is a priority for the government, which is investing heavily in supporting the ICT sector by building infrastructure (the National ICT Broadband Backbone) with the vision of making Tanzania an ICT infrastructure and solutions hub with the ultimate goal of transforming Tanzania into a knowledge society. The role that ICT could play in reaching this goal is embedded in the Tanzania Development Vision 2025.

Another key feature of ICT in Tanzania is the preeminent role of the public administration in the growth of this sector. The country is advancing towards the modernization of administration as well as towards e-government, which makes the government at large (ministries and agencies) the driver of the growth in ICT solutions and one of the most sizeable buyers in the country.

5. Three different institutions replaced the TPTC, separating regulation and service provision: Tanzania Telecommunication Company Limited (TTCL), the Tanzanian Postal Corporation (TPC) and the Tanzanian Communication Commission (TCC).
13. The private sector has already automated their systems. That explains why its role as a driver of growth is relatively lower than the role of the public sector, which is currently automating their systems.
Entrepreneurship in Tanzania


Entrepreneurs in Tanzania face several constraints when setting up a business. The major ones being: (1) restricted access to capital and financial support and prohibitive requirements for accessing funds; (2) poor infrastructure, including time and costs associated with transportation and the high costs and lack of access to electricity; (3) bureaucracy, especially drawbacks when receiving necessary permits for establishing a SME;
and (4) high taxation levels particularly when compared to other countries in East Africa\textsuperscript{14}.

Visible in the chart above and in Table 1 below, difficulties in securing financial support are one of the main challenges and inhibiting factors outside entrepreneurs’ control. Many entrepreneurs fail to secure sufficient capital due to lack of substantial collateral. This poses a threat to new and upcoming ventures and also hampers their investment commencement\textsuperscript{15}. High interest rates on lending are also an issue, as they are adversely affecting the role of SMEs in accelerating growth\textsuperscript{16}.

As shown in the table below, negative attitudes towards graduate entrepreneurship and lack of trusted business partners also outstand as inhibiting factors. As it will be presented in Chapter 4, DTBi has proved to play a key role in providing guarantees (collateral) for entrepreneurs to be able to participate in public procurement processes.

### Table 1 Factors Affecting Entrepreneurship in Tanzania

<table>
<thead>
<tr>
<th>WITHIN THE CONTROL OF ENTREPRENEURS</th>
<th>NVivo (% coverage)</th>
<th>INHIBITING FACTORS</th>
<th>NVivo (% coverage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnering with and assistance from other entrepreneurs.</td>
<td>2.91</td>
<td>Lack of startup capital.</td>
<td>2.64</td>
</tr>
<tr>
<td>Support from strong ties (family, friends and relatives).</td>
<td>1.72</td>
<td>Lack of trusted business partners/employees.</td>
<td>2.10</td>
</tr>
<tr>
<td>Emerging links with China, Asia and Middle-East etc. (globalization).</td>
<td>1.33</td>
<td>Poor technology and low quality of product and services.</td>
<td>0.13</td>
</tr>
<tr>
<td>Learning from entrepreneurs of Asian origin (entrance of foreign models).</td>
<td>0.53</td>
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<tr>
<th>OUTSIDE THE CONCEPT OF ENTREPRENEURS</th>
<th>NVivo (% coverage)</th>
</tr>
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<tbody>
<tr>
<td>Political and policy change.</td>
<td>0.70</td>
</tr>
<tr>
<td>Improved business registration and taxation procedures.</td>
<td>0.59</td>
</tr>
<tr>
<td>Improving general awareness of entrepreneurship.</td>
<td>0.57</td>
</tr>
<tr>
<td>Good publicity of entrepreneurs in media.</td>
<td>0.30</td>
</tr>
<tr>
<td>Fostering legitimacy and reputation.</td>
<td>0.25</td>
</tr>
<tr>
<td>Growing banking and micro-finance sector.</td>
<td>0.10</td>
</tr>
<tr>
<td>Increase in multinational companies.</td>
<td></td>
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</tbody>
</table>


\textsuperscript{15} http://www.howwemadeitinafrica.com/tanzania-a-land-of-obstacles-and-untapped-opportunities-for-businesses/21565/

Having said this, it is worth mentioning that the enabling environment for entrepreneurship in Tanzania offers good prospects. A recent study by the Omidyar Network and the Monitor Group on challenges faced by African entrepreneurs (2013) highlights Tanzania’s political stability, market potential, close economic ties with the East Africa community, and government support are among the enabling factors offering promising prospects for East African entrepreneurs in Tanzania.

- Doing business in Tanzania is not easy.
- Difficulties in securing financial support, negative attitudes towards graduate entrepreneurship and lack of trusted business partners are among the main inhibiting factors.
- Political stability, market potential, close economic ties with the East Africa community and Government support are among the enabling environment elements offering good prospects.

3.2 The intervention: Dar Teknohama Business Incubator (DTBi)

The project

In 2009, infoDev carried out a feasibility assessment engaging public and private local stakeholders operating in the ICT sector in Tanzania to facilitate ICT-enabled innovation and entrepreneurship in the country. infoDev then developed a business model for a dedicated service offering for ICT-based SMEs to encourage and accelerate the establishment of technology-based, innovative, high growth new enterprises.

infoDev provided financial support and technical assistance for the creation and operation of a new ICT-based business incubator in Dar es Salaam, the Dar Teknohama Business Incubator (DTBi), managed by a consortium of private and public organizations, and led by the Tanzania Commission of Science and Technology (COSTECH). DTBi’s Advisory Board, which advises DTBi management on strategic issues, features a mix of public and private organizations bringing in a wide array of experiences and expertise.

The US USD350,000 Grant Agreement was signed in February 2011 and closed in June 2013. DTBi was officially launched on October 31, 2011. infoDev’s grant was complemented and almost matched with co-financing from COSTECH, a parastatal organization in charge of coordinating and promoting research and technology development activities in the country. COSTECH also acts as a main advisor to the Government on all matters related to science and technology and their application to the socioeconomic development of the country.

Besides the financial contribution, the project also provided technical assistance for COSTECH, the Board, and DTBi’s management team throughout the implementation process to ensure that the business incubator was implemented according to best practices. The technical assistance program consisted of infoDev business incubation experts advising the local implementer regarding:

- the creation and composition of a Board of Directors (BOD) and the design of its governance framework
- the establishment of the optimal legal structure of the business incubator
- the development of a Monitoring and Evaluation Scorecard (M&E) to measure the performance and effectiveness of the incubator implementation process as well as post implementation
- the recruitment of the incubator manager following

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18. Among others, the Advisory Board has members from the Bank of Tanzania, the Tanzania Communication Regulatory Agency and the President’s Office (public sector); members coming from private companies such as Tanzanite One, Uhuru One and CRDB Microfinance Services; and also members from the Academia, in particular from the University of Dar es Salaam’s Entrepreneurship Center.
19. In fact, this was the result of a gradual process whereby DTBi gained visibility and credibility towards the Government. The extent to which DTBi is perceived as a trustful and resourceful partner by the Government is described in Chapter 4.
detailed terms of reference outlining the required attributes to manage the business incubator efficiently and successfully
the development of selection criteria and process for incubatees
● the selection of the first batch of incubatees
● the provision of services to selected incubatees, including coaching to support DTBi in providing intensive business development support to incubator’s tenants and outreach clients in structuring and developing their business strategies, business models, business processes, and by facilitating access to business opportunities
● the implementation of i) strategic marketing initiatives for incubatees to enable their exposure to the market and secure improved access to financing and market linkages and ii) business development initiatives for incubatees via provision of comprehensive business support for continuous improvement of their operation, including in-house coaching and mentoring the improved visibility of DTBi in the positioning as a center of excellence in ICT and other related technologies, including the implementation of a Top30 Competition aimed to attract proposals from innovative companies for new products and solutions.

ICT-focused incubation in West Africa: CTIC, Senegal

During the same period (2009), infoDev carried out a feasibility assessment engaging public and private local stakeholders operating in the ICT sector in Senegal. infoDev then derived a business model for a business enabler to promote the growth of competitive ICT enterprises. In 2010, a call for expressions of interest for establishing and implementing the first ICT business enabler of Senegal was launched. A consortium of public and private local stakeholders was selected as the host organization to be awarded a grant and technical assistance to ensure that the business incubator was implemented according to best practices.

Launched in April 2011, today, CTIC is a self-sustaining business incubator and a major player in the West African startup scene. Of CTIC’s many success stories, two best represent the progress made in the past two years. SeySoo provides comprehensive medical management software for the Gabonese Government and People Input has become the leading digital agency in West Africa, with offices in Cameroon and the Ivory Coast.

The table below presents an overview of the main elements of the project.

The DTBi is physically hosted in the COSTECH building and during the first two years of the project 17 incubatees took part in the business incubation program. This figure increased to 33 incubatees at the time of presenting the project’s Final Report in June 2013.

DTBi is an independent autonomous entity of COSTECH with its own board that promotes the growth of ICT and technology-based emerging companies, and operates as a non-profit company.

At present, DTBi assists early-stage ICT companies by lowering the cost of doing business and increasing the chances of survival by providing access to shared resources, facilitating access to finance and markets through credible support, guidance, business management, and networking. DTBi assists incubatees accessing government contracts by supporting them with organizing the consortia and with managing the bidding process. The range of services provided to the various types of clients is outlined in Box 2 below.

DTBi offers an incubation program including a pre-incubation program20 that counts on the support of the Information Society and ICT Sector Development Project (TANZICT), established in August 2011.21 TANZICT is a

20. As shown in the boxes below, pre-incubation is considered one of the three parts of the incubation program. The incubation program includes pre-incubation, incubation of startups and incubation of companies
21. The pre-incubation program was run together with TANZICT until November 2013. Then a decision was made for TANZICT’s role to be more supportive while DTBi rolled out the program. The decision was made to ensure the long-term sustainability of the program - as TANZICT is a temporary project whereas DTBi will remain.
bilateral project between the Ministry of Communications, Science and Technology of Tanzania (MCST) and the Ministry for Foreign Affairs of Finland. TANZICT created an innovation space in the COSTECH building where would-be entrepreneurs and actual entrepreneurs could access shared workspace with Internet, attend workshops on trends in the sector, as well as some structured training. This “space” is seen as a feeder for the pre-incubation program.

The number of incubatees increased from 17 in the first two years to 33 at the closure of the project in June 2013.

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22. The project components are: support for the revision of the national ICT policy and the start of its implementation; strengthening the Institutional capacity of MCST and the creation of a Tanzanian Innovation Program.
The DTBi portfolio at the time of this outcome assessment (October 2013) was as follows: Resident clients have a space at DTBi’s premises in the COSTECH building whereas virtual clients do not reside in-house. Both groups receive the same service package with the exception of office space (virtual clients do not make use of office space). Box 1 below presents a glossary with the definitions of the main terms used by DTBi when referring to their various types of clients:

**Box 1**
**Glossary of key definitions**

**Pre-incubatee**: An entrepreneur with an ICT/technology related business idea who has joined DTBi’s incubation program. Pre-incubatees are at a pre-revenue generation phase.

**Incubatee**: A pre-incubatee, startup, or a company participating in DTBi’s incubation program. Incubatees can be resident or virtual.

**Resident startup**: A business with a sellable solution and with annual revenue of less than USD6,250, which participates in the incubation program and rents office space at DTBi premises - therefore having a physical presence in DTBi facilities.

23. DTBi incubation program includes both pre-incubation and incubation.
Box 2 offers an overview of the main features of the incubation program as of October 2013. DTBi’s incubation program includes pre-incubation and incubation.

### Box 2 Main Features of the DTBi’s Incubation Program

<table>
<thead>
<tr>
<th>Who qualifies?</th>
<th>What supporting services do they get?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRE-INCUBATION</strong></td>
<td>A 3-months Capacity building program (11 training modules) Weekly group session Assistance with basic business concepts Step-by-step guidance on how to create a successful business Help with developing a viable business model Best Practice learning from other successful entrepreneurs</td>
</tr>
<tr>
<td>ICT/Technology related business idea</td>
<td>A 3 months Capacity building program (11 training modules) Weekly group session Assistance with basic business concepts Step-by-step guidance on how to create a successful business Help with developing a viable business model Best Practice learning from other successful entrepreneurs</td>
</tr>
<tr>
<td>Solution Prototype development in progress</td>
<td>Office Space and Shared facilities Incorporation and Legal registration of a business Book keeping and Financial Planning Business management Marketing and Sales Strategies Exposure to networking, exhibitions, linkages to potential customers Business Plan Development Exposure to new technologies Interface with Peers</td>
</tr>
<tr>
<td>Pre-revenue generation Commitment: USD13 or equivalent TZS monthly service fee</td>
<td>OC Office Space and Shared facilities Incorporation and Legal registration of a business Book keeping and Financial Planning Business management Marketing and Sales Strategies Exposure to networking, exhibitions, linkages to potential customers Business Plan Development Exposure to new technologies Interface with Peers</td>
</tr>
<tr>
<td><strong>INCUBATION – Startups</strong></td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>Sellable Product/Solution Annual revenue &lt; USD6,250 (&lt; 10m TZS) Commitment: USD50 and USD25 or equivalent TZS monthly service fee</td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td><strong>INCUBATION – Companies</strong></td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>ICT/Technology related business idea</td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>Solution Prototype development in progress</td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>Pre-revenue generation Commitment: USD13 or equivalent TZS monthly service fee</td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>Exit/graduation?</td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td><strong>Exit/graduation?</strong></td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>3-month program Completion prototype</td>
<td>Exit/graduation?</td>
</tr>
<tr>
<td>6-month program Surpassing USD 6,250 (10m TZS) annual revenue</td>
<td>Exit/graduation?</td>
</tr>
</tbody>
</table>

24. The exchange rate USD to Tanzanian Shillings (TZS) used was 1,600 TZS/USD, which was the average rate for the period October – December 2013. [http://www.exchangerates.org.uk/USD-TZS-exchange-rate-history.html](http://www.exchangerates.org.uk/USD-TZS-exchange-rate-history.html)
4. Assessment of outcomes

The chapter is organized in two sections. Section 4.1 presents the analysis of outcomes associated with the performance of the incubatees in two different aspects: in terms of economic effects (i.e., revenue growth, investment attracted, contracts secured, jobs created, and customers reached) and in terms of the development impact generated by their products and services. Section 4.2 analyses the effects of DTBi on the ICT entrepreneurial ecosystem at two levels. First, it analyses the effects at the level of incubatees—the companies and startups taking part in DTBi's incubation programs. This sub-section looks at how DTBi has influenced them. Second, it analyses the effects at the level of the wider ecosystem beyond incubatees—the enabling environment. This sub-section looks at if and how DTBi made differences and contributions to the sector at large.

As pointed out in the introduction, this assessment takes place only two years after the effective start of DTBi operations, which is a short timeframe to assess outcomes, particularly for seeing impact. The findings in this section should be framed and interpreted in this context.

4.1 Economic outcomes and development impact of products and services

This section analyses the outcomes related to the performance of startups and companies participating in DTBi's incubation programs. As previously shown in Figure 2 this includes 29 incubatees: 14 companies, 5 of them resident and 9 virtual (non-resident); and 15 startups, 5 resident and 10 virtual. The assessment does not include the analysis of the pre-incubatees.25

4.1.1 Economic outcomes

This section presents the analysis of a quantitative metrics related to incubatees' performance, namely revenue growth, investment attracted, contracts secured, jobs created (direct and indirect), and customers reached. The box below features the key findings of this section.

25. There are several reasons for this: (i) the focus of the infoDev project is on incubation; (ii) the pre-incubation program is relatively new and is part of the TANZICT project; and most importantly (iii) the pre-incubation program concludes with a completed prototype, there is no revenue generation by definition (pre-revenue generation is one of the qualifying criterion) and metrics such as employment and investment are not applicable either
Revenue growth for virtual companies shows an irregular trend and nearly two-thirds of the startups did not report increases in income during the period. Aggregate values for resident companies show a decline. However, this is not due to underperformance but to deliberate changes in strategy in favor of prioritizing smaller projects.

Effects in terms of investment attracted by companies are not yet noticeable. The modest results showed by startups are all linked to DTBi’s support to access the resources of the ICT Innovation Fund, established within the framework of the TANZICT project.

The metrics on contracts secured reveal increases for all types of incubatees throughout the period of analysis. There is evidence that the increases are partly associated to DTBi activities.

Job creation also shows increases throughout the period for all types of incubatees but aggregated figures conceal a concentration in a few incubatees, especially for virtual companies and startups.

The relatively modest performance metrics to date are partly due to obstacles in implementation, the short implementation timeframe, and not having a full-fledged and manned business development incubation program in place.

The added value of DTBi’s incubation model during the first two years was not based on business development support services, rather on networking and brokerage, including facilitation, leverage, bank loan guarantees, and brand recognition. These elements linked incubatees to banks and government tenders and ultimately resulted in securing contracts.

**Revenue growth**

Data reveals a steep decline in the aggregate revenue generated by resident companies. Three of the five resident companies show declines, two being quite sizeable, whereas two show slight increases in revenue. It is worth mentioning that the two sizeable declines do not reflect problems in performance. In the first case, the company reported an abrupt decline in revenue (7.5 fold) from 2012 to 2013. However, this was not due to underperformance but to the fact that the company had been awarded a sizeable contract with a public sector institution and the revenue was accounted for in the 2012 books. In 2013, the company pursued a diversification strategy and concentrated on a greater number of small sized projects. In the second case the decrease in revenue was also the result of a strategic decision. The company decided to change the nature of the portfolio and concentrate on a number of smaller projects (financially) with the purpose of building rapport and brand name with the government sector for future projects. This was done at the expense of less revenue during the transitional period.

Figures on revenue growth for virtual companies show an uneven trend. Of the nine virtual companies, three reported increases, five did not report increases or decreases in income (stable flows), and only one company reported a drop between 2012 and 2103. The reduction shown in figure 4 from 2012 to 2013 is due to this single company, which accounts for a large part of the total revenue\(^26\). It is important to note that this drop was not caused by underperformance but by a change in the way of reporting revenue earned\(^27\).

The small increases reported in the data for startups correspond to increases in revenues for three startups (20 percent of the startups), two resident and one virtual startup. Sixty percent of the startups did not report any increase in income during the period\(^28\).

---

26. This company was one of the largest companies at DTBi and it represented 75 percent of the revenue generated by virtual companies in 2012.
27. This company is a success story and is growing considerably. In 2013, the firm started to report revenue as commissions earned rather than reporting revenue at the point of sale, as done previously. Commissions are a percentage of the revenues at the point of sale and this explains the reduction in the reported values.
28. The other 20 percent corresponds to startups for which data was not available, for which revenues did not increase, or for which revenue decreased slightly.
Experience has shown that approximately 10 percent of the population consists of people with entrepreneurial aptitude and a desire to start a business. And approximately 10 percent of this group can be characterized as “growth entrepreneurs,” with the aspiration and capacity to grow.

Assuming that the business incubator has a good selection criteria and an efficient incubation process in place, about 75 to 85 percent of the companies are expected to succeed, i.e., to be sustainable post-graduation. Approximately 50 percent are expected to be sustainable and keep growing at a steady rate, and about 25 percent may be expected to grow substantially after graduation.

During the incubation period, depending on the base from which the entrepreneur starts, if very low, one might expect up to 100 percent growth after one year. However, time is required for market validation of the product/service before it can enter the growth phase; hence real growth is often only evident after the entrepreneur has validated both the need and business model for their offer.

In the case of the DTBi, the modeling of growth expectations combined growth rates amongst the portfolio of enterprises as well as the modeled changes in each year (e.g., during the second year of implementation, the intake of new incubatees had different success and growth rates from the incubatees selected during the first year of operations). Accordingly, first year growth rates were modeled as an average of 80-200 percent (off a low base) and an average of 114 percent; the second year growth rates were modeled at 50-82 percent and an average of 82 percent; the third year growth rates were modeled at 20-60 percent with an average of 44 percent.

A 20 percent failure rate was foreseen (3 out of 15 companies) with one failure occurring each year over 3 years (i.e. failure meaning businesses that died and those that did not grow any further. So of the 20 percent, 10 percent died and 10 percent stagnated.)

Most of the companies selected to be incubated by DTBi were very early-stage and hence still needing to have their products/services validated by the market.

### Investment attracted

For both resident and virtual companies the data show there were no major effects in attracting investments. Only one resident company reported a major increase in investments attracted, which accounts for the entire increase in investment attracted for resident companies in Figure 3. None of the virtual companies reported any increase in investments attracted during the period of analysis.

For startups, 20 percent of virtual and 20 percent of resident startups reported increases in investment attracted, which accounts for the USD18,500 and the USD7,500 depicted in Figure 3, respectively. In all cases the investment came from the ICT Innovation Fund established within the framework of the TANZICT project. No investment flows were attracted beyond the ICT Innovation Fund framework.

### Contracts secured

Contracts secured show increases for all types of incubatees throughout the period analyzed. For resident companies, the total number of contracts increased by a factor of 2.5 during the period of analysis. Although 40 percent of the 123 overall contracts secured were concentrated in one single company, each one of the five resident companies increased the number of contracts secured during the period. Data reveal a similar sequence for virtual companies. Data was available for eight of the nine virtual companies, and for all of them the number of contracts secured increased during the period of analysis.

Figures for startups also show a positive upward slope, but the magnitude of the effects is less sizeable than for companies. Three of the five resident startups saw the number of contracts secured growing, whereas the remaining two did not gain any contracts during the period. 70 percent of the virtual startups did not experience any increase in contracts secured, which means that the values in Figure 3 are concentrated in three startups only, for which the number of contracts increased during the period.

As can be observed in the data, the increase in contracts for startups goes alongside increases in revenues,
FIGURE 3: AGGREGATE DATA ON PERFORMANCE METRICS BY TYPE OF INCUBATE

<table>
<thead>
<tr>
<th>Resident companies</th>
<th>Virtual companies</th>
<th>Resident startups</th>
<th>Virtual startups</th>
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</thead>
<tbody>
<tr>
<td>240</td>
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<td>110</td>
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</tr>
<tr>
<td>49</td>
<td>99</td>
<td>123</td>
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</tr>
<tr>
<td>15</td>
<td>17</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>44</td>
<td>99</td>
<td>123</td>
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</table>

<table>
<thead>
<tr>
<th>Resident companies</th>
<th>Virtual companies</th>
<th>Resident startups</th>
<th>Virtual startups</th>
</tr>
</thead>
<tbody>
<tr>
<td>459</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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<td>53</td>
<td>142</td>
<td>217</td>
<td>0</td>
</tr>
<tr>
<td>46</td>
<td>116</td>
<td>149</td>
<td>0</td>
</tr>
<tr>
<td>2053</td>
<td>4642</td>
<td>6214</td>
<td>0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Resident companies</th>
<th>Virtual companies</th>
<th>Resident startups</th>
<th>Virtual startups</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>7</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>7,5</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>17</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>17</td>
<td>21</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resident companies</th>
<th>Virtual companies</th>
<th>Resident startups</th>
<th>Virtual startups</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>30</td>
<td>66</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>18,5</td>
<td>18,5</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>11</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>11</td>
<td>19</td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL

<table>
<thead>
<tr>
<th>Resident companies</th>
<th>Virtual companies</th>
<th>Resident startups</th>
<th>Virtual startups</th>
</tr>
</thead>
<tbody>
<tr>
<td>724</td>
<td>1416</td>
<td>954</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>135</td>
<td>135</td>
<td>0</td>
</tr>
<tr>
<td>106</td>
<td>269</td>
<td>380</td>
<td>0</td>
</tr>
<tr>
<td>82</td>
<td>159</td>
<td>198</td>
<td>0</td>
</tr>
<tr>
<td>2176</td>
<td>4769</td>
<td>6377</td>
<td>0</td>
</tr>
</tbody>
</table>

SOURCE: DTBi, October 2013.

29. Annex 3 includes the breakdown on performance metrics by type of incubatee.
but this is not the case for companies: both resident and virtual companies show overall steady increases in contracts secured that do not equate increases in revenues, but a reduction instead. The reasons behind this are the same as mentioned above when explaining the causes for decreasing revenues: the move from larger to smaller projects/contracts to concentrate on a number of (financially) smaller projects with the purpose of building rapport and branding with the government for future projects, which was done at the expense of revenue during the transitional period; and a change in the way one of the largest incubatee companies reported revenue earned 30.

**Customers reached**

The figures for customers reached coincide with the contracts secured for the most part because in the majority of the cases, customers are not final users but institutional customers — public sector agencies in most cases and private companies in a few of them. The only exception is under the virtual companies’ category and again this is related to Maxcom Africa Co. Ltd, the largest company in the incubator in all aspects (revenue, contracts, jobs, customers). Customer data for this company is registered on the basis of intermediate users i.e., agents engaged in distribution of payments solutions, which is the reason why absolute figures display comparatively very high values 33.

Customer figures therefore show increases for all types of incubatees throughout the period of analysis, and the description by type of incubatee coincides with the findings under contracts secured above.

**Jobs created**

Creation of jobs is another variable that shows increases throughout the period for all types of incubatees. However, aggregate values conceal a concentration of increases in a few incubatees, especially for virtual companies and startups. The reported net increase in employees for resident companies is very modest (three employees in total) and this is due to three of the five companies 31. The jobs created by virtual companies are generated by one-third of the companies, and one single company accounts for 92 percent of the increase. The seven jobs created by resident startups are a contribution from three out of the five startups in this category, and job creation by virtual startups has been rather scant in terms of magnitude and breadth: only three jobs created by two of the ten startups in this category. Actually, five resident startups have created seven jobs whereas ten virtual startups created only three; in other words, the ratio of job generation has been as twice as much for resident startups than for virtual startups 32.

The nature of the job created was divided into direct jobs and indirect jobs. The majority of new employment reported were direct jobs except for one company, Maxcom Africa Co. Ltd, which created the totality of the 3,000 indirect jobs reported during the period.

**Links between economic outcome metrics and DTBi activities**

Quantitative and qualitative data collected through interviews revealed there is evidence that increases in contracts secured, are partly associated with DTBi activities 34. All interviewed incubates coincided that the facilitation, networking, leverage, guarantee, and brand recognition elements offered by DTBi were key factors that resulted in securing contracts. DTBi mediation led to increased linkages with government and private sector institutions as well as enhanced levels of trust between incubatees and these institutions, ultimately resulting in new contract deals or in access to new markets (see section 4.2 for more details).

With regard to investment attracted, most of the amount accounted by the only resident company reporting an increase 35, corresponds to a bank loan obtained thanks to a bank guarantee provided by the DTBi. Moreover, DTBi also played a role in supporting startups accessing ICT Innovation Fund resources. The funds were accessed through a competition and

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30 This company is a success story and is growing considerably. In 2013, the firm started to report revenue as commissions earned rather than reporting revenue at the point of sale, as done previously. Commissions are a percentage of the revenues at the point of sale and this explains the reduction in the reported values.

31. The other two companies show a reduction of one staff in one case, and no variation in staff in the other case.

32. No conclusive evidence could be found on whether the physical location of startups at the DTBi premises was a determining factor for this difference.

33. Of the USD109,375 reported by the company, USD100,000 corresponds to a bank loan and USD9,375 was obtained through the ICT Innovation Fund (DTBi also played a role in this regard).
DTBi provided support for the startups to prepare for the competition 36. Once the funds were obtained, DTBi also played a role in guaranteeing the proper use of the funds on the basis of the startups’ performance 37.

Qualitative data also revealed that increases in jobs created were at times related to increases in contracts secured and therefore, were an indirect consequence of DTBi support. That said, it should be noted that not all increases in contracts secured resulted in more jobs. According to the data, DTBi activities showed modest effects to date on attracting investment, and there is no clear relationship between DTBi activities and the evolution in company revenues 38.

The above findings suggest that of the four main services 39 provided by DTBi during the period analyzed, those having a more tangible influence in economic outcome metrics were: financial advisory and brokerage services, and mentoring and market linkages.

In any case, two years after the launch of the Incubator, incubatees’ performance metrics are not very prominent and figures stand out only for a few companies. There are two explanations for this, which are interrelated:

(1) During the first two years DTBi did not have a full-fledged and manned business development incubation program in place. Its strategy was based on promoting incubatees’ exposure and networking to the public sector as an important buyer of ICT solutions, but little coaching support was provided thereafter. Outcome metrics such as revenue, jobs, investment, etc. are associated to incubation and acceleration support sequences are appropriate when there is a clear business development strategy in place, which was not the case in the beginning.

(2) The project suffered from obstacles in implementation, which added to a rather short timeframe. Most of the time during the first year was used for setting up operations. Reportedly, instalments for equipment only came in June 2011 and the implementation of procurement procedures for the office and equipment resulted in rather protracted processes that added to the three months needed for the selection of the first batch of incubatees. There were deficiencies with the quality of DTBi’s Board, which added another four to five months needed to restructure it, obtain the approval, and make it operative 40. All in all, a full year was required to set up operations. This time frame of a year and a half (January 2012 – June 2013) was too short to expect the generation of outcome metrics in terms of revenue increases and employment generation.

In the beginning, incubator’s management prioritized building DTBi’s brand and developing links with the government sector rather than business development support for companies and startups. This may be one of the reasons why some of the incubatee startups have not grown substantially over a two-year incubation period 41.

TWO-YEAR REVIEW OF CTIC, SENEGAL

Launched in April 2011, CTIC received 101 applications and expressions of interest for its various programs over the course of the year 2012 and selected only 5 new companies to support.

By the end of 2012, CTIC supported 11 established companies through its incubation program and had coached 10 startups through its accelerator program “BuntuTEKI”.

The cumulated revenues of the 11 companies reached USD 1 million, representing an average growth of 75 percent from 2011, during which the average growth was 33 percent. Out the 10 startups supported through BuntuTEKI, 4 were still operating and 2 had just started generating revenues.

About 45 new qualified jobs had been created, essentially for engineers.
The objective of this section is to analyze the development impact associated to the use of the ICT solutions (product and services) developed by DTBi incubatees. The objective of the CSBKE program component related to incubation is to enable innovative enterprises in the agribusiness and ICT sector to increase their competitiveness and participation in global markets. Similarly, the main goal of the DTBi is to increase the growth and competitiveness of early-stage ICT related SMEs in Tanzania. These goals do refer explicitly to (societal) development impact, and in this regard, the fact that some incubatees focus on products and services with development impact can be considered a positive side effect of the project, rather than a planned intended impact.

All products and services could arguably have a development impact—either direct or indirect—if a broad definition of development was considered. For example, an incubatee producing a fuel management system for petrol stations could eventually generate development impact by creating direct and indirect jobs and increases in taxable company revenue. However, development impact in this section is associated to development effects beyond variables related to company performance (revenues, direct jobs, investment). In this section development impact means the impact generated by incubatees’ ICT products and services on their users and on their broader environment.

The analysis in this section includes both actual and potential development impact. Actual development impact refers to the current or past impact of products and services that have been launched in the market and are already used by the intended users. Conversely, potential impact refers to the likely impact associated to ICT solutions that are still under development, that have already been developed but that have not yet been launched, or that have been launched but have not yet penetrated the market.

### TABLE 3 INCUBATEES OFFERING PRODUCTS WITH ACTUAL AND POTENTIAL IMPACT

<table>
<thead>
<tr>
<th>Company name</th>
<th>Type of incubatee</th>
<th>Actual or potential development impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 DigitalBrain Co. Ltd.</td>
<td>RESIDENT COMPANY</td>
<td>ACTUAL IMPACT</td>
</tr>
<tr>
<td>2 Maxcom Africa Co. Ltd</td>
<td>VIRTUAL COMPANY</td>
<td></td>
</tr>
<tr>
<td>3 DayOne Softcom Technologies</td>
<td>RESIDENT STARTUP</td>
<td>POTENTIAL IMPACT</td>
</tr>
<tr>
<td>4 BR Solutions</td>
<td>VIRTUAL STARTUP</td>
<td></td>
</tr>
<tr>
<td>5 Magila Technologies Limited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Victronix Ltd.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Safari Yetu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 XCommodity</td>
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</table>
Of the 29 companies and startups incubating at DTBi, eight (nearly one-third) have been selected for the purpose of this outcome assessment as incubatees offering products and services with either actual or potential development impact.

**Current development impact**

Three companies were identified for the purpose of this assessment as having a significant development impact, given that their products and services improve the general conditions of people and/or the functioning of society as a whole. The extent of the development impact generated by DTBi incubatees is a matter of quality rather than a matter of quantity. The proportion of incubates with products and services having actual development impact is not very large (3.5 percent). However, they address problems of critical relevance for the country and the depth of their impact is remarkable.

The three companies selected have in common that they generate impact at the level of the country’s wider development framework. In all three cases the ICT solutions offered brought about important social transformation elements for the country at large.

1. **DIGITALBRAIN CO. LTD.**

- **The problem**
  
  In the past it could take up to three months to register a student at the university. The system at the Tanzania Commission for Universities (TCU), the regulatory authority for universities in the country, was paper-based. The problems were not only related to efficiency drawbacks, but also a lack of transparency, which often led to mismanagement practices resulting in inequality. Students with the right connections could get access to universities of their preference, whereas less connected students and those from humble origins were much more vulnerable to fraudulent practices. Delays in registration and the opacity of the system resulted in students not being able to receive grants on time, if at all. The situation had even resulted in student riots in the past.

- **The solution**
  
  DigitalBrain Co. Ltd., a software development company incubating at DTBi, developed a Universities Central Admission System (CAS) for Tanzania Commission for Universities (TCU), a software solution for admission of applicants into public and private higher learning institutions. The system can be accessed by both Internet and through Mobile Phones, it is fully automatic and does not require any human support in processing up to 500,000 applications at a time in less than two hours. Sixty-six universities in the country can access it once the admission is complete and the system allows viewing and downloading admission reports directly from the universities’ web interface. The system won an award as best Admission System in Africa in April 2012.

  **The development impact**

  The international media has recognized the impact of the product. The Guardian stressed, “the impact of CAS is quite enormous at national as well as individual levels especially on reducing costs and improving efficiency. The system has also eliminated the possibility of forgeries on O-Level and A-Level examination results.” Moreover, it features internal checking and verification of student certificates, meaning no applicant with fake certificates is able to join any university in Tanzania as of last year.

  Quantitative impact is remarkable. In 2012 and 2013 it was used to admit more than 100,000 students into 66 universities encompassing more than 600 degree programs. Beyond the obvious gains in efficiency, this product means a developmental leap countrywide because it implies modernizing the system and allowing the practical implementation of governance, transparency, and equity principles in access to education. All students admitted are published online and now students are registered on time, which means they can get their grants on time and there are no student riots. Reportedly, even parliament members expressed satisfaction with the improvements.

2. **MAXCOM AFRICA CO. LTD**

- **The problem**
  
  The essential problem behind the company’s IT solution is institutional payments in Tanzania, which have been traditionally very difficult. People were required to travel in order to make payments and the transactions were slow and bureaucratic. Long waiting times and considerable travel from the suburbs to the city center to pay the electric bill, water bill, taxes, levies, and other housing expenses were unreasonable.

- **The solution**
  
  Maxcom’s main product is a technological platform that can process any payment option (cash, credit cards,
and cardless transactions) for supported bankcard customers, mobile bank customers, and mobile money agencies. The device provides a service to pay utility bills, television, banking services, taxes, and public service levies as well as to purchase mobile money transfers and mobile recharge vouchers.

**The development impact**

A key feature of Maxcom is that the development impact generated through the business model has gone far beyond the solution of the original problem.

The company created substantial indirect employment across the youth and the community at large. The system is based on a network of agents made up of local shop owners spread throughout the country - who are used as the point of sale for final users. Moreover, it has incorporated local Tanzanians into the formal economy. For public institutions, it has substantially improved public services revenue collection. The long-term and wider impacts have not yet been quantified, but they are very prolific e.g., the environmental effects of fewer people driving into the city to pay their utility bills; the economic benefits of avoiding a half-day trip to make the payments; the increases in available time and the subsequent potential improvements in quality of life.

Maxcom also made a substantial contribution to regional integration by exporting a homemade ICT service to neighboring countries. Maxcom embeds the success of a local company developing a successful and exportable local-made solution that is developed, operated, and distributed by Tanzanians. The business model relies on a local human-resource base. This is not only a source of pride for the company but a very inspiring experience for other companies in the country. In this regard it offers the potential to expand the ICT entrepreneurship ecosystem in the country.

3. **DAYONE SOTFCOM TECHNOLOGIES**

**The problem**

Collecting tax revenue in Tanzania is a major problem with developmental consequences. According to an article from the Thomas Reuters Foundation, in 2013 the loss of tax revenue in Tanzania is estimated at USD1.25 billion, corresponding to 5 percent of the country’s GDP. According to the World Bank, taking into account the tax-to-GDP ratio, Tanzania is collecting fewer taxes than many other countries in the Sub-Saharan region. Reasons for Tanzania’s relatively low tax collection are corrupt activities, tax exemptions, and a narrow tax base and non-taxing of the informal sector. The informal sector absorbs between 40 to 60 percent of Tanzania’s GDP, collected taxes from this sector could increase tax revenue significantly.

**The solution**

DayOne’s solution was Mrecom, a software information system used for managing revenue collection in the local government authorities (LGA). The system manages revenue collection from property tax, billboard tax, service levy, hotel levy, business licenses, and other similar sources of public revenue. Traditionally, LGAs used to make estimations on the tax base that led to overestimations, on the one hand, and low collection rates (around 25 percent) on the other. Mrecom allows LGA to identify and establish eligible taxpayers, knowing clearly beforehand who has already paid and who has not. The key feature of Mrecom is that it is browser-based, making the system easily accessible from different workstations, including remote workstations. Mrecom technology is also compatible with browsers used on mobile devices. That makes it accessible from mobile devices using Wi-Fi or GPRS networks. A key feature of the system is that it has in-built GIS functions; this makes it possible to open digitalized maps from within the system that enable searching and locating taxpayers.

**The development impact**

The LGA in Temeke district used to collect 4 billion Tanzanian Shillings yearly on service levies and after three years of using DayOne solution they are collecting three times more, that is 12 billion Shillings. Data provided by the company shows substantial increases in revenue in Temeke and in Kinondoni District it is estimated that LGAs have increased revenues from 300 to 900 million shillings.

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44. It is estimated that the informal sector in Tanzania employs 40 percent to 60 percent of the urban women labor force and adds three-fourths ton one-fourth to the total urban income (Omari, C.K, 1995. Women in the informal sector: University of Dar es Salaam. Physical geography of Dar es Salaam, Chapter 9. DSS, Tanzania).
45. http://www.trust.org/item/20131014094858-3frio
47. According to the East African Bribery Index of 2013, Tanzania’s tax services sector is ranked number 15 out 30 sectors in East Africa and the average size of bribe within the country is greatest within the tax services sector.
Beyond the apparent economic effects, the new system is bringing about the possibility to incorporate stricter controls and avoid theft and mismanagement of collected taxes, which, as aforementioned, is a considerable problem in Tanzania.

Temeke District has reportedly been able to meet its responsibilities and commitments in terms of social infrastructure thanks to the increases in revenues: building schools, building small health facilities in remote locations, and road renovation. The report "The one billion dollar question: how can Tanzania stop losing so much tax revenue," published in June 2012 states very clearly: "If the lost tax revenues were spent on education, the budget would double; health spending would more than double and spending on agriculture – a massively under-funded sector – would more than triple. Alternatively, Tanzania could drastically reduce its reliance on foreign aid. The amount lost from taxes is over half the amount in aid received by Tanzania in 2009/10 - TZS 3.2 trillion." In this context, DayOne is making a substantial contribution to the country by providing a key tool that allows advancement in that direction.

The role of DTBi

A recurring element in all three cases is that DTBi played a role in positioning these companies so that they could generate the developmental impact described above. DTBi had a crucial role in connecting the companies with institutional buyers; providing training sessions on proposal writing for bidding processes, which is another factor behind the success in accessing large government contracts; and conferring government agencies the necessary degree of confidence and guarantees to make commercial deals with the three incubatees.

The impact generated by these three products, their significance for the country, and the link of these successes with DTBi, explain at least partly, the current increasing demand for incubation models in other priority sectors (see section 4.2). The success of these three companies is also one of the factors that explain the current prioritization of people-centered ICT solutions in the country.

Potential development impact

Five companies have been identified with potential development impact. They are startups for the most part and in two of the cases the solutions are still under development. The ICT solutions offered by these entrepreneurs all have in common a high potential to contribute to the socioeconomic and/or political development of the country at large, as their outreach is nationwide. The boxes below present an overview of these IT solutions and their prospects for impact.
<table>
<thead>
<tr>
<th>NAME OF THE INCUBATEE</th>
<th>TYPE OF INCUBATEE</th>
<th>PRODUCT / SERVICE:</th>
<th>SECTOR</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR Solutions</td>
<td>Virtual company</td>
<td>Provision of basic information for corporate, retail clients, and individuals through text message technology (SMS technology)</td>
<td>Information services though mobile phone / agriculture</td>
<td>The product has been recently developed and launched. It is one of the pioneers of mobile application services in the Tanzanian market, but it has not yet turned into a business success.</td>
</tr>
<tr>
<td><strong>POTENTIAL IMPACT</strong></td>
<td></td>
<td>This service offers speedy data collection and dissemination for informed decision-making via mobile phones and allows reaching a considerable part of the population. Information may be shared on fields such as real estate, agriculture, healthcare, job seeking, and entertainment among many others. Prospects for potential impact are particularly likely in agriculture.</td>
<td></td>
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<tr>
<td>The company has developed a platform that facilitates marketing information flow on agricultural food crops, connecting buyers and sellers of agricultural produce through the use of mobile phones. This system could have tangible results in empowering farmers with the necessary information previous to making any decision. The service also allows farmers to access farm inputs—agents, contact and location of extension officers—using mobile phones. Another potential for impact is the fact that BR solutions are a direct support for the implementation of the Kilimo Kwanza Policy, a national resolve to accelerate agricultural transformation towards the modernization of the sector. In this context BR services will enable a platform assisting users to get all necessary food price information via mobile phone.</td>
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</tr>
</thead>
<tbody>
<tr>
<td>Magila Technologies Limited</td>
<td>Resident startup</td>
<td>Mobile Parliament, Biometric voting system</td>
<td>IT solutions for citizen participation</td>
<td>The IT solutions are still being developed to some extent. The solutions have not been yet launched in the market.</td>
</tr>
<tr>
<td><strong>POTENTIAL IMPACT</strong></td>
<td></td>
<td>To-date the prospects for impact are solid. The effects could be remarkable if the National Electoral Commission takes the biometric voting system into consideration. The Commission has already announced that 2015 will be the country’s first general election to use biometric voter registration. If so, Tanzania will join the group of African countries that have adopted technology to make elections fairer and more transparent. Moreover, biometric system can prevent fraud by ensuring that the people who turn up to vote are who they say they are and by preventing zombie voters (people have been known to register under the names of the deceased in order to vote twice). Fingerprinting and facial recognition technology, techniques used by Magilatech product, ensure that this type of fraud cannot happen. Magilatech is also planning to introduce an electronic system for voting on election day. This would reduce chances for tampering, as it would imply reducing significantly the time between counting and announcing the results. Mobile application for parliament voting and biometric voting system for disabled people is a direct contribution to public involvement and participation in the democratic process in the country. It is also a direct contribution to a more transparent system and to enhancing good governance.</td>
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</tr>
<tr>
<td>NAME OF THE INCUBATEE</td>
<td>TYPE OF INCUBATEE</td>
<td>PRODUCT / SERVICE:</td>
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</tr>
<tr>
<td>Victronix Ltd.</td>
<td>Virtual startup</td>
<td>Solutions to charge mobile devices</td>
<td>Mobile phone accessories</td>
<td>Solutions still under development</td>
</tr>
</tbody>
</table>

**POTENTIAL IMPACT**

Victronix’s solar powered cell phone charging system can make a difference in increasing the provision of basic telecommunication services in underserved rural parts of Tanzania, which could in turn improve the welfare of the people in many areas (health, agriculture, transport, emergencies). Victronix’s revenue model allows franchising and therefore offers the possibility for increasing job creation in rural areas.

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<tr>
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<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safari Yetu</td>
<td>Virtual startup</td>
<td>Web and mobile based ticketing system for Intercity Bus ticketing</td>
<td>IT solutions for transport</td>
<td>Solutions still under development</td>
</tr>
</tbody>
</table>

**POTENTIAL IMPACT**

The mobile and web based intercity bus ticketing software is the first of its kind in Tanzania and the potential impact of the system once it is implemented could be many-fold. Its immediate impact is that by replacing an inaccurate, inefficient, paper-based booking processes, the system will enable bus operators to manage seat inventories accurately, track sales, and reduce current losses.

The developmental impact will be generated because the system will improve government revenue collection by conferring a higher degree of formalization to an economic activity that now takes place in the informal economy. It will also have an important impact on people, as most Africans often travel long distances by bus and have to go through the current difficulties of booking tickets, which are time-consuming and inefficient. Actually, since there is only one sheet of paper per bus, passengers must visit the operator’s office to book a ticket. This is not only inconvenient but costs passengers time and money. With the new system customers will be able to plan their trip well in advance. Passengers will be able to use computers and mobile phones to make reservations and pay using existing mobile payment systems. Agents will be able sell tickets to passengers who do not otherwise have easy access to the system. The implementation of this system could be a big step in the modernization of mass transport in the country with the ensuing aggregate economic benefits, including sizeable time savings; predictability and better planning; increased revenue for operators and the government; and at a higher level, the increased wellbeing of the population due to enhanced comfort.
This is the first ever online auction platform in Tanzania for commodities. XCommodity minimizes the costs of trade by improving the effectiveness of the matching process between buyers and sellers. It provides a trustworthy and exclusive central market, allowing commodity buyers and sellers to connect with each other and ensure the highest gains from the trade. This means increased transparency in the commodity market and the ensuing chances of improving government tax revenue collection. The company’s target groups are farmers, producers, processors, fabricators, manufacturers, trading houses, agricultural and mining co-ops, steel and brass mills, as well as government agencies.

The immediate impact of this solution is that it could eliminate middlemen working on commissions and acting as intermediaries and reducing benefits realized by the actual producers and farmers. Farmers will be able to get better prices for their farm crops. The overall developmental impact in the country could be sizeable given that Tanzania still heavily depends on agriculture, a sector that accounts for more than 25 percent of its GDP and provides 85 percent of exports and employs about 80 percent of the workforce. An initiative like this, which could improve the efficiency of the agricultural market, could have an important and direct impact on the development of the nation as a whole.

**BOX 3 WHAT IS AN ENTREPRENEURIAL ECOSYSTEM?**

In this report, the term entrepreneurial ecosystem refers to all organizations, individuals, and institutions influencing the promotion and growth of ICT technology-based emerging companies that focus on early-stage entrepreneurs, as well as the roles of these actors and the interactions between them.

This section analyses the effects of the DTBi on the entrepreneurial ecosystem at two levels: immediate and broader. The immediate level encompasses the effects generated to the entrepreneurs benefiting from DTBi services, that is, the incubatees. The broader level focuses on the effects generated by the DTBi on the ICT entrepreneurial ecosystem at large, that is, beyond the incubatees. The latter includes the effects and influence of the DTBi and its achievements on sector policy and on the development of the ecosystem at large.
This sub-section presents the outcomes generated by the DTBi for the entrepreneurs that benefited from its incubation program and related services.

The magnitude of DTBi’s influence on its proximate entrepreneurial ecosystem should be appreciated within the country’s particular context. There are two main factors that make the achievements significant. First, in Tanzania early-stage entrepreneurs do not have access to the public sector business/deals. Second, the government is a large buyer of ICT and an important part of these purchases are associated to areas with a high social development impact (e.g., basic service provision), meaning enhanced transparency in the government-to-citizen and government-to-business interaction. In this context, DTBi made a difference by playing an important role in overcoming some of the barriers that impede small companies from tapping into the opportunities offered by the government as a buyer of ICT solutions.

The major effects of DTBi on incubatees can be summarized in two parts:

1) **DTBi enabled incubatees to reach customers and access new markets they otherwise would not have access to.** This was done by bridging and facilitating the interaction between startups, SMEs, and government institutions in a context where the public sector tends to do business only with large long-standing companies.

Entering new markets in Tanzania is reliant on trust and the perception that the company is serious and reliable. This reputation is difficult to earn if the company does not have the means for exposure. DTBi provided this **degree of exposure** to incubatees, enabling them to expand their client portfolio to institutional clients such as local governments and ministries, as was the case with Dayon, DigitalBrain, and many others. It also enabled them to expand to other markets. This was the case with Maxcom’s expansion to Rwanda, which resulted from a meeting Maxcom participated in through DTBi.

The DTBi is able to provide this type of assistance by using one of its comparative advantages: its association with COSTECH, a well-reputed government institution in the country. Ministries, government agencies, and private sector corporations grant incubatees a certain level of trust because they know they receive coaching and support from DTBi, which in turn is under the COSTECH umbrella.

The DTBi provided incubatees with **leverage and guarantees** required to work with the public sector. The incubator provided bank guarantees and backed-up the technical solvency of its incubatees. This allowed them...
to participate in public procurement processes they would otherwise not have been able to participate in. DayOne obtained a guarantee for a World Bank tender for example, and BlackMark Corporation, a company that provides a School Information Management System for non-university colleges, obtained a guarantee for a government contract. DTBi/ COSTECH provide a guarantee to their clients that the work will be delivered as well as guarantee the startups will get paid.

Because DTBi is a quasi-government organization it was allowed to obtain waivers for incubatees to access public contracts. This makes DTBi a gateway to public procurement with the government, which is currently a major buyer of ICT solutions in the country. Other advantages of being a quasi-government institution include preferential ordering and obtaining expedited custom approvals for equipment.

The DTBi model has positive aspects and downsides of a public incubator operating in countries where the government has a strong presence. One positive aspect of the incubator being established within the COSTECH building is that it benefited from a high degree of political visibility and institutional acceptance, which produced positive effects in terms of generating demand for incubatees’ products. A downside however, has been that the DTBi branding is closely tied to COSTECH. DTBi has been perceived as COSTECH’s incubator, rather than as an autonomous incubator. Moreover, DTBi’s brand name has not been properly commercialized. This has positioned DTBi disproportionately close to the government in relation to the private sector.

**[2) The DTBi created an internal network with important cost-efficiency gains for incubatees**

A recurrent element mentioned in semi-structured interviews with incubatees was that the incubator offered the possibility to provide intra-services amongst incubatees, resulting in cost-efficiency gains. Similarly, the DTBi network of incubatees brings together a pool of talent that concentrates a high degree of technological expertise. This makes it possible for incubatees to have access to professional expertise and services that would otherwise be very difficult to tap into.

Some of the startups interviewed mentioned that coaching, training, pitching training sessions, and conferences organized by DTBi helped to build a business mindset in startups that were originally technology centered. DTBi support helped them move from interest, passion, and good ideas to developing products that can make money out of the solutions created.

The outcomes of DTBi operation for the first two years could have been higher if it had not been for the aforementioned stumbling blocks in implementations (see end of section 4.1.1). The organization had problems with availability of funds and lacked a business manager for over eight months, which meant the business support services were kept at very low levels. During this period the focus was on increasing incubates exposure by means of linking with the network of contacts from DTBi’s management. In this regard, the support strategy followed by DTBi in terms of linking companies with government actors was not a deliberate strategy in its entirety; it was partly a consequence of an adaptation to the circumstances. The strategy worked, especially for some virtual and resident companies, but the outcome could have been more significant should a well-developed business development program have been in place for each incubatee.

49. The DTBi has an insurance bond scheme that allows it to guarantee incubatees and to participate in deals.
50. Among many other examples, DayOne hires programmers from the innovation space and hires Magila Tech for security solutions; all at very competitive prices and easily accessible.
51. At that time Kibuko for example, left because the incubator as they were seeking linkages with private sector companies yet DTBi did not have resources to provide an interface with the private sector e.g. marketing of incubates by means of ads in the newspapers, presentations, etc.
4.2.2 Broader effects of DTBi on the wider ICT entrepreneurial ecosystem

KEY FINDINGS

- The DTBi made a substantial contribution in four areas: policy development, advocacy, setting the groundwork for replication, and promotion of both the incubation approach and ICT solutions.
- The current revision of the ICT policy is taking into account the DTBi experience.
- The DTBi management played a role in advocating for the elimination of entry barriers for early-stage ICT.
- COSTECH has been prompted to replicate the model in the Agribusiness sector and the MCST wants to replicate it at the regional level.
- Incubation models supporting the creation of companies that can absorb qualified and semi-qualified jobs are in demand, and the DTBi has proved that its model may be a good option.

A snapshot of the ecosystem

This section is about the effects and influence of DTBi on the country’s ICT entrepreneurial ecosystem. This ecosystem in Tanzania is relatively small, young, and concentrated in the capital, Dar es Salaam. Some of the main players in this ecosystem have already been mentioned in previous chapters, e.g., the Ministry of Communication Science and Technology (MCST), COSTECH, and the TANZICT. The ICT business support entrepreneurial ecosystem in particular is made of a few interconnected players that entered the sector only recently. DTBi is one of the first players and only came onto the scene in February 2011. Other key players are KINU and Mara Foundation. KINU is a social enterprise with the goal of concentrating, growing, and accelerating the Tanzanian tech and social landscape. It was established in September 2012 and operates as an open innovation space, offering capacity building for software developers and desks for early-stage startups. KINU is planning to start incubation services as well. Very recently, in March 2013, Mara Foundation was established in Dar es Salaam, an organization half way between a co-working space and incubation with services such as access to networking, mentorship and attendance to capacity building workshops and events. Mara Foundation does not focus exclusively on ICT business.

The DTBi formed a close relationship with most of the actors in this growing ecosystem. There has been certain coordination of activities and interaction in events, which at times were jointly organized. Physical proximity has been a positive factor in this regard, as DTBi and TANZICT are hosted in the COSTECH building. KINU collaborated with DTBi, providing technical training and capacity building for incubatees.

In less than three years the DTBi made several key contributions to the ecosystem at large. These contributions may be grouped in four areas: policy development, advocacy, setting the groundwork for replication, and the promotion of both the incubation and ICT solutions.

Policy development

The DTBi management is directly involved in the review of the ICT policy, which ensures that lessons learned at DTBi are incorporated in the policy review process. Indeed, DTBi’s experience is one of the inputs the MCST is taking into account in the review process. The DTBi’s management provides specific insights on how the MCST’s policy on ICT can contribute to the Tanzania Development Vision 2025, and particularly, on how youth can be linked to the implementation of the ICT policy. The MCST is seeking an ICT policy that contributes to the economy directly and positively, and DTBi is perceived as an initiative that can offer valuable lessons and perspectives in this regard.
Advocacy for policy reform

DTBi is also playing an advocacy role on issues affecting the entrepreneurial ecosystem at large. The DTBi’s management has been advocating for the lifting of the regulation stipulating that only companies with audited accounts showing profits for three consecutive years can participate in public tenders and it is also advocating for Intellectual Property to be accepted as collateral for loans.

Replication of the model

The Government of Tanzania has prompted COSTECH to replicate the DTBi’s incubation experience in the Agribusiness sector, the second national priority in the current Five Year National Development Plan 2011-2016. The plan includes human capital and skills development with an emphasis on science, technology, and innovation as another of its priorities.

Similarly, the Ministry of Communication Science and Technology has expressed the need for replicating the DTBi experience at a regional level i.e., in the provinces. The fact that the DTBi experience is widely perceived by the government as a success can be considered an overall indicator of achievement at a national level.

There are several factors behind DTBi’s high potential for replication. The main factor is that the model is perceived as a success in light of the experiences of Maxcom, DayOne, and DigitalBrain mentioned above. Yet there are four additional factors that make the Tanzanian context very propitious for business incubation models to expand:

1. The government sees DTBi’s approach as a solution to reduce the failure rate in small businesses.

It is estimated that there is a high rate of failure among startups and SMEs in Tanzania. Although there are no official figures at the moment, COSTECH estimates that the percentage of startups that either close or change business in the first five years of operation could be as high as 90 percent in Tanzania. Regional figures also show high percentages.

2. The country is in front of a demographic divide, which increases the portion of the population in the working age group and the subsequent need for employment creation.

COSTECH has been asked to replicate the model in the Agribusiness sector and the MCST wants to replicate it at regional level.

Figure 4 Population Pyramid in Tanzania


53. Refer to page ii of the Plan. The five core priorities are infrastructure, agriculture (with an emphasis on moving to high value crops), human capital and skills development and tourism, trade and financial services.

54. leipzig.de/fileadmin/sept/media/Workshops/4rd_workshop/Presentation_Chamber_Commerce.pdf

55. According to GroFin more than 70 percent of SME fail during the first three years of operation (Vc4Africa, 2012); 75 percent of new SMEs created in South Africa fail within the first two years of operation (Fatoki & Odeyemi, 2010: 128); and three out of five businesses fail in Kenya within the first few months (Bowen, Morara & Mureithi, 2009).
As shown by the national census conducted by the National Bureau of Statistics in 2012, Tanzania is a particularly young country with a median age of 18 years\textsuperscript{56}. Detailed age structure is as follows: 43.9 percent of the population is below 15 years old, 52.2 percent are working age population (15-64 years) and 3.9 percent are aged 65 or older \textsuperscript{57}.

Taking the working age population into account, in Dar es Salaam, the number of people between 15 and 64 years is the highest in country (66.3 percent).

3) There has been a substantial increase in primary and secondary school enrolment. This adds to a growing young population searching for qualified or semi-qualified jobs and the ICT sector can be a good option in this regard.

**BOX 5 FACTS: INCREASE IN ENROLMENT RATES**

The net primary school enrolment rate increased from 59 percent in 2000 to 92 percent in 2011/12. Similarly, the dropout rate within primary school decreased from 3.8 percent in 2003 to 0.83 percent in 2011/12. In terms of secondary school enrolment, net enrolment increased from 6 percent in 2002 to 36.6 percent in 2011/2012.

Secondary dropout rate diminished from 6.6 percent in 2003 to 4 percent in 2011/12. But not only this. The gross enrolment ration of higher education increased also significantly: from 0.27 percent in 2006/06 to 9.5 percent in 2011/12.\textsuperscript{58}

(4) To date, there has been no significant increase in job creation in the country to meet the growing demand for employment.

Government efforts to decrease the unemployment rate to 7 percent by 2010, after the 2006 Labor Force Survey, have not yielded the desired results: at the beginning of 2012 the unemployment rate was still at 10.7 percent of the labor force. Youth unemployment in urban areas (13 percent) is significantly higher than in rural areas (2 percent). According to the 2012’s Country Economic Memorandum (CEM) the private sector has not been developed sufficiently and a fully dynamic private sector does not yet exist. The CEM points out that the establishment of a number of new and growing firms is a key to create a wide range of new job opportunities. In this regard, stimulating and supporting entrepreneurship is crucial to create employment opportunities \textsuperscript{59}.

Altogether, an increasing number of young people will enter the job market in the coming years, which requires an equivalent number of job opportunities emerging to avoid a significant rise in unemployment. In this scenario it is expected that support for entrepreneurship should play a crucial role \textsuperscript{60}.

Moreover, incubation models supporting the creation of companies that can absorb qualified and semi-qualified jobs are in demand, and the DTBi proved that its model is a good option. As seen in section 4.1, the job creation impact generated by incubatees is still limited, but the case of Maxcom has become a reference for the possibilities offered by the DTBi model \textsuperscript{61}.

\textsuperscript{56} Tanzania’s proportion of young population (0-14 years) stands at 45 percent, which is higher than the African average (41 percent) and also slightly higher than the East Africa average (44 percent) and Sub-Saharan Africa (43 percent). See Population Reference Bureau, 2013: 7-8.


\textsuperscript{58} Education Sector Performance Report, 2011/12. The United Republic of Tanzania. Education Sector Development Committee, September 2012.

\textsuperscript{59} Tanzania: Country Economic Memorandum – Concept Note. Growth for jobs: Moving up the productivity ladder through structural changes, 2012

\textsuperscript{60} According to an ILO report on Youth Employment of 2013 promoting entrepreneurship plays a crucial role in countervailing unemployment as entrepreneurship might “unleash economic potential” and ultimately lead to “greater independence, higher income potential and increased job satisfaction” in the country (ILO, “Global Employment Trends for Youth”, 2013.

\textsuperscript{61} Maxcom has created an additional 3,000 indirect jobs since it joined the DTBi.
Active promotion of the business incubation concept and its profile in the country

When DTBi was officially launched at the end of October 2011, business incubation was a new concept in Tanzania. However, today it is starting to be perceived as a valuable tool that can play a role in supporting entrepreneurship in the country.

DTBi received visits from parliamentary committee members and used these opportunities to assert the role of incubation. As a consequence, the role of ICT as a solution provider helping to generate more public revenue and the role of business incubation were mentioned in parliamentary sessions. This resulted in a considerable boost for incubatees such as DayOne in terms of public recognition as serious enterprises offering valuable solutions, as well as raised awareness about the profile and possibilities offered by business incubation. In July 2013 the Smart Partnership Dialogue for Heads of State from Africa and Asia 62, COSTECH/DTBi and the business incubation program in particular received explicit recognition of the country’s President in the opening speech.

62. These Dialogues began as a platform for scientists to meet and discuss Scientific and Technological issues that were relevant all over the world and show the tremendous effect and change in how the community can use ICT as enabling tool to solve their problems and to facilitate business [http://www.globaldialogue2013.go.tz/about.php]
5. CONCLUSIONS

This chapter summarizes the main findings and conclusions of this Outcome Assessment.

Economic outcomes

Two years after the launch of the Incubator, incubatees’ performance metrics do not yet show prominent figures across the board and values stand out only for a few companies. Revenue growth reveals uneven trends; values for investment attracted are still very modest; there are increases in contracts secured for all types of incubatees throughout the period analyzed and the same occurs for job creation. However, aggregate values for the latter conceal concentration of increases in a few incubatees.

The relatively modest performance in economic outcomes may be explained by three factors: Stumbling blocks in implementation, a rather short implementation timeframe and the fact that during the first two years DTBi did not have a fully-fledged and manned business development incubation program in place.

There is some degree of association between the DTBi activities and performance metrics such as contracts secured and investment attracted. Anecdotal evidence reveals that DTBi may also have contributed to the creation of jobs by helping incubatees secure contracts. The DTBi activities with a more tangible influence on economic outcome metrics were financial advisory and brokerage services, mentoring, and market linkages. Such activities consisted for example, in introducing incubatees to government agencies, supporting them in public tenders, and offering bank guarantees for incubatees to access bank loans.

Development impact of incubatees’ products and services

One third of the companies and startups incubating at DTBi offer products and services having actual or potential development impact. Three of these companies have already generated tangible impact and address problems of critical relevance for the country: 1) A software solution that allows the practical implementation of governance, transparency, and equity principles in access to education; 2) a software information system generating increases in the revenues collected by local government authorities, who as a result have increased funding for education and health infrastructure; and 3) a technological platform to process payment options, which has created substantial employment, improved public services revenue collection, and brought about improvements in the quality of life for the citizens.

The experiences of these three companies are becoming a reference as well as a source of inspiration for other startups and for the ecosystem at large. The DTBi played a role in positioning these companies so that they could generate the development impact.

There are five incubatees with products featuring a high potential to contribute to the socioeconomic and/or political development of the country at large.

Immediate outcome for the proximate entrepreneurial ecosystem

The most significant outcome is that the DTBi enabled incubatees to reach customers and access new markets they were not otherwise able to tap into. DTBi made a difference by playing an important role in overcoming some of the barriers that impede small companies from accessing the opportunities offered by the government as a buyer of ICT solutions, such as the requirement for guarantees to be able to participate in public procurement processes.

Additionally, DTBi incubatees form an internal network with important cost-efficiency gains: incubatees now have easy access to professional expertise at competitive prices from other peer incubatees.

The outcomes of the DTBi operation for the first two years could have been higher if there had not been aspects slowing implementation - such as the protracted procurement procedures for setting up the office and equipment and the need to revise and adjust the composition of DTBi’s Board - and a lack of focus on
a business development support strategy centered on incubatees’ performance during the first period.

**Broader effects of the DTBi on the wider ICT entrepreneurial ecosystem**

In less than three years the DTBi has made, and is making, several key contributions to the ecosystem at large. The incubator is directly involved in the review of the country’s ICT policy and it is playing an important advocacy role on issues affecting the entrepreneurial ecosystem at large, such as accepting intellectual property as collateral for loans and changes in the rules for SMEs to participate in public tenders. Moreover, COSTECH has been asked to replicate the model in the Agribusiness sector and the Ministry of Communications, Science and Technology wants to replicate it at a regional level. Additionally, DTBi played a key role in positioning the business incubation concept — a valuable tool to support entrepreneurship in the country.

**Concluding remarks**

The DTBi experience reveals that contributing to entrepreneurs achieving economic outcomes hinges on three factors: 1) a focus on improving the performance capacity of incubatees by offering skills building, capacity building, and mentoring (through business development support); 2) a focus on expanding the incubatees exposure and their linkages to funding sources and new clients; and 3) a sufficient timeframe allowing the outcomes to occur. The DTBi did not prioritize the first element, but did a good job with the second in a scenario where the timeframe is still too short to allow for a final judgment.

At the time of the field visits for this Outcome Assessment in October 2012, DTBi was establishing a business support incubation program with business performance in the center, complemented by networking and market linkages. This approach offers good prospects for economic outcomes to be more prominent in the near future.

Government affiliation, a particular feature of DTBi, worked both to the benefit and to the disadvantage of the project. It generated political visibility and institutional acceptance, which in turn generated demand for incubatees’ products and was instrumental for advocacy. However, it positioned the DTBi disproportionately close to the government in relation to the private sector.

The broader effects of the DTBi on the wider ICT entrepreneurial ecosystem are of particular interest as they were not an explicit goal in the original project design. DTBi had a visible and tangible role in paving the way for business incubation to play a role in the growth of ICT-based companies and beyond, given that it has promoted business incubation as a concept and a tool that to be applied in other sectors as well.
APPRAOCH AND RATIONALE

The methodology followed a qualitative approach considering an important aspect of the assessment was to understand the nature of the outcomes and draw lessons from them. Qualitative methods (interviews, group discussions, direct observation) are well suited for this purpose because they produce in-depth information on the why and how outcomes are generated. Furthermore, qualitative methods such as interviews and group discussion are particularly useful to identify unexpected or unplanned outcomes.

The methods used for data collection included:
- Documentation review
- Face-to-face interviews
- Group discussions
- Phone interviews and email exchanges
- Gathering updated data on companies’ performance though DTBi

Although the methodology was eminently qualitative, it combined the use of quantitative and qualitative data. Qualitative data were gathered through face-to-face interviews and group discussions, and quantitative data on companies’ performance were collected on site through the DTBi.

Quantitative data was collected on the following variables: revenue growth, investment attracted, contracts secured, job created, nature of the jobs created, and customers reached. In order to analyze the evolution of these variables, data was collected at three points in time for each incubatee: (1) when joining the DTBi, (2) on December 2012, and (3) as of September 2013, that is, right before the field visit for the Outcome Assessment. Moreover, quantitative data on the actual development impact of products and services was collected through in-depth interviews with incubatees conducted for specific case studies.

Qualitative data on companies’ performance, on the actual and potential development impact of products and services, and on the effects of DTBi on the entrepreneurial ecosystem was collected by means of semi-structured interviews, in-depth interviews for case studies, and group discussions.

Table 4 summarizes the types of data collected and the methods for collecting them in each case:

The process of data collection included a four-day field visit to Tanzania at the beginning of October 2013.

Previous to the field visit and with the assistance of infoDev, a quick mapping exercise was conducted to identify the main ICT entrepreneurial ecosystem actors in the country. Most of them were interviewed during the field visit in Tanzania (see the list of people interviewed in Annex 2).

SAMPLE SELECTION OF INTERVIEWEES

Data on target variables (success metrics such as revenues, job created, etc.) were collected for all DTBi clients, that is, for all participants in incubation programs. Therefore, for quantitative data no sampling was conducted: data were collected for the entire population of incubatees.

Conversely, sampling was used to collect qualitative data on products and services with a development impact as well as data on the effects of DTBi on the entrepreneurial ecosystem. For that purpose, the sampling method used to select interviewees was purposeful sampling (also called non-probability sampling), a method usually applied when the objective is to study information-rich cases in depth.

63. The infoDev-CAD project: the present assessment is inserted, also included the production of a number of case studies on entrepreneurs, some of which were conducted in Tanzania with DTBi’s incubatees.
The outcome assessment took place two and a half years after the creation of the incubator and just two years after it had effectively started operations. This is a short timeframe to assess the outcomes for a newly created organization and more specifically to see impact. The findings in the outcome section (chapter 4) should be interpreted and appraised against this backdrop.

The short implementation timeframe before the assessment is one of the factors explaining why some of the outcomes are not yet palpable (such as the development impact for some of the products and services, or the creation of jobs). But not only this; it also explains why other outcomes are particularly significant. For example, the fact that the model may be replicated at regional level is quite a remarkable outcome in a context where DTBi has only operated the model for two years.

The main limitations when conducting the assessment were associated to constraints in data availability and accuracy. Data availability was constrained by reluctance to reveal figures on sensitive data. With regard to data accuracy, the main limitation is that data could not be validated and verified because access to the raw sources of data was not possible.
## ANNEX 2. LIST OF PEOPLE AND ORGANIZATIONS INTERVIEW

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hassan Mshinda</td>
<td>General Director of COSTECH and DTBi Advisory Board member</td>
<td>COSTECH</td>
</tr>
<tr>
<td>Mihayo Wilmore</td>
<td>DTBi Advisory Board member</td>
<td>Uhuru One (private company)</td>
</tr>
<tr>
<td>George Mulamula</td>
<td>Chief Executive Officer &amp; Senior Government Advisor (ICT &amp; Entrepreneurship)</td>
<td>DTBi</td>
</tr>
<tr>
<td>Makange Mramba</td>
<td>Finance Director</td>
<td>DTBi</td>
</tr>
<tr>
<td>Collin Gumbu</td>
<td>Business Development Manager</td>
<td>DTBi</td>
</tr>
<tr>
<td>Ahmed S.Lusassi</td>
<td>Chief Operation Officer- COO</td>
<td>om Africa Ltd.</td>
</tr>
<tr>
<td>Juma Rajabu</td>
<td>Managing Director</td>
<td>om Africa Ltd.</td>
</tr>
<tr>
<td>Athena Leonce</td>
<td>Country Distribution Manager</td>
<td>om Africa Ltd.</td>
</tr>
<tr>
<td>Godfrey Magila</td>
<td>Chief Executive Officer</td>
<td>Magilatech</td>
</tr>
<tr>
<td>Vincent Kimaro</td>
<td>Chief Executive Officer</td>
<td>DayOne Softcom Technologies</td>
</tr>
<tr>
<td>Arnold Minde</td>
<td>Chief Executive Officer</td>
<td>Safari Yetu</td>
</tr>
<tr>
<td>Mbutho Chibwaye</td>
<td>Chief Executive Officer</td>
<td>Digital Brain Co. Ltd.</td>
</tr>
<tr>
<td>Clarence K. Ichwekeleza</td>
<td>Director of Communication Services</td>
<td>Ministry of Communications, Science and Technology</td>
</tr>
<tr>
<td>Iiro Kolehmainen</td>
<td>Associate Expert</td>
<td>TANZICT</td>
</tr>
<tr>
<td>Johnpaul Barretto</td>
<td>Community Manager &amp; Co-Founder</td>
<td>KINU</td>
</tr>
<tr>
<td>Nina Werner</td>
<td>Country Director Tanzania</td>
<td>Mara Foundation</td>
</tr>
</tbody>
</table>
### ANNEX 3. DATA ON PERFORMANCE METRICS
#### BY TYPE OF INCUBATEE

#### 3.1 AGGREGATED DATA FOR INCUBATEES

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013 (Sept)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of companies</td>
<td>240</td>
<td>713</td>
<td>89</td>
</tr>
<tr>
<td>Investment attracted (000 USD)</td>
<td>0</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Contracts Secured (# cumulative)</td>
<td>49</td>
<td>99</td>
<td>123</td>
</tr>
<tr>
<td>Employees (Direct jobs) (# cumulative)</td>
<td>15</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Costumers reached (# cumulative)</td>
<td>44</td>
<td>99</td>
<td>123</td>
</tr>
</tbody>
</table>

#### 3.2 DATA ON RESIDENT COMPANIES

#### RESIDENT COMPANIES: KEY DATA

- **Revenue generated** (non cumulative; 000 USD)
  - 2011: 200,000 USD
  - 2012: 173,000 USD
  - 2013 (Sept): 89,000 USD
- **Contracts Secured** (# cumulative)
  - 2011: 44
  - 2012: 99
  - 2013 (Sept): 123
- **Employees (Direct jobs)** (# cumulative)
  - 2011: 15
  - 2012: 17
  - 2013 (Sept): 18
- **Costumers reached** (# cumulative)
  - 2011: 44
  - 2012: 99
  - 2013 (Sept): 123

Number of companies: **5**

Investment attracted: **110,000 USD**
3.3 DATA ON VIRTUAL COMPANIES

VIRTUAL COMPANIES: KEY DATA

Revenue generated (non cumulative; '000 USD)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>459</td>
<td>1205</td>
<td>780</td>
</tr>
</tbody>
</table>

Contracts Secured (# cumulative)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>53</td>
<td>142</td>
<td>217</td>
</tr>
</tbody>
</table>

Employees [Direct jobs] (# cumulative)

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>46</td>
<td>116</td>
<td>149</td>
</tr>
</tbody>
</table>

Costumers reached (# cumulative)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2053</td>
<td>4642</td>
<td>6214</td>
</tr>
</tbody>
</table>

Number of companies: 9
Investment attracted (none)

3.4 DATA ON RESIDENT STARTUPS

RESIDENT STARTUPS: KEY DATA

Revenue generated (non cumulative; '000 USD)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>7</td>
<td>19</td>
</tr>
</tbody>
</table>

Contracts Secured (# cumulative)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>17</td>
<td>21</td>
</tr>
</tbody>
</table>

Employees [Direct jobs] (# cumulative)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

Costumers reached (# cumulative)

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>17</td>
<td>21</td>
</tr>
</tbody>
</table>

Number of startups: 5
Investment attracted: 7,500 USD
### 3.5 Data on Virtual Startups

**Virtual Startups: Key Data**

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>Number of Startups</th>
<th>Revenue Generated ('000 USD)</th>
<th>Contracts Secured (# Cumulative)</th>
<th>Employees (Direct Jobs) (# Cumulative)</th>
<th>Costumers Reached (# Cumulative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>10</td>
<td>18,500 USD</td>
<td>0</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td>11</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>2013 (Sept)</td>
<td></td>
<td></td>
<td>19</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>

### 3.6 Data on Companies (Both Resident and Virtual)

**Companies: Key Data**

<table>
<thead>
<tr>
<th>Year (Sept)</th>
<th>Number of Companies</th>
<th>Revenue Generated ('000 USD)</th>
<th>Contracts Secured (# Cumulative)</th>
<th>Employees (Direct Jobs) (# Cumulative)</th>
<th>Costumers Reached (# Cumulative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>14</td>
<td>109,500 USD</td>
<td>102</td>
<td>61</td>
<td>2102</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td>241</td>
<td>133</td>
<td>4741</td>
</tr>
<tr>
<td>2013 (Sept)</td>
<td></td>
<td></td>
<td>340</td>
<td>167</td>
<td>6337</td>
</tr>
</tbody>
</table>

48
3.7 DATA ON STARTUPS (BOTH RESIDENT AND VIRTUAL)

STARTUPS: KEY DATA

- **Revenue generated (non cumulative; ‘000 USD)**
  - 2011: 35
  - 2012: 37
  - 2013: 85

- **Employees (Direct jobs) (# cumulative)**
  - 2011: 21
  - 2012: 26
  - 2013: 31

- **Contracts Secured (# cumulative)**
  - 2011: 4
  - 2012: 28
  - 2013: 40

- **Costumers reached (# cumulative)**
  - 2011: 4
  - 2012: 28
  - 2013: 40

**Investment attracted**: 26,000 USD

**Startups incubated**: 15