ICT Hubs model: Understanding Factors that make up Kinu Hub Model in Dar es salaam, Tanzania

Draft Report By

*iHub Research

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Duncan Gathege & Hilda Moraa

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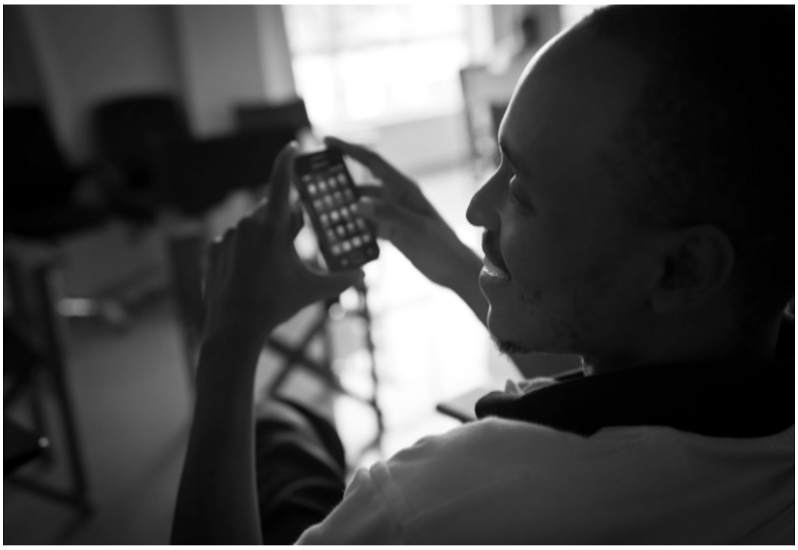

Source: Jonathan Kalan (2012).

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ACRONYMS

COSTECH	The Tanzania Commission for Science and Technology
EU	European Union
FYDP	Five year Development Plan
GDP	Gross Domestic Product
HR	Human Resource
ICT	Information and Communication Technologies
IDI	ICT Development Index
IICD	International Institute for Communication and Developments
ITU	International Telecommunication Union
NGO	Non-Governmental Organization
NRI	Network Readiness Index
NTP	National Telecommunication Plan
R&D	Research and Development
STI	Science, Technology and Innovation
TCRA	Telecommunication Regulatory Authority
UNESCO	United Nations Educational, Scientific and Cultural Organization
VSAT	Very Small Aperture Terminal

ABSTRACT

iHub Research is conducting an on-going research to understand the unique factors that make up ICT Hub models across Africa. The objective of the study is to understand the models of the Hubs/Labs, its entrepreneurs and the sustainable impact of these Hubs/Labs in spurring innovations that improve livelihoods. Little inquiry, if any, has been done to understand the various ICT Hub models developing all over Africa, and how such factors influence the entrepreneurs in the spaces. iHub Research aims to fill this dearth of information through a 2-phased study.

This study profiles KINU-Hub in Dar es Salaam, Tanzania. We give an overview of Tanzania's country profile and literature overview of ICT growth and development in Tanzania. The study then focuses on the guiding principles and factors that constitute the KINU-Hub model. These factors are based on their genesis, open innovation, partnerships and engagement with the members among others.

This study's findings reveal that KINU hub was established due to the need to bring Tanzania tech community together, create an environment whereby the next generation of innovators can be nurtured so that a culture of co-creation and innovation can be developed and ultimately act as a catalyst for growth and capacity building not only in Tanzania but also in Africa as a whole. To realize this noble mission, the present collaboration and partnership with funders such as the Google, Indigo Trust, SEACOM, Raha, Smile, Samsung and Uhuru One should be encouraged until such a time that KINU becomes self-sustainable. However, the challenges identified in this study ranging from low number of developers, lack of skills from members to funding among others must be solved to fully appreciate the role KINU hub will play in changing the Tanzanian tech community.

Key words: *ICT Hubs, Tanzania, model, guiding principles, sustainability, entrepreneurs*

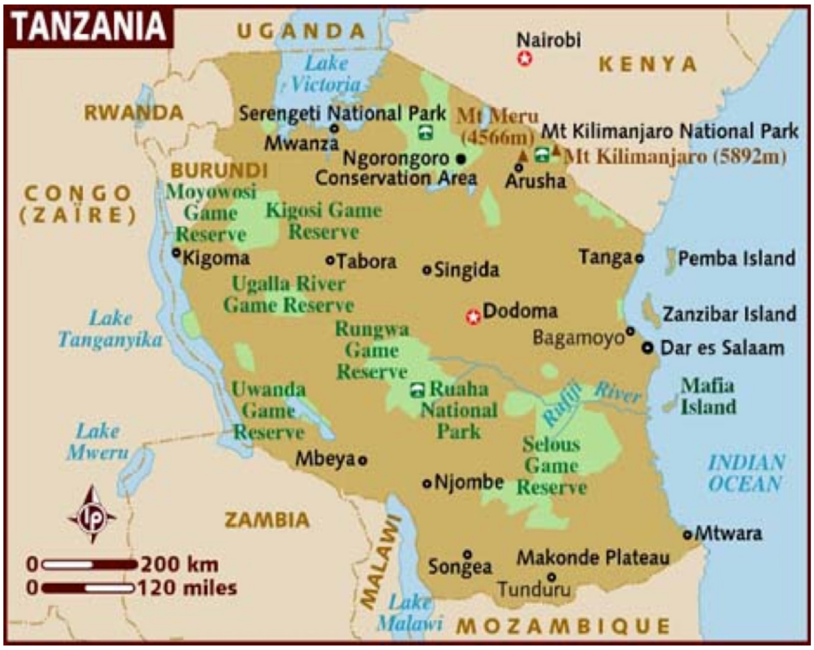
CHAPTER

01 INTRODUCTION

1.1 TANZANIA COUNTRY PROFILE

The United Republic of Tanzania is a union of Tanganyika and the offshore islands of Zanzibar and Pemba located in East Africa. It borders Kenya and Uganda to the North, Democratic Republic of Congo, Rwanda and Burundi to the west, Malawi, Zambia and Mozambique to the South and Indian Ocean to the East. It covers an area of approximately 947, 300 sq km (CIA World Factbook, 2012). Diagram 1 below shows the map of Tanzania.

Figure 1: Pictorial Tanzania and her neighbors



Source: Lonely Planet's 2013

According to the World Bank (2011), the total population of Tanzania stood at 46.22 million people, while her GDP in US $ was 23.87 billion in 2011 and GDP growth rate of 6.8 % in 2012 according to African Economic Outlook (2012). Dodoma is the official capital city and the seat of the parliament, while Dar es Salaam is the commercial capital and home to many government institutions and diplomatic missions. The national language is Kiswahili, which is the most widely spoken. English is used for international communication and as a medium of instructions for secondary and higher education (Behista & Diyamett, 2010).

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Life expectancy at birth averaged at 53.14 years (male: 51.62 years; female: 54.7 years) as at 2012. Literacy rate defined as all people aged 15 and over who can read and write Kiswahili, English or Arabic was 69.4%, while in religion, Christianity constitutes 30% of the total population, Muslim 35% and Indigenous beliefs 35% (CIA World Factbook, 2012).

Specifically to ICT development indicators in Tanzania, using globally recognized indices to determine the status of ICT advancement, two measures are used: the Network Readiness Index (NRI) and the International Telecommunication Union (ITU). The Network Readiness Index (NRI), according to the World Economic Forum (WEF), measures the propensity for countries to exploit the opportunities offered by ICTs. It follows then that the NRI seeks to comprehend the impact of ICT on the competitiveness of nations. According to the latest WEF ranking of 2012/13, Tanzania ranked at position 120/144 countries. On the other hand, the International Telecommunication Union (ITU) report of 2012 ranks Tanzania at position 139/155 in ICT Development Index (IDI). These two indices indicate that a lot more need to be done in Tanzania in the ICT sector for socio-economic development. Table 1 below summarizes the above-mentioned socio-economic indices in Tanzania.

Table 1: Tanzania Demographics and Social-Economic Indicators

Population (2012)	46.22 million
Area (sq km)	947,300
Capital City **Commercial city**	Dodoma Dar es Salaam
GDP (US $) (2011) **GDP growth rate (2012)**	23.87 billion 6.8%
Life Expectancy (2012)	53.14 years
Religions: **Christians** **Muslims** **Indigenous beliefs**	 30% 35% 35%

National Language	Kiswahili
Network Readiness Index (NRI) (2012)	120/144 countries
ITU index	139/155 countries

1.2 ICT DEVELOPMENTS IN TANZANIA

Information and Communications Technologies (ICTs) is defined by UNESCO (2007) as "*forms of technologies that are used to transmit, process, store, create, display, share or exchange information by electronic means. This broad definition of ICT includes such technologies as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, and computer and network hardware and software, as well as the equipment and services associated with these technologies, such as videoconferencing, email and blogs.*" (p.1).

According to the International Institute for Communication and Developments (IICD) (2012), Tanzania has been making progress in development of ICTs since 1998 when they launched the Tanzania Country Program with a national ICT roundtable, but it was not until early 2000 that the program really started to take off. This program has a wide range of projects and activities, which include capacity building, knowledge sharing, and monitoring and evaluation. The program is currently active in four sectors: Governance, education, livelihoods (agriculture) and health.

It is worth noting that the Tanzania Development Vision 2025 envisages a nation imbued with five main attributes including high quality livelihood; peace, stability and unity; good governance; a well educated and learning society; and a strong and competitive economy capable of producing sustainable growth and shared benefits. According to AllAfrica News (2013) ICT, if appropriately used, can be an integral tool in addressing the key educational challenges such as e-learning and mobile-learning technologies and alternative delivery systems for access rich and interactive digital content to improve quality and technologies. ICT is one of the sectors, which offer huge potential for creating massive employment, a necessary element in the government efforts to alleviate abject poverty in the country.

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The Tanzania government in her latest Five Year Development Plan (FYDP) 2011/2012-2014/2015, recognizes the critical role played by Science, Technology and Innovation (STI) that positively affects economic growth via raising the productivity of labour and other factors of production, increasing efficiency, and lowering transaction costs. Therefore, establishing a well functioning STI infrastructure and particularly harnessing information communication technology (ICT) will be necessary to foster efficient and high yielding production processes. This will be achieved through various objectives including:

i. Enhancing Tanzania's ICT backbone and infrastructural capacity for efficient services and regional connectivity to provide 40 percent of the communication services of the land- locked countries by 2015;

ii. Developing a reliable state of the art ICT infrastructure of adequate capacity, high speed and country-wide coverage that will be commensurate with grassroots needs and compliant with regional and international standards;

iii. Establishing a state of the art STI infrastructure to support the generation and use of new technologies in the productive sectors by setting up modern R&D facilities at strategic institutions such as the completion and strengthening of Nelson Mandela African Institute of Technology (NM-AIST), establishing a biotechnology centre at Sokoine University of Agriculture (SUA), and introducing one food irradiator through the Tanzania Atomic Energy Commission (TAEC) that will reduce post-harvest losses and increase food safety in the country (The United Republic of Tanzania, FYDP, 201, p.63).

There are polices and regulations in the ICT sector in Tanzania. For instance, the Communication Act of 1993 paved the way for liberalization of the telecommunication sector; the National Telecommunication Policy (NTP) of 1997 continues to provide the framework for further reforms while the private sector also engages in this sector. In 2003, the Telecommunication Regulatory Authority (TCRA) was established as an independent agency for the regulating and licensing of postal, broadcast and communication industries. TCRA is mandated to promote competition and economic efficiency, protect consumer interests, grant and enforce licenses and, regulate tariffs and monitor performance (Behista & Diyamett, 2010).

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In addition, the National ICT Policy (2003) is a reflection of national goals, objectives and aspirations as expressed in Vision 2025, setting out digital opportunities that Tanzania can exploit towards meeting Vision 2025. The Policy has articulated ten main focus areas in harnessing ICT in Tanzania which include strategic ICT leadership; ICT infrastructure; ICT Industry; Human Capital; Legal and Regulatory Framework; Productive Sectors; Service Sectors; Public Service; Local Content; and Universal Access. Implementation of the National ICT Policy in Tanzania involves various stakeholders - both public and private.

The Government also established the Ministry of Communication, Science and Technology in 2008, which among other tasks, is charged with the responsibility to create a conducive environment for investment, introduction and use of ICT in national development efforts and government operations.

With the Ministry of Communication, Science and Technologies taking the lead, all government Ministries, Departments and Agencies (MDAs) are required to prepare relevant sector specific ICT strategies for effective application of ICT. There are also development partners, and NGOs working with and facilitating MDAs in developing ICT strategies as well as carrying out specific projects towards implementation of ICT. The Tanzania Commission for Science and Technology (COSTECH) plays a role in promoting ICT along with other technologies for development and also assists sector ministries in developing ICT strategies. In this regard, COSTECH championed the development of ICT strategies in health, education, and good governance, particularly local government sectors.

With the above-mentioned policies and regulations in place, several benefits have been achieved. The use of mobile phones has risen exponentially. Mobile subscriber base rose from 15 million people in 2009 to 20.9 million at the end of 2012, which is equal to an increase of 27.5% of the mobile subscribers per year. This shows that mobile phone penetration is growing at a considerable rate. Out of the 20.7 million mobile phone subscribers, only 4.8 million (25%) of the subscribers access and use internet through the phone. The major mobile operators in Tanzania are Vodacom, Airtel, Tigo, TTCL-mobile, Zantel-mobile, Sasatel and Benson. The recent introduction of the 3G wireless broadband service has greatly boosted Internet usage. Although indicators show rapid growth in the Tanzanian ICT infrastructure, communication facilities are available mainly in the urban areas leaving the rural areas where the majority of Tanzanians live, being underserved (IST-Africa Consortium, 2012).

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The bilateral collaboration between the Ministry of Communications, Science and Technology of Tanzania (MCST) and Ministry for Foreign Affairs of Finland has led to the TANZICT project. TANZICT stands for The Information Society and ICT Sector Development Project. The project's overall objective is a strengthened Tanzania information society with enhanced capacities to contribute to the achievement of the Government socio-economic development goals.

According to IST-Africa (2012), there were about 168,895 landlines and 27.85 million mobiles in use as at June 2012. The domestic fixed-line telephone network was less than 1 connection per 100 persons while the mobile-cellular service, aided by multiple providers, was increasing. However, the cost of connectivity is very high in Tanzania, which creates barriers to the spread and use of Internet, which is a major vehicle for the transfer of data and access to information. Many higher education institutions use VSAT for bandwidth Internet. A national ICT network of universities, other institutions of higher learning and research institutions was launched in 2002 to provide an electronic network for connecting all higher education institutions in the country, as well as research institutes.

Charoz (2012) opines that while Africa's quest for becoming a global ICT destination appears bright, Tanzania does not want to be left behind. The country is stepping forward from the shadows becoming the actor, instead of just an audience. He further observes that private firms have come in to enhance the country's ICT reach by setting up a tech and mobile hub in the heart of Dar es Salaam.

Behista & Diyamett (2010) while assessing "*Tanzania* ICT S*ector Performance Review 2009/2010*" citing Tanzania's Budget speech of 2010/11; observes that Tanzania's telecommunication sector was the fastest growing sector of the economy in 2009 since it recorded 21.9% growth, up from 20.5% in 2008. The sector contributed 2.5% to the GDP in 2009 up from 2.1% in 2008. However, high unemployment levels in Tanzania may affect the gains from ICT to the economy.

Unemployment remains a great concern in Tanzania. The 2006 Integrated Labour Force Survey (ILFS) shows that 2,194,392 persons were unemployed, which is equivalent to 11.7% of the total Labour Force population in the country. During that period, the Labour Force population was 18,821,525 of whom, 16,627,133 persons were employed and among the employed, 1,682,383 persons were in the informal sector.

The estimates of currently unemployed persons for year 2011 are 2,368,672 persons, which is equivalent to 10.7% of the labour force population. Currently the total number of labour force population is estimated to be 22,152,320 persons, of whom 19,783,648 are estimated to be employed, among the employed, 2,502,327 persons are estimated to be employed in the informal sector. Most of Tanzanians engage in a range of activities to earn a living; as a result, unemployment rate seem to be low as compared to most of the peoples' understanding, which confuses between employment in the informal sector and employment in the formal sector economy (National Bureau of Statistics, 2012).

Mcha (2012) while writing for "*Tanzania Country Level Knowledge Network- Addressing Employment Challenges in Tanzania*" observes that the employment situation is characterized by imbalance between supply and demand of labour in the labour market. He further notes that the Tanzanian demographics are high in that there are new entrants in the labour market (estimated between 800,000-1,000,000, school and college graduates each year) resulting to a high number of unemployed youth.

ICT Hubs such as KINU can be a critical nexus to creating self-employment and entrepreneurship to those youths through their capacity building, activities and training. KINU hub can be used to sensitize youths to value work and be more proactive, be prepared to enter the labour market and explore emerging self employment and entrepreneurial opportunities that the hub can offer. This study therefore assesses the factors that make the KINU-hub Model in Tanzania and the different roles the hub can play in the tech community to nurture innovations, build capacity and co-create among its members.

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02 RESEARCH METHODOLOGY

This study used two methods to collect the data in order to fully comprehend how KINU model works: Virtual interview with the KINU Manager and a thorough literature review on Tanzania's ICT market and KINU Model. Online materials and available secondary documents were sourced.

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3.1 THE GENESIS OF KINU HUB

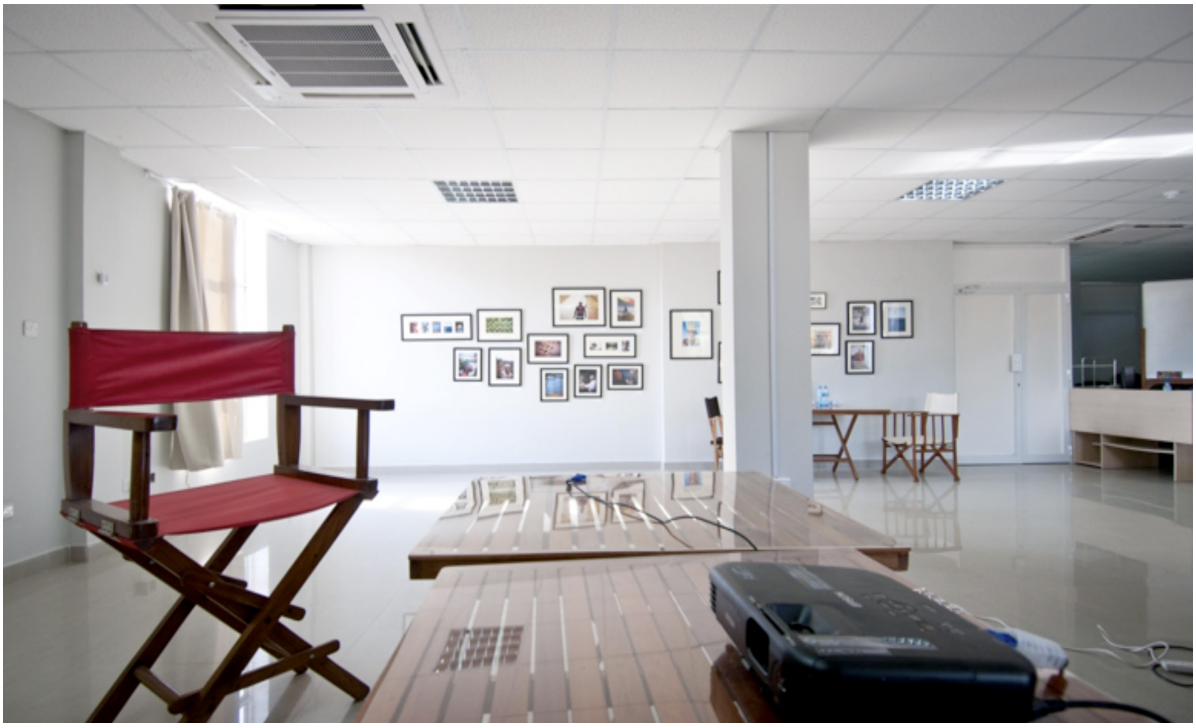

Figure 2: Photo by Jonathan Kalan (2012), KINU space

KINU is a Swahili word that means a mortal- tool that is used to grind and crash something in a pot that comes out really beautiful after being modeled. Events that led to KINU Hub started in June 2011 while conducting a series of events in Tanzania. It kicked off its first boot camp in Tanzania, where it was organized by 6 people who form part of the core team of the Hub (co-founders). The event was roughly attended by 250 people who formed a mix of ICT experts and local stakeholders such as the government who showcased their work on the theme of the hackathon that aimed to focus on social issues and accountability.

This was followed by a second hackathon that was held in August 2011. The aim of this hackathon was to hack on issues related to social, health and sanitation issues. It was hosted by apps for Africa. The goal was to bring policyholders and key stakeholders to work together and actively talk about the issues affecting citizens in the aforementioned areas.

After 6 months of events, the co-founders who actively organized the events then decided to formalize the events in a platform that will benefit the local stakeholders and the youth community in Tanzania to continue engaging with the activities. This is where the birth of KINU was formed around September 2011 with its initial funding coming from Google, SEACOM, and Indigo Trust among others. They officially moved in to the new space at Dar es Salaam in September 2012.

3.1.1 Mission and Vision

KINU's mission is to be an open tech space by building local capacity and nurture soft skills e.g. programming, leadership skills to presentation skills. Currently the Hub does not offer incubation facilities but only pre-incubation services. KINU is also working with non-techies who have diverse skills to help shape the ecosystem of the Hub.
In the next 2-3 years, their vision is to fill the gap of tech capacity in Tanzania and provide support and training to their members.

3.1.2 Why was KINU hub established?

The main reason for the establishment of KINU hub was the realization that the tech community in Tanzania is still small, but there is growing interest in the potential of technology to stimulate economic growth and contribute to social change. Other reasons for the establishment of the hub is the need to have the Tanzania tech scene brought together to form a community; develop a culture of co-creation and innovation that will act as a catalyst for growth and capacity building. Additionally, a collaborative space was needed to enable the community to participate in the creation process and make joint efforts to generate new solutions. Further, there was need to establish the environment to ensure that the next generation of African innovators have the freedom to build products and services which will reach out to the rest of the world. Finally to build an ecosystem that facilitates transfer of knowledge that allows people to grow off each other's skills and expertise, in a symbiotic relationship that benefits everyone.

3.2 SPACE DESIGN

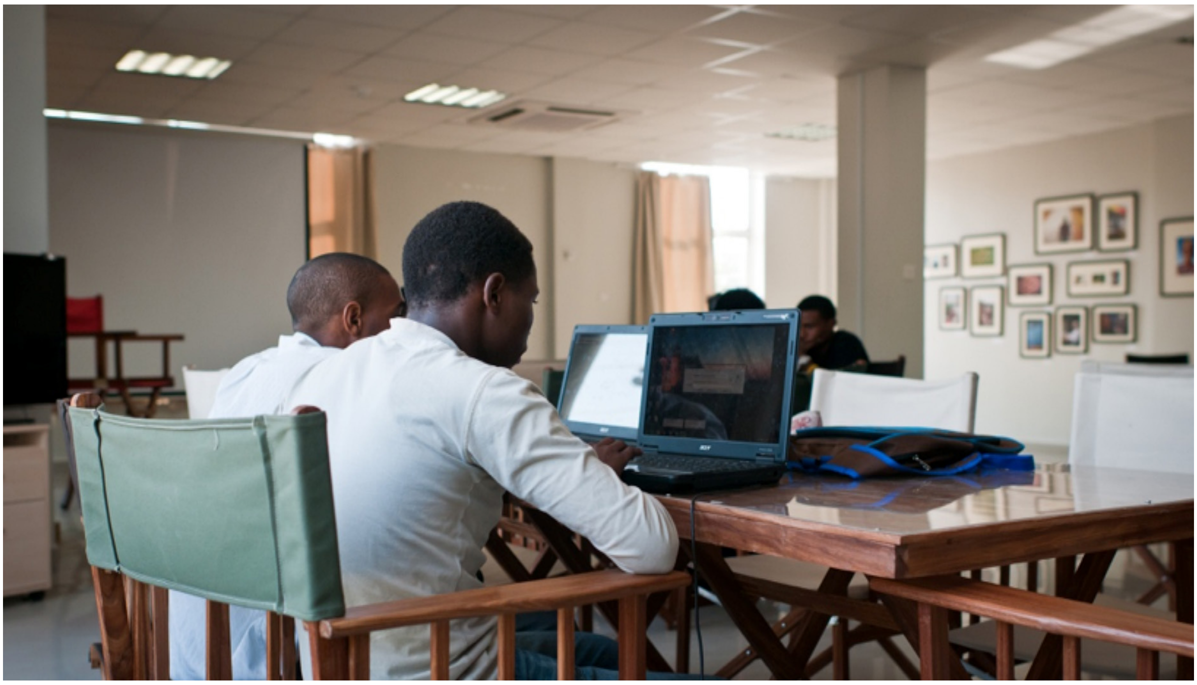

Figure 2: photo by Jonathan Kalan (2012), KINU space design

The KINU-hub is an open space that targets the tech community to nurture innovations, build capacity and co-create. The hub is designed to speed ICT growth in the region, which in return, it is hoped, to spur innovative products for the rest of Africa and the world. KINU offers a range of facilities, from data storage to a room in which individuals can develop their presentation skills – essential for young entrepreneurs. There space also includes:

- Desks for rental: Hot desks
- Board room which is also used for table tennis
- Testing bed for developers which serves as platform for their product experimentation
- Coffee area
- Open space where entrepreneurs sit
- Stage for training activities

SEACOM has also donated free Internet for a year to KINU- 30mb of free Internet capacity to help improve the speed and quality of KINU's Internet connectivity, which will in turn improve the efficiency of the ICT enterprises they develop.

> *"SEACOM has decided to support KINU and potentially other ICT innovation hubs throughout Southern and East Africa with Internet access because of its strong commitment to stimulating innovation, enterprise development and job creation within Africa's ICT sector," said Anna Kahama-Rupia, managing director of SEACOM Tanzania* (Biztech Africa, 2012).

3.3 THE KINU-HUB STRUCTURE

Currently, KINU -Hub has one community manager- Johnpaul Barretto whom prior to moving back to Tanzania in 2012, studied and worked in Fresno, California. He holds BA degree in Political Science and a Certificate in Geographic Information Systems. He worked as a researcher for the Center for Economic Research and Education of Central California (CERECC). Upon returning he was coordinator of BarCamp Dar 77 and the Apps4Africa 2012 Tanzania session & brainstorming sessions. Kinu also has a security manager who assists in asset management and physical security of the space.

Advisory Board:
Kinu has six co-founders who also double up as board of advisors.

- Luca Neghesti,
- Emanuel Feruzi,
- Johnpaul Barretto,
- Taha Jiwaji,
- Jones Mrusha,
- Catherinerose Barretto

KINU also has trainers and facilitators who double up as volunteers in the space. Additionally, community members act as trainers based on their expertise and skills e.g. in robotics camps, members with relevant skills are willing to help and step up to train others on a volunteer basis.

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3.4 GUIDING PRINCIPLES AT THE KINU-HUB

A key to KINU's goals has been the active engagement of the potential users of ICTs and other new technologies. Speaking during the second day of the 2012 Africa-EU Cooperation Forum on ICT, in Lisbon, Portugal, Catherine RoseBarretto from Dar es Salaam, Tanzania said, *"we realized that there was a huge gap between what new technology can do and its actual application, it will be people that come up with solutions"* (Dickson, 2012). As such, the hub's guiding principles are:

- Community: *"if it's not good for the community then we will not do it"* said one of the co-founders and HR manager Catherine during the interview. The first thing is to see if what they do benefits the community, then they do it. This is their biggest guiding principle;

- Collaboration: Working together with other local partners (both public and private) to realize shared goals to benefit the Kinu community in return;

- Sharing ideas: Kinu has encouraged their members to continuously share their ideas with other members and the management of the hub, for them to grow and shape their ideas to become better. This sharing is facilitated through teamwork and events that happen in the space;

- Flexibility: currently its flexibility lies in open membership. They do not charge their members. They have come up with other ways to supplement the costs of running the Hub rather than charging their young community who might not be able to afford the monthly costs;

- Honesty: while working on projects, Kinu advocates their members to be honest in delivering their tasks. This also entails having virtuous attributes like integrity, truthfulness and straightforwardness;

- Responsibility: both from the members and the management of the Hub. Each member and employee of the Hub is responsible to ensure the space is well kept, guests are well attended to and report if something is not working right.

3.5 OPEN INNOVATION

At KINU, open innovation refers to the use of technology to nurture skills, build capacity and co-create among the members. This is achieved through the events they have developed, collaborations and networks. They also brainstorm with their community members thereby encouraging openness between members through idea sharing. In addition, through mentorship programs, community members are able to open up their challenges to the mentors who sometimes double up as the Hub employees, to seek advice. KINU also brings other stakeholders (policy makers and private players) together to brainstorm and hack solutions. This helps in encouraging collaboration and innovation and getting feedback from their members.

3.6 MEMBERSHIP STRUCTURE

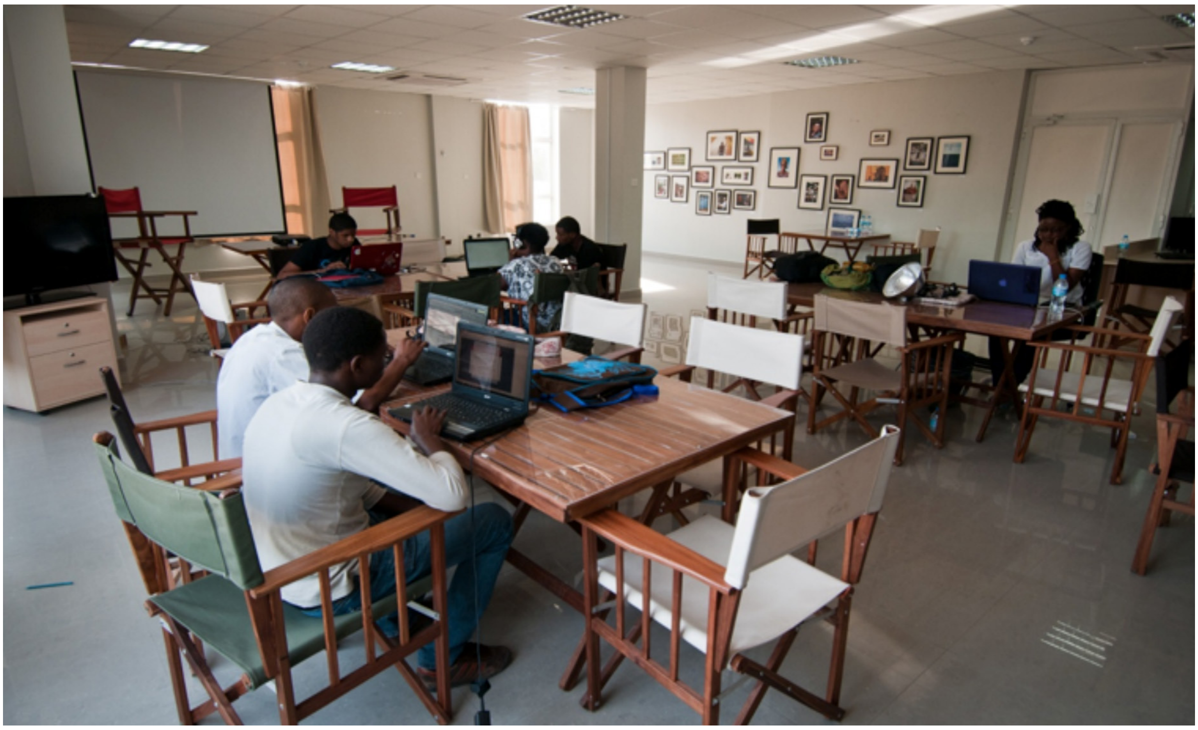

Figure 3: Photo by Jonathan Kalan (2012), Members working from the space

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KINU has the following structure in place:

- Currently they are 400+ registered members;
- Membership is free and open; Kinu have no tier system and will probably not be there for the next few years. However, they might consider it for future sustainability;
- In any given day there are between 2- 40 members physically using the space;
- Community of Members is made up of professors, tech gurus, entrepreneurs, graduates, trainers, among others;
- Kinu also have an infinite group of virtual members all over the world who receive online training, sharing and collaboration using collaborative tools such as Skype, G+ and other social media;
- Procedure for membership: when one wants to become a KINU member, they fill in a form from the website, and the community manager follows up. The only requirement is that, one has to be working on a tech related project. The process of application takes at most 24 hours for them to get back as the people who apply are normally from referrals hence it's easier to vet them. Most of their new members have heard about KINU through word of mouth or from the events in the space.

3.7 EVENTS & ACTIVITIES

Figure 4: Photo from KINU website, an event in the space

KINU-hub organizes events and activities that bring together technology experts and upcoming tech-entrepreneurs and innovators. Some of the events and activities include:

3.7.1 1st Start up Saturday with Vinjari

Vinjari.co.tz was established in September 2012 as a one-stop destination for travelers interested in Tanzania and those traveling within Tanzania. Vinjari offers a wide range of services from discounted hotel bookings, tour packages and a travel guide that includes attractions, events listing and eat out places. Unlike other travel sites, Vinjari is 100% Tanzanian-owned; offering prices that include all fees and charges that can be paid for up front with Tanzanian payment channels (Vodacom MPesa, TiGo Pesa) and VISA card that are authorized to transact online.

3.7.2 Introduction to Venture Capital and Market Sizing

This activity is basically meant to provide new entrants starting businesses with tips on how to secure funds for their start-ups companies. They are also taught on how to polish their business plans that will be effective for their market sizing due to high cost involved in tech start-ups.

3.7.3 Unveiling of the Samsung Smart Table initiative

KINU Hub aims to promote local technology innovation and development and is thus partnering with Samsung to provide local mobile application developers a mobile testing environment. Samsung will be providing KINU with a Smart Table and five android smart phones and tablets that developers can load their android applications on to test.

3.7.4 Making Great PowerPoint presentations

This is an event that is offered free of charge to budding innovators and tech-entrepreneurs on how to make outstanding PowerPoint presentations that can act as a pitching tool.

3.7.5 Open Source Repositories Workshop

This training was led by Geospatial Consultant for the Global ICT group of the World Bank. The session included an overview of code repositories, a live demonstration of uploading to the Github repository and its relevance to software engineering and practice.

3.7.6 Google MapUp Event with Tanzania Google Student Ambassadors

MapUp events enables members' and the wider developer community to organize their local geographic information by contributing their knowledge to adding and editing their surrounding areas' map data. In essence, this event trains the local community on the use of Google Map Maker. This helps create a more comprehensive data for products such as Google Maps as it is universally accessible, useful and more importantly has a positive social impact on the community.

3.7.7 MoMo on eGovernance

Mobile Monday Dar es Salaam at KINU focuses on eGovernance and the ongoing e-Government initiatives in Tanzania.

3.7.8 mRushwa User Acceptance Test (UAT)

mRushwa is a web and mobile-based corruption reporting application in Tanzania, which aims to increase citizen reporting. During the event they test the system and confirm if it meets the user needs and system requirements.
All these events and activities have been of value to the community members through:

- Building capacity of expertise missing in the Hub;
- Upscaling developers skills through idea sharing and peer learning;
- Building community members through collaborations and linkages for their businesses;
- Promote ICT & Entrepreneurship through acceleration of startups and encouraging more people to join the Hub;
- Providing opportunities e.g. business opportunities that arise from their referrals and linkages.

3.8 PARTNERSHIP & SUPPORT

KINU-hub has established various partnership and collaboration for support. The following are the main partners and the roles they play.

- Google- provided funding at the earlier stages;
- Indigo trust- provided funding at the earlier stages;
- Raha- Tanzania's leading Internet Service Provider for over 13 years. They have been providing fast, reliable, high tech and most importantly value driven connectivity to homes, businesses and organizations. They facilitate internet connection at KINU;
- Smile- has also provided another source of broadband access (LTE) for KINU;
- Uhuru One- is the only ISP in Tanzania that offers unlimited downloading without usage limits. They provide internet support and funding for the Hub;
- SeaCom- is a privately owned and operated pan-African ICT enabler that is driving the development of the African Internet. They also provide Internet support to KINU.
- Samsung - Provide devices such as smart table & devices partnership for testing applications for the community members.

Other supporters are community members who bring diverse skills and resources e.g. writing/brainstorming materials and programming skills.

KINU engagement with their partners has been through continuous communication and opens dialogue as best practices. The partners are not only tech oriented but also range from other fields. The engagement is achieved through visits of their partners to the space on a regular basis as they work on projects together. They have regular chats with their partners on what is happening on the space and most of them also participate during events.

3.9. ENGAGEMENT WITH MEMBERS:

Figure 5: Photo from Kinu website, one of the community members getting assistance

KINU hub engages its members through events, working on community projects, professional development e.g. pitching, and presentation and training events. They also provide resources: testing bay, library, WI-FI, tea & coffee area, and air conditioning, a vital component owing to Tanzania's hot weather.

3.10 SUSTAINABILITY MODEL

Google Inc. and Indigo Trust initially funded the KINU-hub Project. Currently, KINU is looking at other various sustainable ways of raising funds apart from grants. For instance through the rental desks that are charged as follows: Start-Up Tanzania Shillings (TSH) 150,000 per month and SME/NGO TSH 250,000 per month. The 6 co-founders besides helping in decision-making and management of the Hub's operations also offer consulting services to supplement bills of the Hub, as the membership is free. At KINU some training are not for free. Members pay subsidized costs to attend and access valuable materials.

There is also the testing bay for developers that currently they do not charge, but can be another source of income in future. The Hub charges to host corporate events in the space especially events related to ICT & entrepreneurship whereby in a month they get at least 2 of these events. For future sustainability they hope to introduce training and programs that will be subscribed at a fee. They also hope to have a tier membership system gradually with feedback from their members.

Currently they are not taking equity from their members as it is an early stage for most of them but once they go into incubation it might happen. "*Right now we are working to build trust with the community members as most of them are still protective of their ideas*" says one of the co-founders. Their self-sustainability plan is not yet clear but they hope to reach there by currently growing along with their members.

3.11 CHALLENGES

Like any other organization, KINU hub faces challenges that affect its daily operational activities in an effort to meet its objectives and realization of the mission. Some of these challenges include:

- *Fewer women in the space*- currently there are very few women in the space. Getting more women in the Hub has always been a challenge and how to get them is even a harder task. Using programs that they currently have such as 'girl's night out', KINU has managed to get 50 women a night from different backgrounds interested in joining the program. The problem has been sustainability of the programs and retaining the women in the programs.
- Very few developers are attending the events as some of them are not curious enough to learn or they probably do not see the events as valuable. The researchers hope to understand this hypothesis in the second series of the study in the impact of the KINU model to its member.
- Kinu Business model: How to monetize and be creative about their revenue models, without highly charging the community.
- Getting the right partners- finding the right people who will share in the passion and vision of the space is proving harder than they thought.

- Building capacity in the space has also been slow and inconsistent.
- Getting financial supporters to ensure short and long-term sustainability of the space and its activities.
- Members in the space are still young and most are fresh from campus hence may lack other important skills e.g. project management and business skills.
- The Hub itself is still young hence they are still trying a lot of strategies in their journey to finding sustainable models. But the good news is they see themselves sustainable in the long -term.

CHAPTER

04 CONCLUSIONS

This study reveals that there are concrete plans, policies and established regulatory frameworks in Tanzania to catapult the ICT sector as a major player in the economy. For instance, policies such as the Communication Act of 1993, the National Telecommunication Policy (NTP) of 1997, Vision 2025 and Five Year Development Plan (FYDP) 2011/2012-2014/2015. Telecommunication Regulatory Authority (TCRA) of 2003 paved the way for liberalization of the telecommunication sector and continues to provide the framework for further reforms by engaging private sector. Institutional development such as the establishment of Tanzania Commission for Science and Technology (COSTECH) and the Ministry of Communication Science and Technology plays a role in promoting ICT along with other technologies for development and also assists sector ministries in developing ICT strategies. In this regard, COSTECH champions the development of ICT strategies in health, education, and good governance particularly local government sectors.

Additionally, Tanzania has recognized ICT as one of the sectors, which offers huge potential for creating massive employment, a necessary element in the government efforts to alleviate abject poverty in the country. As earlier indicated, the estimate of unemployed persons as at 2011 was 2,368,672 persons, which was equivalent to 10.7% of the labour force population, most of them being the youth. It is due to this and other factors that major interventions, such the KINU-hub have been established to bridge this employment gap by building local capacity and nurturing soft skills to transform the Tanzanian society into a knowledge society and knowledge economy that is ICT-led.

KINU hub has brought the Tanzanian tech scene together to form not only a community of different players but also develop a culture of co-creation and innovation that will act as a catalyst for growth and capacity building. Additionally, a collaborative space has been created to enable the community to participate in the creation process and make joint efforts to generate new solutions to problems affecting them. Further, KINU-hub has established a conducive environment that ensures the next generations of African innovators have the freedom to build products and services, which will reach out to the rest of the world. It has also built a solid ecosystem that facilitates transfer of knowledge hence allowing people to grow off each other's skills and expertise for the benefit of all.

However, for KINU-hub to ably equip and empower its members to participate fully in socio-economic development that will in turn lead to Tanzania being a technologically-led society and economy, challenges facing the hub need to be addressed. These challenges include lacks of participation of women, inadequate funding, and lack of more developers, determining the right partners, inadequate building capacity and inexperienced young members. The way forward therefore seems to be up-skilling of members, training to increase capacity of developers and mobilization of women to participate more in the hub. The Tanzania government and private sector should also chip in through provision of finance and other resources that will help KINU hub achieve its objectives.

It can only be hoped that once these challenges are addressed, and with more involvement of stakeholders such as the government and the private sector, KINU hub will be a big player in ICT development in Tanzania, offering job opportunities to the youth while at the same time widening the avenue for innovations, capacity building and co-creation among the members and the country at large.

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