*iHub Research

ICT Hubs Model:

Understanding the Factors that make up Hive Colab Model in Uganda

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Abstract

iHub Research is conducting 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 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. This paper profiles Hive Colab in Kampala, Uganda. We give an overview literature of ICT growth in Uganda before describing the principles and factors that constitute the Hive Colab model. Lastly, we provide a list of start-ups that have emerged from the collaborative Hive Colab model.

Key words: ICT Hub, model, entrepreneurs, Innovation Hub, Uganda.

Introduction

Information and Communications Technologies (ICTs), broadly defined, encompass the creation, storage, management and dissemination of information electronically (ICT Report, 2012). The communication mediums range from analog to digital, computers to mobile phones, together with the use of the Internet. Newspapers are also included as they also often now have an electronic form on the World Wide Web. In Uganda, there is a high incidence of radio ownership in low-income communities, highlighting the radio's still relevant role as a low-cost communication technology that many people can afford (ICT Access and poverty in Uganda, 2012).

ICTs in Uganda have attracted investment projects worth USh590 Billion ($350 million USD) in the last six years. According to a report issued by the Uganda Investment Authority (UIA), the ICT sector attracted more than $350m USD (Ush 590 Billion) worth of investment since 2001 and generated revenue estimated at USh1.22 Trillion ($720 million USD) within the same period. In the financial year 2006/07, the combined sector contribution to Uganda's Gross Domestic Product (GDP) was 9% up from 8.2% in the previous year; this represents a 4.2% growth contribution to GDP by the sector for the period 2001-2011. The UIA report adds that this gives an average annual investment estimated at USh118 Billion ($70m USD). Because of its cross-cutting nature, the ICT sector plays a big role in employment, job creation, and quality in service delivery (Uganda Investment Authority, 2011).

Uganda is setting stellar trends and concepts that are a wonder to behold in the frontier of ICT. According to UNCST (Uganda National Council of Science and Technology), Uganda is hailed as one of the most open and liberal markets in Sub-Sahara Africa. Uganda is among the first countries in sub-Saharan Africa where the number of mobile subscribers exceeds fixed-line users. It is estimated that the Ugandan ICT market is growing at a cumulative annual growth rate of above 25% (Government ICT report, 2011). This growth is mostly from the ICT training, website development, and custom software development sectors. This upward trend is expected to continue as long as new players join the market and the present telecommunications and Internet Service Providing (ISP) companies such as MTN, Orange Uganda, Uganda Telecom, and Foris (U) LTD substantially increase their penetration and upgrade their networks.

Trending reports forecast that mobile devices might become the primary form of Internet access in the East African region within the next five years (or less). However, the balance between East Africa's technological advancements and its poverty index is incomparable (Uganda Investment Authority, 2011). Records show that 76% of the general population lives below the international poverty line of a dollar a day **(Outreach Uganda, 2011).**

These statistics are projected to get worse in the coming years, owing to economic upheaval experienced worldwide. Uganda's economic growth has not been spared from the worsening global economic meltdown. The 2011 economic outlook review shows that the country's economy grew by only 4.1% as compared to the previous year growth of 5% and is expected to grow only by a marginal fraction in the fiscal year 2011-2012.

According to Uganda's 2012 demographic profile, the general population stands at 34,509,205 with the youth forming the bulk of the population at 77% (UN report, 2012). According to the latest statistics available, Uganda's national unemployment rate stood at 3.2% while that of the youth stood at a whopping 22.3% (World Bank, 2003). The urban unemployment rate for youth was 12%, about seven times the rural rate of 1.7%. In Kampala, Uganda's capital city, the youth unemployment rate was 32.2%, and Kampala residents with University degrees still had an unemployment rate of 36%. This trend is reflected worldwide. The world has recorded the highest unprecedented increase in youth unemployment in the past three years (UN report, 2011).

Although youth unemployment rate has always exceeded that of other age groups, the UN report says youth unemployment climaxed in 2011 when 75.8 million young people worldwide remained unemployed. The report also indicated that the global youth unemployment rate stood at 12.6%, dramatically overshadowing that of adults, which stood at 4.8%. This rise is attributed to poor education systems that teach less practical skills,

especially in many developing countries like Uganda and other East Africa countries.

One way that the government of Uganda has promoted youth employment is through ICT. The government, in partnership with the private sector, is embracing the culture of knowledge sharing and information management of local content using ICT methods that include weekly SMS, an annual Knowledge Fair, radio and informational brochures and newsletters, and e-governance portals among others. The vibrant telecommunication industry in Uganda is projected to employ an extra 2 million employees between 2008-2015 (Uganda Investment Authority, 2009). The industry grew by 37% in 2010 with an estimated 3.5 million new subscribers in the year. The sector is a key driver of economic growth in the services sector, which accounts for more than 50% of GDP (World Bank Report, 2008).
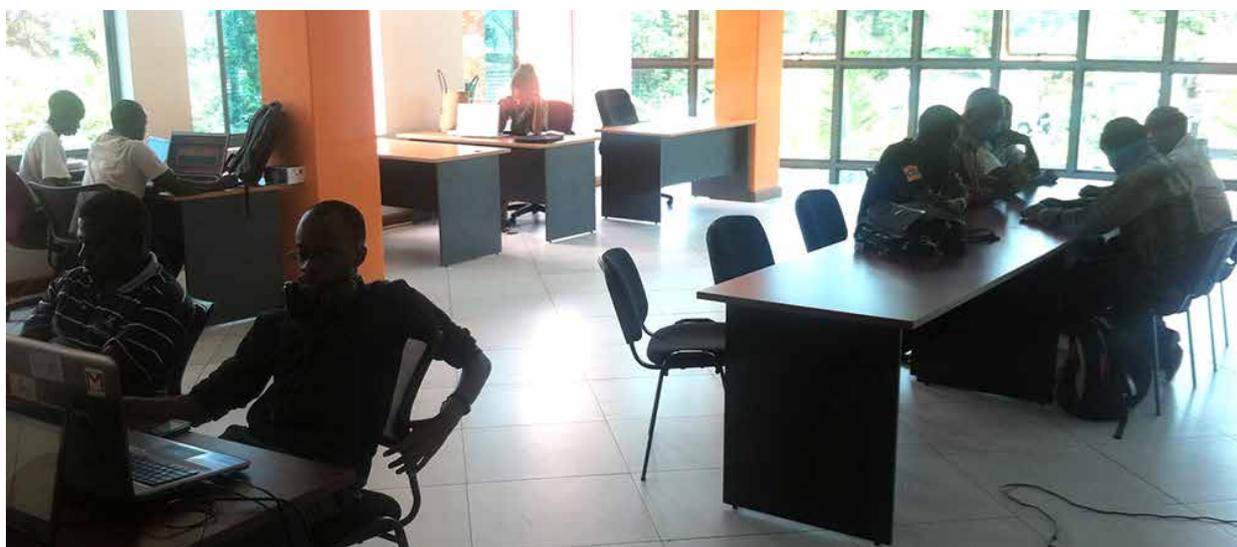
The ICT sector has been growing at a phenomenal rate over the last decade, with a special emphasis on the areas of mobile devices, computer applications, and information processing. The posts and telecommunications services activities grew by 30.3% in fiscal year 2010/11 and accounted for 3.3% of GDP. The growth changes have had a profound impact on the whole Ugandan economy, making the ICT sector an integral part of the economy; second only to agriculture (Uganda Investment Authority).

Creating regulatory concessions or rollout incentives could help increase coverage of mobile and Internet services in the country, particularly in rural areas. The Ugandan consumer has benefited recently from lower tariffs as a result of price wars, which began in September 2010. But with call rates down to an average of Uganda Shillings 180/min from a high of Uganda Shillings 300/min, the price cuts have been very deep and there are concerns that this could have a detrimental effect on service availability and future growth (Pricewaterhouse Coopers report, 2011).

The ICT Ministry seems to be borrowing from their counterparts in Kenya in their decision to implement the National Data Transmission Infrastructure And Electronic-Government (e-Gov) platform among other projects so as to phase out the country's overreliance on the traditional postal service to embrace faster communication infrastructure. The pro-

ject involves laying of a fiber-cabling system, linking Kampala and its environs to the submarine cable off the coast of Mombasa in Kenya. Once this noble and ambitious course is seen to completion, Uganda and East Africa as a whole will cease to subscribe to satellite connections.

The optical communication is more reliable and boasts of higher capacity as compared to the traditional microwave transmission. BPO (Business Process Outsourcing) and other entrepreneurship set-ups will fit well into the National Fiber Optic Backbone, especially those that are data-oriented. Network Engineers and other stakeholders have predicted that once the fiber infrastructure is complete, it will be able to deliver sufficient bandwidth to the whole country (Uganda Institution of Professional Engineers UIPE, 2012).

The mobile phone market accounts for 63% of the telecom revenue followed by the fixed line segment. On the rise are headset revenues, as well as Value Added Services (Uganda Ministry of ICT, 2010). The entry of new operators has resulted in the emergence of a wholesale infrastructure market as new entrants adopt the infrastructure leasing approach to the market entry. Moreover, the country is estimated to have 30 hotspots, with the vast majority in the Kampala metropolis region (Makerere University Center for IT, 2010). According to 2010 ICT statistics, it is estimated that there are over 3.5 million Internet users across the country.

On a sour note, currently ICT infrastructures are still only consolidated in the urban regions of Uganda, such as Kampala. Much of the new and emerging technological advancements are a preserve of universities and mid-level colleges, such as Makerere. Significant portions of the population in rural areas, especially in Northern Uganda, are plagued with illiteracy. More so, the young talents developing innovations in these universities and colleges often do not have a platform on which to continue to develop their innovations after graduation. They cannot get the continued guidance to achieve growth and gain presence in the market once they exit the university setting.

Uganda is setting up a USD 600, 000 Information Communication and Technologies (ICT) incubation centre to help ICT businesses seek markets. It is hoped that the centre will enable those involved and young talents to penetrate regional and international markets (The Monitor, Issue No. 191, 2011).

These incubation centres can act as avenues that support young entrepreneurs in creation and development of technology-oriented companies involved in developing, realizing and selling new products that end up being commercially viable and competitive, hence generating youth employment.

Hive Colab has been at the forefront in accelerating and promoting Ugandan youth employment through innovation and entrepreneurship. This paper helps readers to understand how the Hive Colab was created and how it is achieving its objectives to the benefit of its members.
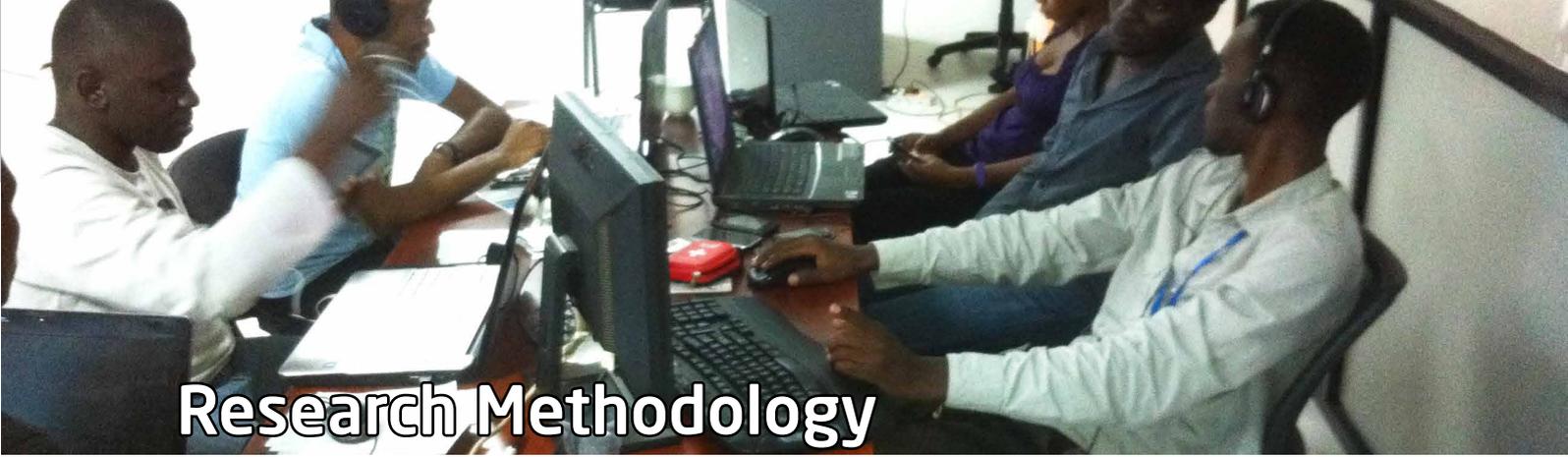
Research Methodology

Two methods were used to understand how the Hive Colab model works: a virtual interview with Hive Colab Manager, Barbara Birungi, and a thorough literature review on Uganda's ICT market and Hive Colab. Available secondary information on the Hive Colab website was also reviewed. The data collection took a period of 2 weeks, followed by one-week analysis, design, and reporting.

Findings

The Genesis Of Hive Colab

Private initiatives, such as Hive Colab, are seen as a step in the right direction of tackling Uganda's unemployment by enabling techies and anyone interested in Information Technology to come together and share ideas that lead to new development and contribute to enhancing a sustainable growth in the ICT sector.

Hive Colab is a collaborative, community-owned, open work environment for young "techpreneurs" looking to focus on projects, to access the computing resources and bandwidth to develop their ideas to fruition in the market, and to generally collaborate with each other. The lab started in 2010 and was officially launched by the Minister of ICT in Uganda in 2011.

Hive Colab started with a donation of space, furniture, and Internet from Appfrica Labs Uganda Limited, owned by Jonathan Gosiers. Appfrica International was started to support local capacity building for Software developers and media artists in East Africa. "Appfrica employed developers with the vision that they would be working on their start ups while earning a salary. After two years, they were expected to go out and start their businesses, so it was both employment and incubation for the employees. After realizing that most were more comfortable with earning a salary than working on their idea, Appfrica decided to scrap salary, but give them a space with necessary business support and product development assistance to build their start up," says Barbara, Hive Colab manager.

Hive Colab is part of the Afrilabs network, which works to create and foster innovation in Africa through African technological innovations and initiatives. Being part of the Afrilabs network, Hive Colab aims to nurture entrepreneurs in Uganda to promote growth and development of the African technology sector.

Space Design

Hive Colab has adopted an open-minded system of space design by working closely with its members to design the space. The advisors and community managers initially came up with the first shape of the design. Since then, they have embraced the spirit of open-

ness and creativity by incorporating the suggestions of the members as part of the design artwork. Hive Colab aims to move away from the rigid, traditional office space design with closed doors and has changed towards an open space driven by members' thoughts. Hive Colab has adopted an open-minded system of space design by working closely with its members to design the space. The advisors and community managers initially came up with the first shape of the design. Since then, they have embraced the spirit of openness and creativity by incorporating the suggestions of the members as part of the design artwork. Hive Colab aims to move away from the rigid, traditional office space design with closed doors and has changed towards an open space driven by members' thoughts.

Hive Colab Structure

Currently, Hive Colab has two full-time employees who ensure that members are served conveniently and their demands met. The two managers are Barbara Birungi, the General Manager who has a Bachelor's degree in Business Computing, Master's degree in Project Planning and Management, and her colleague, Daniel Nanghaka, who is the Community Lead with a computer science background.

Hive Colab also has a network administrator who volunteers on a daily basis and is part of the community. Hive Colab has built a structure where the communities feel part of, and have ownership of the space. This means that community members often help in managing the space as well. Any of the Hub members can help run an errand or prepare for an event they are going to host at the space.

A Board of Directors also assists in the management of the Hub. The four-member board makes sure that the innovation space is running well and has sufficient resources. These directors have roles and responsibilities that help the non-profit business accomplish its stated mission. The Hive Colab management board currently consists of:

- Jonathan Gosier of Appfrica Labs and MetaLayer, who is the Chairman of the Board and Founder of Hive Colab;

- Teddy Ruge Sondota of Project Diaspora and Villages in Action;

- Marrieme Jamme of Spot One Global Solutions and Africa Gathering; and

- Daniel Stern of Mobile Monday Kampala and Uconnect in Uganda.

Hive Colab has organizational supporters who also add value to the space. The supporters include:

- Makerere University, College of Computing and Information Technology – internationally Renown University committed to delivering excellent services in the area of Computing, Library, Records and Information Sciences.

- SMS Media Uganda - SMS media is a multimedia company that creates content such as ringtones, logos, picture messages and news for the public;

- Digital Solutions Uganda - is dedicated to building quality software products for corporates, small and medium size organization; and
- Enterprise Uganda - offers consultancy, training and workshops for startups and budding entrepreneurs.

Guiding Principles of Hive Colab

Hive Colab's goal is to help foster creativity and innovation. The core principles include collaboration, openness, community development, and knowledge sharing.

As a rule of thumb, the management team strives to increase Hive Colab's reputation as a young, and vibrant place to boost the talents of Uganda through a culture of learning and innovation. Hive Colab and its members view themselves as pioneers in what they have been able to achieve in Uganda since officially launching in 2011.

Hive Colab managers have been able to make the space function with their members' efforts and commitment. Members volunteer to set up and be part of many of the activities running in the space as a show of commitment and ownership.

The Membership Tier System

Just like iHub Nairobi, Hive Colab has membership tiers system that differentiates the membership categories working from the space. The three tiers include: paid desk, casual pay members, and a free model.

Virtual & Physical Members

Hive Colab currently has over 1,000 virtual members with 15-30 physical members who work from the space. Subsequently, Hive Colab provides online advisory services for individuals seeking answers to technological queries. The virtual members also benefit from mentorship and publications of all workshops held at the Hive Colab space through online communication tools.

Orange Members

This structure offers free membership to the tech community, the only requirements for members is that they are actually working on a project. Since this membership is free, the members may be required to help out around the hub on network issues, organize and moderate at Hive events, manage the website, server, write articles for Hive, among other tasks. These members are allowed two guests at a time that can stay up to two hours.

Non-members

This is for members who want to use the space on a day-to-day basis. These members are welcome to use the space if there is room, and are charged 10,000 Ush ($5) for the day.

Brown Members

This is paid membership. For a fee of 200,000Ush ($100) per month, the member is entitled to use a desk alone or with their partner. While they are at the Hive Colab space, they are assured a desk, Internet access, coffee/tea and water at no extra charge. Scanning, laminating, photocopying and printing are provided at an extra fee. The member is allowed up to three guests that can stay up to 3 hours per week, but this doesn't include clients that come for short meetings then leave. Coffee for guests is 1000Ush ($5) per cup.

Application Process

Hive Colab evaluates ideas of its members on a weekly basis and determines their viability. Viable projects are monitored, mentored, and connected to the right network of partners and investors through the recommendation of the Hive Colab management. The members remain the full owners of the projects and retain the Intellectual Property (IP).

The only requirement for new applicants is they need to be working on projects, and thereafter they must be able to show progress on their ideas to retain membership. This is to keep energy levels high and for the members to remain productive and passionate about their ideas. There will be other types of memberships available to be announced soon as Hive Colab continues to grow in order to capitalize on other interested brackets of individuals who want to benefit from the space.

Hive Colab gives its members access to tech events and conferences in Kampala. Other benefits that members get from the space are: working from the space for 6 days a week and having access to business mentors who offer consultancies and advice that is priceless. For members looking to share ideas with like-minded people, the Hive Colab offers access to a great network of people with whom the members can share ideas.

By joining the Hive Colab, applicants will be part of a community of well-respected and experienced technology experts in Africa, for example (Web designers, Mobile application Developers, Venture Capitalists in Tech, Technology Bloggers, Tech Start Ups, social entrepreneurs, Journalists, and Investors). As soon as applicants join Hive legal team offers them help on how to register their businesses, understanding copyrights and patents for their products, writing and signing partnerships with investors and partners.

It is also encouraging to note that women who have a start-up are offered free space and membership in Hive Colab to encourage them to participate actively and improve the quality of women in ICT sector.

Open Innovation

Open innovation, the act of entrepreneurs, investors and technologies interacting to create a nexus point of innovation, still continues to be a common ingredient driving the upcoming ICT initiatives around Africa. Hive Colab has encouraged the concept of open innovation through various ways:

1. By holding events and activities that are geared towards promoting ICT for members to benefit from other hubs/labs hence encouraging different organizations to partner with Hive Colab to achieve the goal of active collaboration spirit;

2. Hive Colab has collaborated with initiatives such as cross-Hub exchange programs. For example, Hive Colab is working with Nigeria on different kinds of meet ups, e.g. mobile app, network developer meet-ups. This exchange will be accelerated at Hive Colab starting September 2012. Such initiatives will help Hive entrepreneurs to learn from each other and instead of duplicating the efforts from the other hubs they are working to collaborate with their existing initiatives;

3. Hive Colab managers have found members joining their desks to work together as an ingredient of open collaboration on new ideas and sharing skills set;

4. The projects that are channeled through the Hive network are worked on by different team members from the space who have diverse skills that complement each other through crowd sourcing and working with clients from different organization. The role of the community managers is to push these projects from prospective clients while at the same time providing guidance to the entrepreneurs to work on in a systematic approach through effective project management tools;

5. Hive Colab employees hold regular lunch dates and free coffee chats that have provided an interactive platform with their members to advise them on how to tackle issues they are facing and also to catch up on their view on the space to keep adding more value as they are the ones who make the space exist; and

6. Hive Colab also offers free Internet to its members that they can use to access online materials and accelerate communication.

Events & Activities

Hive Colab organizes workshops/seminars and events by involving experts and technology gurus to give talks to the budding innovators. These seminars provide a fertile ground for novice members to interact with the experts and create partnerships with organizations in Uganda and Hubs through lasting relationships.

A peer-to-peer platform has been created at Hive Colab where start-ups raise their issues and challenges they have been facing. Hive Colab then sets up seminars and events with successful people in that area of expertise to come and give a talk to advise entrepreneurs on their issues and also to listen and answer questions from entrepreneurs. These talks range from marketing, capital and other areas that the entrepreneurs feel they are missing in their business.

Moreover, to further its course, the Hive Colab creates partnerships and investment opportunities for its members through collaborations formed and established from events. These events end up generating exposure to the products of the members locally and globally.

Engagement With Members

'Big entrepreneurs initiative'

Hive Colab has start-ups amplify the issues they are facing while developing their ideas. The other start-ups that may have a solution to the problem share their experiences enabling one another to understand the process of how to overcome their challenges based on how other start-ups have tackled it before. This process fosters peer-to-peer learning and as well as the entrepreneurs' sense of community.

Women in technology in Uganda initiative

Hive Colab has taken bold steps in understanding the plight of the women in society. The hub is using the technological approach of sensitizing the girl child on the importance of technology and breaking the invisible barrier that prohibits them from venturing in science-related careers. The Women in Technology initiative aims to encourage more women to work in the technology sector through mentoring, training, and by providing a platform where women can voice their challenges in science and give encouraging stories through networking.

In addition, through mentoring, Hive Colab has women who are working in the ICT field to mentor their younger peers. This helps many of the young women to have the right attitude and overcome societal stigmatization by giving them career guidance while these young women decide at their early stage in their university or young professional life on what they would like to focus on.

Collaboration with clubs at universities and high schools

Hive Colab managers have realized getting women in ICT is a worldwide problem and it starts at secondary schools. Thus Hive Colab have created initiatives in secondary schools where they work closely with secondary school girls to encourage them to take up sciences.

Mentorship & weekly reviews

Hive Colab has realized that the value of the Hive Colab is not just about providing the physical space, but also about giving entrepreneurs the necessary business skills, linking them with the right mentors, and having weekly reviews of every members' projects to help them to direct them on the right path of growth.

Partnerships & Support

In order for Hive Colab to meet its goals, corporate strategic partnerships have to be in place. Hive Colab is working towards establishing these partnerships with entities such as Mobile Monday Kampala that contributes a platform to showcase what entrepreneurs in Kampala have been working on a quarterly basis.

Additionally, the innovation space is cementing long-term relationships with the major telcoms in Uganda and has recently signed a three-month agreement with an upcoming local Internet Service Provider based in Uganda, to offer free Internet services to its members and in the long run pay a subsidized fee. Hive Colab has not forgotten the academia as an important part of their innovation ecosystem. Hive Colab is working closely with local universities, e.g. Makerere, by providing incubation facilities.

For any meaningful development to take place, a critical mass of human capital, and in this particular case, ICT human capital, is mandatory. People with ICT skills and knowledge now drive the service industry world over. For this reason, a large number of universities and mid-level colleges now offer a variety of IT-related courses. As of 30th October 2006, the Faculty of Computing and IT (CIT) in Makerere University had a total of 5,560 students (5,000 undergraduate and 560 postgraduate students including 54 PhD students) distributed in four academic departments of Computer Science, Information Technology, Information Systems and Networks. By 2008, CIT had about 10,000 diploma and degree students in this area alone.

In preparation for high student enrollment in computing area, Makerere University is currently putting up the largest computing incubation centre in Africa. Once completed, it will accommodate over 12,000 students at any one time. Once these students graduate from the incubation centre they can be housed at Hive to sustain their ideas through effective guidance. CIT (Centre of Information and Technology) is posed to serve as the number one ICT human capital producer and sustainer, not only in Uganda, but also in the neighboring regions.

Hive Colab is also looking to partner with global organizations such as Google and other Hubs around Africa to help them create collective value to the entrepreneurs through cohesion and collaboration of resources and ideas.

Sustainability Model

Initial Hive Colab funding came from Jon Gosier the founder of Hive Colab and Appfrica labs. Currently, Indigo Trust is the main funder of the organization. The hub hopes to be self-sustainable by 2013 to cater for all operational costs and not to charge in-house start-ups for the paid desk as they currently do. Currently, the hub secures revenue through the following means:

1. Charging for the paid desk offered under the membership structure;

2. As Hive Colab grows and partnership becomes a reality with an abundance of funding, a project management arm will be introduced and monetized. The arm will aim to manage donor-funded projects through monitoring and evaluation of funds from donors by ensuring that every cent is accounted for and that the project achieves its stated objectives. The need for this arm was realized due to the many donors approaching Hive Colab to help struggling projects. Hive Colab will manage the project expectations, and provide lessons and recommendations to donors; Moreover, Hive Colab will generate additional funding by charging companies that hold corporate events in the space;

3. Hive Colab also gets 10% equity for the members who cannot afford to pay for the space and also are looking for seed funding to boost their business faster. Hive Colab evaluates the proposed idea by critiquing their business plan and most importantly, assessing what the member(s) need/require and what the applicant expects from Hive Colab in return.

Challenges Faced While Running The Space

Funding opportunities

The main drawback that Hive Colab is facing is lack of sufficient donor funding to sustain incoming members of the space. Not gaining traction with many donors approached for funding opportunities makes the growth of the space slower. It took Hive Colab a year to get their first donor to fund them. Lack of funds cripples operations and prevents things from running smoothly hence limiting the hub's ability to groom startups and engage in additional projects.

Slow Internet access

The slow bandwidth being experienced in the country also affects the incubator massively. This is the main challenge to Hive Colab second to funding, as the lab has moved from one ISP to another and currently has two ISP but still find it difficult to have both ISPs up at the same time. Slow Internet connectivity also means that Hive Colab has limited interaction with other hubs and accessing the market in general. As documented above in the introduction, for Uganda to achieve its cumulative annual ICT growth of above 25% then the present telecommunications and ISP companies in Uganda should increase and upgrade their Internet connectivity. This can be achieved through enhancing faster penetration to its users to stimulate faster knowledge sharing and communication in the hubs.

Inconsistency

Persistence from startups seems to be diminishing. This is attributed to the fact that the start-ups normally end up abandoning their idea and go for formal employment as an easier way out, instead of maximizing the growing resources of the space to make their

idea grow as well. This leaves Hive Colab with limited skill sets and nurturing of young startups becomes frustrating for the organization when, after much time invested, the entrepreneur gives up their idea.

Procrastination

The issue of procrastination seems to be eating many startups. Members overestimate their ability to deliver on a given project resulting in poor work quality and failing to meet the client's expectations. Hive Colab management has curbed this ongoing challenge by working closely with the start-ups to mentor them on how to properly manage projects to keep clients happy and create a brand that will then generate more referrals.

Running the space has also not been easy, according to interviews with the management, but running the space has been a team effort and that is why it has worked so far for Hive Colab. Having very high voluntary spirit from the community in regards to setting up daily operations, e.g. events and activities, creates a family ambiance, where members run the space collectively with everyone's contribution.

Startups That Have Emerged From Hive Colab Model

A variety of startups that include social, mobile, and web and freelancers have emerged from Hive Colab. They fall in different categories that are largely mobile, and/or web applications. This year, the lab established a partnership with Doctors on call Ltd, a startup that provides medical consultation virtually. Currently there are 8 startups that have emerged from the Hive Colab:

- The Wash Reporter
- Brain Share
- Clinical Master
- BETOtm
- Plotus
- Mai solutions
- Appit
- inforex

BETOtm

A company that connects people's sports passions with their business aspiration by providing a product/service platform. The platform allows any eligible person that wishes to increase his income levels logically and responsibly with multiple choices to connect to the preferred betting house and receive money instantly by simply using their mobile phone.

WASH Reporter

WASH Reporter is a crisis-reporting tool that enables the public report crisis related to water sanitation and health in their respective areas. Its mission is to promote the equalization of opportunities and active participation of the marginalized in the mainstream development process of safe water sources. In addition, promote awareness of appropriate sanitation and health standards.

BrainShare

BrainShare is a social-education application that combines real time collaboration, note sharing and tutoring across a number of platforms. These platforms include; Website, Mobile App, USSD aiming at connecting people around the country and world educationally no matter the distance between them, social status, gender, cultural or religious back ground.

ClinicMaster

ClinicMaster is an integrated new generation healthcare information management and medical billing software. It automates patients' transactions in the clinic on a visit basis and daily procedures.

PLOTUS

PLOTUS is a mobile-based receipting application that eliminates paper, monitors and tracks expenses and stock for SMEs. It reminds you when stock is about to run out or expire.

Mai Solutions

Mai solutions is a telecommunication company the deals with network installations and optic fibre connections (infrastructure and equipment installations).

The next phase of this research will be to study at depth the above-mentioned startups and how Hive Colab has impacted them as individuals, as well as their innovations. Most importantly how the innovations have created a sustainable positive impact in Uganda.

Conclusion

Hive Colab aims to continue fostering innovation and nurturing young talents in Uganda. As the Hive team works towards managing the space and engaging their members through initiatives such as events, mentorship, and encouraging more women in technology sector, there is still much work that needs to be done to keep their members' organizations viable and help the entrepreneurs to grow.

The most worrying challenge is the slow Internet that might mean lack or no communication, leading to disintegration of core activities of the hub. Internet is like the food of the hub; hence it is a very important component to have.   With the current optic fibre implementation in Uganda that seeks to boost higher capacity as compared to the current traditional transmissions this will help solve the Internet challenge. There is need for the telcoms in Uganda to work strategically towards upgrading their network. This can be achieved through robust telecommunications infrastructure and high capacity International gateways through learning from Kenya's progress. At the forefront of pushing this progress is ICT Board of Kenya through clear ICT policies, frameworks and implementation strategy in place.

It is inspiring to see how Hive Colab is engaging with the different support organizations such as telecoms, local universities, and experts who can provide the advice and support in different ways. More so, these stakeholders can generate useful knowledge and best practices to help community members mature their skill sets, something other hubs/labs can learn from.

Hive Colab is undergoing a lot of changes and it is on that note that we have decided to give the entrepreneurs impact study more time as the changes will impact greatly on the results. Furthermore to be able to successfully measure Hive Colab model impact then there is need to ensure that the changes in the way they operate have been factored in the transition period in order to measure their impact and work effectively.
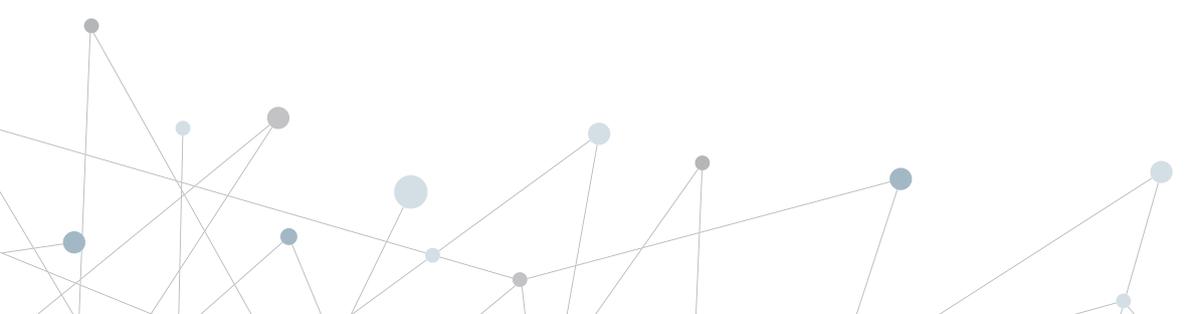
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