THE REPUBLIC OF UGANDA

Ministry of Information Communication Technology and National Guidance

National ICT Initiatives Support Programme (NIISP)

April 2017

PROGRAM SUMMARY	
Sector	05: ICT & National Guidance
Vote	020: Ministry of ICT & National Guidance
Vote Function	0501: IT and Information Management Services
Program Title	National ICT Initiatives Support Programme (NIISP)
Program Duration (5 FYs)	FY 2017/18 – FY 2021/22
Estimated Program Cost	UGX 75 Billion
Source of Funds	Government of Uganda
Officer Responsible	Director, IT and Information Management Services Tel 0414231464
Date of Submission	24th April 2017

1 Executive Summary

1.1 Overview

Writing in the *Forward* of the *Second National Development Plan* (NDP II) 2015/16 – 2019/20, His Excellency President Yoweri Kaguta Museveni notes that the Plan aims to strengthen Uganda's competitiveness for sustainable wealth creation, employment and inclusive growth. The NDP II regards the Information and Communications Technology (ICT) Sector as vital to facilitating sustainable, effective and efficient development. The sector will make a 10% contribution to Government revenue by 2020. Crucially, ICTs will play a major enabling role in the five priority areas that the NDP II deems as having the greatest multiplier effect on the economy i.e. agriculture; tourism; minerals, oil and gas; infrastructure development and human capital development.

ICTs will serve as a strategic tool that will foster greater innovation in the areas in which the NDP II prioritises investment as follows. Firstly, ICTs and ICT-enabled activities will enable the Government of Uganda (GoU) to design more innovative, effective, efficient and responsive services for citizens and businesses. Secondly, ICTs enrich businesses by reducing transactional costs, innovate faster and reach new audiences in local and international markets. Successful businesses will generate highly skilled jobs and wealth. Thirdly, in addition to the 3 million highly skilled jobs that the ICT sector will create by 2020, ICT-enabled innovation enables citizens to earn more money, access affordable services and scrutinise government activities. Indeed, Uganda's bilateral and multilateral Development Partners regard the widespread deployment and access to ICTs as vital to tackling instability and enhancing infrastructure, skills and services for all citizens.

1.2 National ICT Initiatives Support Programme

The National ICT Initiatives Support Programme (NIISP) aims to facilitate the creation of a digital ecosystem and marketplace for exposing innovative digital products. The private sector has largely led growth of the ICT sector in Uganda with minimal GoU planning and support. Unfortunately, the market-driven approach has created standalone and closed software applications that have not promoted innovation at a national level. The NIISP will tackle bottlenecks to creating a digital ecosystem by promoting the use of Application Programming Interfaces (APIs) to create an open ecosystem in Uganda than enables the GoU, enterprises and individuals to innovate fast and reach new markets. Given the importance of the ICT Sector in the NDP II, the NIISP shall:

- Encourage innovation by providing ICT graduates an opportunity to use GoU data to create applications for Ministries, Departments, Agencies and Local Governments;
- Aim to generate highly skilled jobs and wealth for the small companies that generate applications using either GoU data or other information in the emerging ecosystem;
- Help improve data gathering by allowing data to flow into GoU from third parties; and
- Encourage transparency by using APIs to expand the number of people who have access to Government data.

Rather than enforcing closed private networks, the NIISP will champion the creation of APIs that internal and external users can find valuable enough to pay for. The APIs must enable the secure delivery of digital products and services on a range of platforms such as on-premises IT infrastructure assets, cloud, mobile and social media application. The NIISP will focus on encouraging the creation of easy to consume digital products.

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2 Project Background

This section presents a contextual background to ICT innovations promotion and acceleration from a global, regional and national perspective. The section also presents a national situation analysis to gain in-depth understanding of the innovation issues in the sector and to establish intervention opportunities to stimulate the country's global competitiveness in general.

2.1.1 Global Context

The 2016 Global Innovation Index Report titled 'Winning with Global Innovation' and other recent studies report that the innovation gap between developing and developed countries is narrowing (Cornell University, INSEAD, and WIPO, 2016). The narrowing of the gap is due to deliberate efforts by countries to create sustainable innovation ecosystems act as launch pads to knowledge based economies. The report notes that a number of developing countries are out-performing their perceived potential in innovation outputs relative to their level of development. The report lists some of the 'outperformers' to include; Armenia, China, Georgia, India, Jordan, Kenya, Malaysia, the Republic of Moldova, Mongolia, Rwanda, Mozambique, Uganda, and Vietnam. The common strategy in each of these countries has been the setting up of an ICT sector as a national priority for ensuring global competiveness and social-economic transformation of their communities. However, variations exist in each of these countries based on commitment to implement strategic actions in their policies.

The International Telecommunication Union (ITU) ICT Development Index (ITU, 2016) puts Uganda at 149 out of 167 countries in the world. Mauritius is the highest ranked African country at 73rd in the World. A deeper analysis suggests that countries, which have vibrant innovation ecosystems, score highly on the global innovation index. In recognition of the emerging trends in global innovations, developed countries such as the United States (US) and the European Union (EU) are investing heavily in research and innovations as a means of retaining global economic comparative advantage. The EU under the Europe 2020 Innovation Union programme has laid out a strategy of revamping and accelerating innovations within the community in collaboration with international partners. The EU innovation strategy calls for a continuation of the EU's policy to provide open access to its research and development programmes, while ensuring comparable conditions abroad. This implies that the EU and its member states treat scientific cooperation with third world countries as an issue of common concern and develop common approaches to increase the level of internationality, while protecting common European interests at the same time.

The Digital Agenda for Europe (expounded in the EU's strategic policy for the ICT domain), seeks to maintain Europe's competitive edge, among others, through an increased focus on ICT research and innovation. International cooperation in ICT research and development supports this goal by attracting the best minds from all over the world including Africa, to cooperate with Europe, and by helping to establish important partnerships for the future. Singapore, Australia and other countries have recently realigned their innovation strategies to reflect the emerging trends of innovation globalization as noted in the global innovation index report of 2016. These examples suggest that countries around the world and in the region are in a race to become dominant players in the globalised knowledge-based economy powered by technological innovations.

Funding technology research is a precursor for creating a competitive and sustainable innovation eco system. For example, the US government has had a significant contribution on the development of many of the revolutionary technologies that make up IPhone and other Apple products and services like the IPod. Apple did receive early stage financing from the U.S government through the small business investment company programme to specifically develop GPS, touch screen display as well as voice activated personal assistant (SIRI) technologies. Other Silicon Valley companies, like Google have also benefited immensely. The National Science Foundation (Mariana Mazzucato, 2011) funded Google's algorithm. The benefit of this funding support to American innovation has led to the development of groundbreaking innovations that have in turn led to global market dominance of American ICT companies. Figure I below highlights the American innovation eco-system.

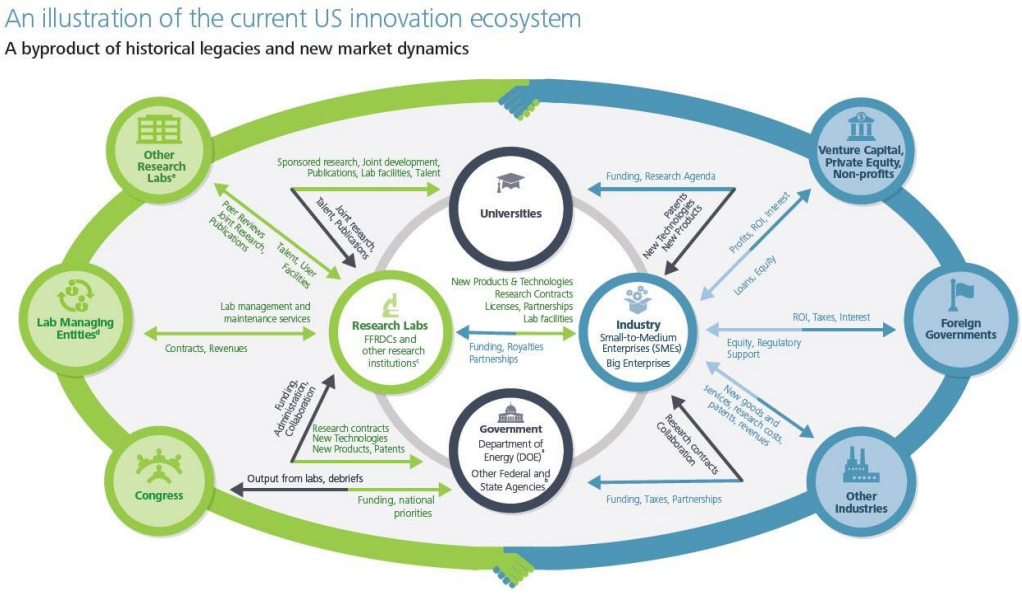

Figure 1 – United States Innovation Ecosystem

2.1.2 Regional Context

At the regional level, Kenya, Mozambique, Rwanda and Uganda have been singled out in the global innovation index 2016 report as countries which are outperforming other countries in the area of innovation development despite the constrains within their innovation eco-systems. While other countries in the African region have put in place strategies of systematically supporting ICT innovations, until now Uganda did not have a national strategy on ICT innovation support. This ICT innovation support is a critical element of the national ICT strategy for any country. In Rwanda, the Government funded K-Lab Innovation Hub is transforming the ICT sector, through development of software applications such as the transport card solution, which was developed by a Rwandese national, and it is now being exported to other African Countries. This solution has also attracted investment by a Japanese firm to a tune of USD 8 Million.

Uganda is lagging behind Kenya and Rwanda in terms of attracting direct investment in the ICT sector (Global ICT innovation index 2016). If the country does not quickly develop and implement a systematic and sustainable innovation strategy, Uganda will end up importing ICT innovations from the region leading to more outflow of foreign exchange from the economy. The next section provides more details on the state of ICT innovations in Uganda.

2.1.3 National Context

ICT innovation development in Uganda has been largely private sector led with minimal or no significant government contribution. The lack of systematic support and a national innovation strategy has negatively affected the ability of innovators to go beyond prototypes, i.e. commercialize their products, both locally and internationally. This was noted in the Uganda IT & IT-Enabled Services (ITES) Sector Export Plan 2015-2020 as one of the inhibiting factors in the ICT sector. Many of the countries performing better than Uganda in ICT innovations like the Rwanda, India, Kenya, Mozambique, Singapore, USA and South Korea have seen their governments deliberately and consistently providing support for Research and Innovation in the ICT sector. This has translated into high-end software and electronic products such as Google and Apple from the USA, Samsung from South Korea, and MPESA from Kenya just to mention a few.

The Government of Uganda has identified ICT as one of the key pillars to spur socio economic transformation of the country to middle-income status by 2020. This vision is articulated in the overarching macro-economic development agenda of Uganda Vision 2040, the Second National Development Plan (NDP II), the ICT sector Strategy and Investment Plan (SIP) 2015/16 – 2019/20, and the NRM 2016/21 manifesto. Furthermore, President Yoweri Museveni has prioritized ICT as one of the strategic interventions for economic growth and has indeed given directives to guide the sector. In addition, the president has committed support to ICT innovation and establishment of ICT Parks.

These undertakings are aimed at nurturing a systematic and sustainable ICT innovation eco- system that is vital for long-term socio economic transformation of the country into a knowledge-based economy. For Uganda to attain middle-income status, the country has to leapfrog from the capital-intensive industrialisation stage of development to a knowledge-based economy. In the knowledge-based economy, one of the critical factors of production is the human capital as opposed to the capital-intensive industrial based economy. Therefore, Uganda should put strong emphasis on human capital development initiatives especially in the ICT sector in order to lay foundation for a vibrant knowledge economy.

The absence of a systematic innovation support structure, has witnessed a number of promising local innovations not being fully exploited resulting into low export earnings from the ICT products and services. It is worth noting that Uganda's competitiveness for ICT direct investment in the region is well below that of Kenya and Rwanda, despite the fact that Uganda has had a stable economy and vibrant education sector for over 20 years. Despite the current circumstances, there are still local ICT innovations that have found their way onto the market. The next section details of the current situation are provided.

2.2 Situation Analysis

According to the Uganda Country Report of 2014, the ICT sector's contribution to GDP averaged about 3.4% over the past years and significantly contributed to national revenue, mainly driven by the fast growing telecommunications sub sector. In terms of ICT exports and imports revenue, Uganda's ICT products and services exports stood at USD74.9 million in 2011, which was 5.7% of total exports, while the import of ICT products and services stood at 7.4% of total imports. The MoICT & NG set a target of increasing the sector revenue growth from 8.1% in 2012/13 to 10% in 2020 and to increase the employment in the ICT sector from 1 million in 2012/13 to about 3 million in 2020. The targets by the MoICT & NG are informed by the understanding that, domestic and regional demand for ICT services can grow if an enabling environment exists. It is worth noting that growth of various services in telecom, broadcasting, and broadband services in the country has created increased demand for ICT products and services.

Four major forces shape the Ugandan ICT innovation sub sector namely: the threat of imported ICT products and services, threat of local substitute products and services, investments in research and innovations, as well as government policies, laws and regulations. Figure 2 illustrates these forces.

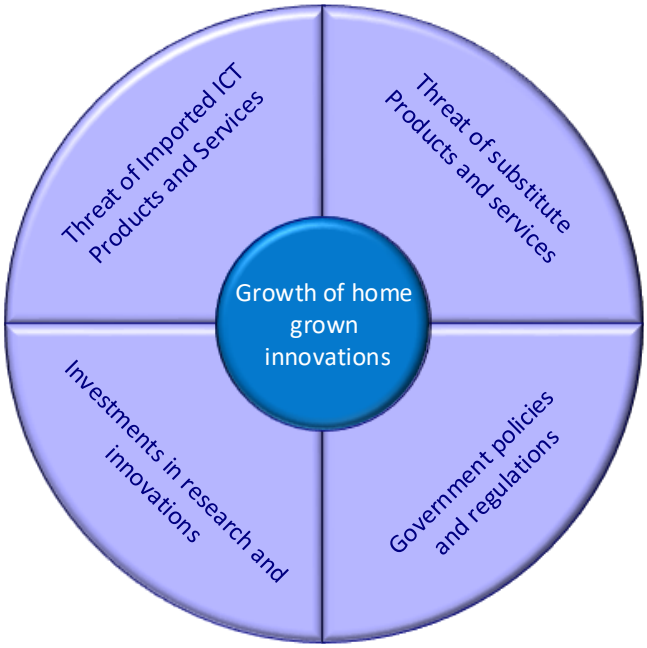

Figure 2 – Forces driving Ugandan Innovation Sector

In general, ICT innovation in Uganda has been constrained by a range of factors. These include:

i. Innovation processes do not realise immediate returns. A successful innovation goes through five stages that last a minimum of one year. During this period, the innovators require support to navigate through the five stages of innovation. Unfortunately, for a long time Ugandan innovators have been on their own.

ii. Workspace/Office Constraints for innovators. Majority of the innovators are constrained by lack of affordable workspaces. Kampala being the most central and conducive area for innovators, the rent is high and prohibitive for innovators who will not have any early returns from their idea development.

iii. The cost and reliability of Internet Connection. Currently, Internet penetration stands at 17% compared to Rwanda (39%), Kenya (48%). For 500 Megabytes of data per month, the cost of mobile broadband for Uganda is USD 30 while it is USD 12 for Kenya; USD 14 for Tanzania; USD13 for Sudan; USD 19 for Egypt; USD 12 for Ghana and USD 17 for Rwanda (ITU report 2013). This increases the cost of innovation in Uganda. Put latest statistics.

iv. Innovators depend on contemporaries for support. There is no framework for mentorship to support innovators in order to realise international innovation best practices.

v. Failure for Government to consume locally developed ICT products and services. Where local innovators have been successful and their products are tried and tested, resilient enough for consumption by given sectors there has been a preference for international/imported solutions. Whereas the expertise and thought process to develop a system for pension exists, government would still prefer to procure software in excess of $10 million.

vi. Insufficient marketing framework for ICT innovation products and services at national and international level. While many young ICT innovators have come up with excellent products, the majority of them have not been able to access both local and international markets. Some examples include: Clinic Master, Jaguza, Ensibuko, WinNsenga, Tambula that are worth millions of dollars.

vii. Lack of intellectual property rights support to innovators. The innovators need guidance on how to pursue their intellectual property rights.

The issues listed above are further augmented by the SWOT analysis below. Table 1 below summaries the strengths, weaknesses, opportunities, and threats (SWOT) to ICT innovation:

Table 1: SWOT to ICT Innovation

		Weaknesses
Strengths	1. Presence of High skills base in ICT 2. Expansion of higher education sector 3. An innovation culture among the youth 4. Growing demand and adoption of ICT services 5. Government commitment to the ICT sector 6. Potential domestic and international funders 7. Enabling environment created by government 8. Enabling legal and institutional framework 9. National ICT integrated National Development agenda	1. Government reliance on the private sector 2. Undefined national ICT research and Innovation Agenda 3. Failure to publicize public procurement procedures that facilitate the use of locally developed products and services 4. Inhibitive Public procurement policy that does not facilitate and promote use of locally developed products, services and solutions 5. Low appreciation and uptake of locally developed solutions 6. The high costs of doing business (rent, taxes, utility

	10. Existing Ugandan local innovation and incubation hubs	tariffs, bandwidth) deterring innovators from innovating 7. Lack of intellectual property rights protection and access including its enforcement in the case of overseas breach of rights, capacity to prepare IPR documents and process management by the start-ups
Threats	1. Brain drain of highly innovative Ugandans 2. More affordable substitute products and services	**Opportunities.** 1. Development of a sustainable capacity building research and training model for the programme 2. The government prioritisation of ICT in the country as a pillar of development 3. The growing demand of ICT products and services

Table 1 – SWOT Analysis of the ICT innovation sector

Based on the above, ICT innovation in Uganda has been driven with minimal government support. Organizations such as: Resilient Network Africa at Makerere University; Initiatives at the College of Computing and IS, Makerere University; Outbox; Hive Colab; the Innovation Village; Mbarara University of Science And Technology Initiatives; Uganda Technology and Management University (UTAMU), Centre for Innovation and Business Incubation; Yunus Foundation; Mara Foundation; Women in Technology Hub; RUFORUM Young innovators forum; and the UCC supported ACIA initiative among others, have created a fertile ground from which this programme is being developed to steer the country to a knowledge based economy. We conclude therefore, that a private sector with minimal investment on research and innovation may not nurture an infant innovation eco system.

2.3 Problem Statement

The growth of the ICT sector has been largely private sector led and a number of sub sectors have emerged and innovation being one of them. Unfortunately, ICT innovation growth has been happening with minimal government support. The government support has largely been in form of recognising outstanding innovation despite the fact that government is one of the largest consumers of ICT specifically with regard to software. Some of the major procured software include but not limited to IFMS, IPPS and other operational licences such as Microsoft. These applications continue to cost the government a lot of money in terms of licenses and support despite the fact that the local community has capacity to develop and support such services at more affordable costs. The continued importation compromises the balance of trade, affects the stability of the exchange rate and deprives the local developers opportunity to create local employment.

2.3.1 Relevancy of NIISP

At the Global Policy Framework level, the programme is in consonance with SDG Goals 8 and 9 that place special emphasis on fostering creativity and innovation to advance technological capabilities and development of new skills. The target is to substantially reduce the proportion of youth not in employment, education or training by 2020; and achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value by 2030.

At regional policy front, the programme will contribute towards the achievement of Africa Agenda 2063 ASPIRATION 1: “A prosperous Africa based on inclusive growth and sustainable development”; that aspires to see a “well educated and skilled citizens, underpinned by science, technology and innovation for a knowledge society” and a strong Africa with “modernized infrastructure, and people have access to affordable and decent housing including housing finance together with all the basic necessities of life such as, water, sanitation, energy, public transport and ICT”;

At national planning framework level, the programme will operationalize objective and intervention 11.4.2 (3) ‘Increase job creation through ICT Research and Development as contained in NDP II which among others provide for:

a) Establishment of ICT Research and Innovation Fund to support innovation; and
b) Establishment of ICT parks and model regional incubation centres /hubs to encourage innovation and creation of local content.

At sectoral level, all the proposed interventions for implementation are in line with the ICT Sector Strategic and Investment Plan - SIP (2015/16 – 2019/20) objective 7 “To promote Research, Innovation and Development of ICT and Relevant ICT enabled services”. The SIP was dully approved by Cabinet in 2015.

In more specific terms, the relevancy of this programme is as articulated in its ability to spur innovation for purposes of creating employment and contributing to the reduction of the net import of ICT products and services especially where the competence exists. One example is the existence of innovation such as Clinic Master that private health providers have adopted as a tool to efficiently manage their facilities and the way they engage with their clientele. The product has also increased productivity and revenue collection in some of the health service providers where it has been deployed. It is worth noting that this product was developed by Ugandans and has been on market for the last 10 years.

Therefore, NIISP aims to take advantage of the existing innovation support structure and to streamline government's intervention by providing support to operationalize the entire ICT innovation eco-system.

3 NIISP Objectives

The overall goal of this programme is to create a systematic and sustainable enabling environment for; nurturing, promoting and uptake of locally developed ICT innovation for socio-economic development.

The Specific Objectives for this programme are:

a) To provide systematic and sustainable support to national ICT innovators

b) To promote ICT products, services and solutions (i.e. APIs) for improved service delivery using digital marketplaces as part of a wider digital ecosystem.

c) To establish and operationalize ICT innovation parks.

d) To promote local electronics manufacturing and assembly.

3.1 Stakeholder Analysis

The proposed National ICT Innovation Support Programme (NIISP) can be viewed as an eco-system intervention strategy targeting a number of stakeholders who can be categorized into six. These are: government, academia or researchers, innovators, private sector, incubators, donors and civil society. The programme seeks to support Ugandan citizens specifically, unemployed youth in the ICT sector, innovative graduates, seasoned ICT innovators, incubation hubs and ICT start-ups among others. The figure below is an illustration of the stakeholder analysis.

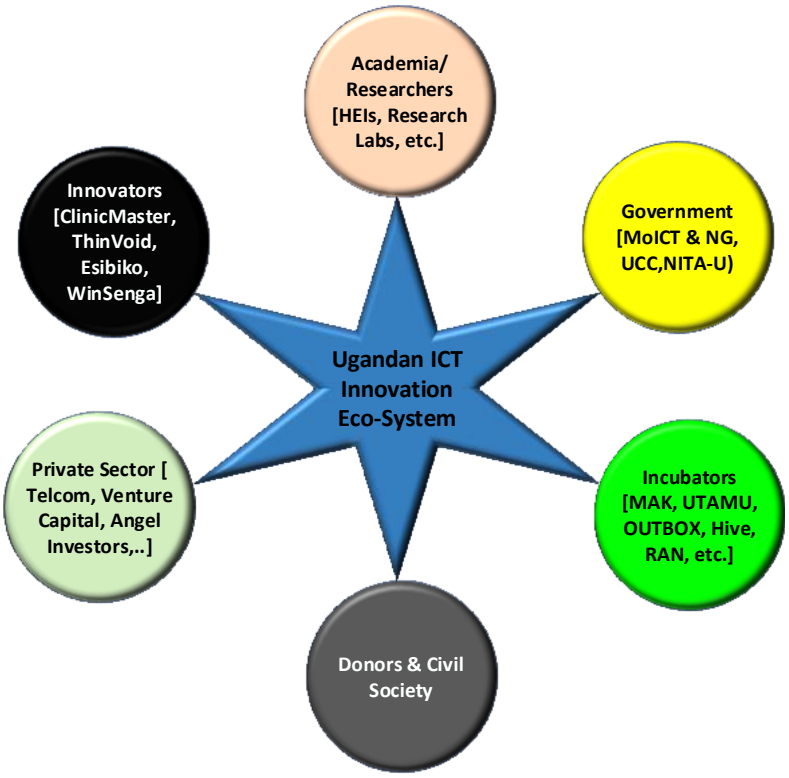

Figure 3 – Stakeholders in the ICT innovation Initiative

Table 2: Stakeholders and their roles

Stakeholder	**Role**
Government	This category is composed of government ministries, departments and agencies. These include Ministry of ICT&NG that will oversee the implementation of this programme, its agencies, (NITA-U and UCC), Ministry of Agriculture, Animal Industry & Fisheries; Health; Finance, Planning and Economic Development; Science, Technology and Innovation, Education; and, their role will be to collaborate in: - Preparation and execution of the budget related to the NIISP - Establishment of a regulatory framework - Consumption of ICT innovations.
Private Sector	The Private Sector actors include experts in the industry as well as local and international firms, who are active in ICT innovation. The private sector will be instrumental in the development of the ICT park. Their roles will include: - Mobilizing funding for the programme - Investment - Promotion of (partnerships, mentorship, training, marketing, operation of Innovation hubs) - Provision of market for local innovations
Researchers /Academia	This group includes academia (both public and private institutions) and special ICT training institutions like UICT. These players shall ensure that the ICT Parks and ICT Initiatives have the much-required skilled labour force for implementation. Some of the roles academic will play in this programme include; - Mobilization of funding to support innovations - Promote (research & development, mentorship, training, partnerships, marketing) - Consume the innovations
Development Partners/Civil Society	The development partners will be instrumental in linking the program to international partners for purposes of attaining innovation best practice. Their other role will be; - Funding - Promote collaborations with international innovations hubs
Incubators	This includes players focusing on ICT innovation and incubation activities. They will be the frontline implementing partners of the programme. Some of their roles include; - Mentorship and incubation of programme beneficiaries - Promote the innovations (partnerships, marketing, policy advocacy, training, mentor, sourcing funding)
Innovators	- Develop innovations - Promote the innovations (partnerships, marketing, policy advocacy, training, mentor, sourcing funding)

3.2 NIISP Outcomes

At a macro level, implementation of this programme has potential of attracting both foreign and local investment, generate tax revenues; improve the balance of payment position for the country, and consequently contribute to overall GDP growth of the country in addition to boosting domestic innovation and manufacturing. In more specific terms, investment in this project envisages achieving four (4) outcomes in the medium term. These include:

- Increased employment opportunities especially for the youth
- Increased uptake of locally developed ICT products within the country and internationally
- Increased local content development (locally developed ICT products and services)
- Increased indigenous product development and support for Government applications

The following will be the outcome, indicators and means of verification:

Table 3: Programme Outcomes and Indicators

OUTCOME	INDICATORS	MEANS OF VERIFICATION
1. Increased Employment of youth in ICT industry	No. of youth employed directly and indirectly in innovation initiatives Number of start-ups	Reports and surveys from: MOICT & NG; UBOS; UCC; NITA-U, annual reports from companies
2. Increase in locally developed products, services and solutions on market	%age of locally developed products, services and solutions,	Reports and surveys from: MOICT & NG; UBOS; UCC; NITA-U, annual reports from companies
	No. of Registered intellectual property rights including patents	
	No. software applications developed and deployed	
3. Increased local content development (locally developed ICT products and services)	No. of local content in use by the citizens	Reports from UBOS, MoICT, NITA, etc.

3.3 Proposed Programme Interventions

The major proposed intervention is to develop the country's capacity in ICT innovation to avert reliance on imported applications. To achieve this, the programme will have four broad pillars that indeed form the core objectives of the programme.

3.3.1 Support to local ICT Innovators

The fund provided by the GoU will be used to support the nurturing of ICT initiatives at different levels of maturity by focusing on areas that will grow innovations into products, service, solutions and enterprises. As noted in the Executive Summary, the NIISP shall encourage the use of Application Program Interfaces (APIs). The aim of this intervention is to accelerate transformation of viable ideas into products, services, solutions and enterprises. The activities for this intervention will follow a systematic innovation process model in Section 3.3.5.

3.3.2 Establishment of ICT Parks

In the long term, it is envisaged that the programme will result into a formidable ICT park that will come out of the various start-ups that will emerge out of the programme. Therefore, the programme will be designed on a basis of thematic hubs that will in the future accrue agglomeration benefits necessary for the growth of IT enables services. This approach has been implemented in India, China, Mauritius and Malaysia among others.

The envisaged ICT Park will be a one-stop centre for anything related to ICT innovation. In so doing, it will be a centre of excellence for ICT entrepreneurship, talent and commercial engagements.

ICT parks do provide a location in which government, academia and private companies can collaborate and cooperate for development, transfer and commercialization of technology. These parks can be sources of entrepreneurship, talent, and economic competitiveness and are key elements of the infrastructure supporting the growth of today's global knowledge economy. Hence, setting up a world class ICT Park would be beneficial not only for the ICT sector, but also for all related industries. The park will help fostering partnerships and innovation. It would offer facilities for innovation in technological fields relevant for the future, generation of IPRs, collaborative research design and procurement, training for personnel, interaction with academia within and outside the country. It will also provide assistance to telecom/ICT companies and personnel involved in development of key equipment identified as important for the country's network and export potential. The park would in addition provide the much-needed launch pad for start-up companies. Academic institutions would also benefit by gaining exposure to the innovative research being conducted in the industry.

Besides buildings, these parks offer a number of shared resources, such as uninterruptible power supply, telecommunications hubs, reception and security, management offices, restaurants, banks, convention centre, parking, internal transportation, entertainment and sports facilities, etc. To achieve this, the programme intends to implement the following activities.

- Identify and acquire existing physical infrastructure, which could be converted into innovation and incubation space (Build on existing ICT infrastructure);

- Transform the acquired space into a state of the art innovation Hub;
- Building new infrastructure that will provide space for innovation;
- Extend utilities and equip the centres (power; water; furniture; computers etc);
- Provision of high-speed broadband access to the parks;
- Plan to extend the NBI to these centres with proper standby arrangements;
- Build test labs and equip them for quality assurance;
- Construct access roads and drainage systems;
- Establish human capacity to run the innovation centres; and
- Hire both international and local process partners to facilitate the process of innovation and incubation set up.

3.3.3 Promoting local ICT products, services and solutions for improved service delivery

This action will entail introducing, availing and promoting locally developed ICT products, services and solutions for improved service delivery. This intervention plans to incorporate the advances in new and modern techniques of support and marketing, to position Uganda as an attractive investment destination for ICTs and increase the competitiveness of the Ugandan ICT products on the global ICT Market. The core aim of this intervention is to commercialise Ugandan ICT products and to position Uganda as an ICT investment Hub. To achieve this, the programme intends to implement the following actions:

- Recruit local and international process consultants /partners who will provide technical expertise in the management of the innovation process. These partners will provide the end-to-end support of the innovation eco system for about 3 to 5 years.
- Identify and link to the government sector areas for locally developed ICT solutions and innovations.
- Identify and promote innovative solutions that are viable and meet international standards.
- Conduct road shows, conferences, exhibitions etc. to build the brand of Uganda both locally and internationally.
- Market Ugandan ICT products and services and facilitate access to Ugandan ICT solutions to regional and international markets
- Test; verify Certify type approve and quality assurance.
- Support and enable the development of ICT products.
- Setup web portal or digital marketplace to disseminate information and engage stakeholders.

- Ensure that at least 70% of all government requirements in applications, development and support are met through local innovations and support within the next five years.

- Identify innovation support partners, develop, and implement a framework for their engagement.

- Analyze and review existing policies, laws and regulations to ensure that they adequately cater for innovation.

- Develop an ICT innovation and manufacturing policy as well as a strategy that includes among its objectives ensuring that terms of preferential market access of domestically manufactured products, preferential market access of locally developed ICT applications, Protection of Intellectual Property Rights (IPR), incentive schemes, subsidies, deferred tax payments, tax rebates/ holidays, etc. are in place. Within the context of Build Uganda Buy Uganda

- Establish an adequate comprehensive Governance Framework for the innovation and manufacturing ecosystem including open source framework and partnerships with various forums.

- Establish a Monitoring and Evaluation system to ensure strict adherence to the set objectives and targets.

- Create a single window clearance system for government ICT procurement in collaboration with NITA-U.

- Strengthen collaborations with government agencies for enforcing Intellectual Property Rights.

3.3.4 Promoting local electronic manufacturing and assembly

This intervention is aimed at promoting the assembly and manufacturing of locally developed consumer electronics. The general principle is to promote public – private sector partnerships to promote the establishment of vibrant and economically viable electronics manufacturing sector. This intervention will involve the following activities:

- Defining the policy framework to promote electronics and manufacturing

- Mobilizing private sector and partners

- Promoting the uptake of locally manufactured products.

3.3.5 Innovation and Incubation Process Model

To achieve the programme objectives, a systems approach to innovation and incubation management will be adopted. The process involves scoping of innovation opportunities to attract ideas that will be transformed into innovations. As illustrated in figure 4 below, the process will be based on inputs that are classified as both problems and opportunities for innovators to come up with outputs in form of products and services.

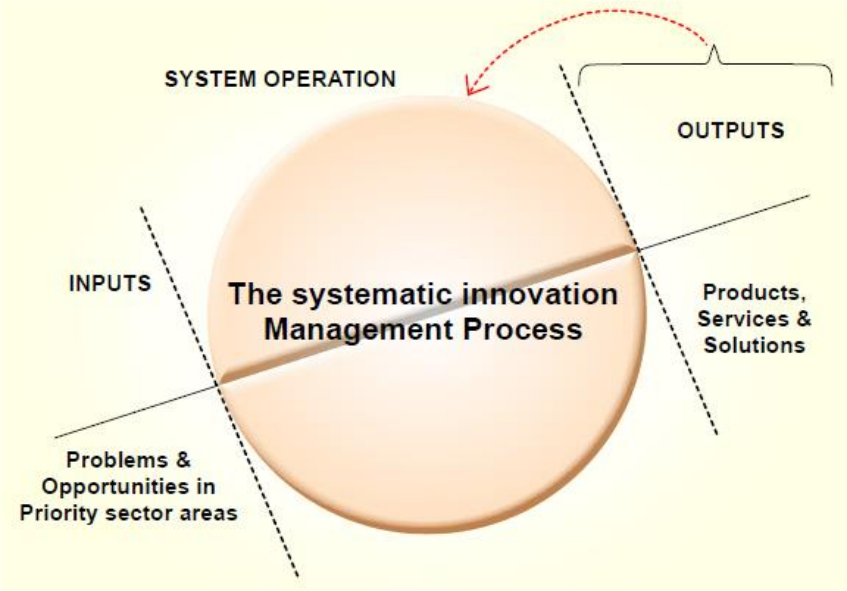

Figure 4 – Innovation System Conceptualization

The programme will follow the Novice to Hero innovation management process model with precision as illustrated in figure 5 below. This model defines five stages of systematic innovation acceleration programme. The stages are; opportunity identification, idealization, innovation acceleration, business incubation, and learning and enterprise support. The model is designed in such a manner that supports both disruptive and incremental innovations. This pragmatic approach, will allow innovators at different levels of development to join the programme. The design of the model will also allow various points of exit with quantifiable value to the innovators. The different stages are detailed in the following paragraphs.

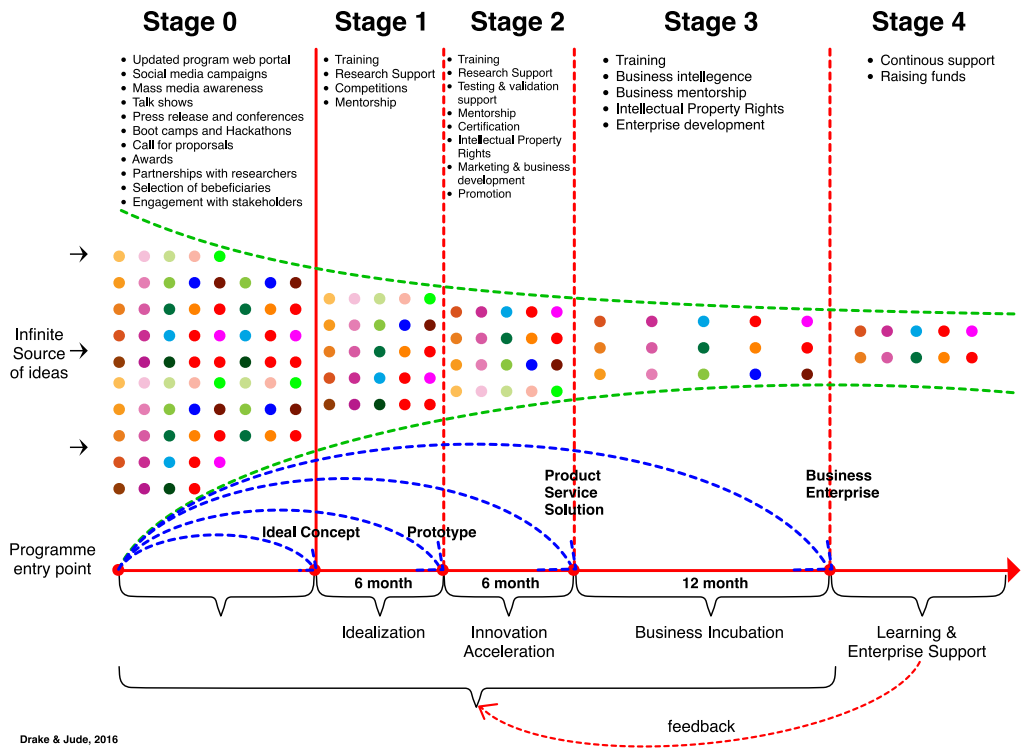

Figure 5 – The Innovation Management Model

Identification of Innovative ideas (Stage Zero). This stage involves creating of awareness of the programme to attract innovation ideas. The purpose of the awareness is to call for proposals upon which boot camps and hackathons would be prepared to classify as well as select innovative idea. Some of the activities at this stage include;

- Creation of awareness for the programme through maintaining an updated programme web portal, maintaining an active social media presence, mass media announcements, talk shows, press conferences and releases

- Engaging the different stakeholders through boot camps, hackathons, and call for innovation concepts, awards, and partnerships.

- Programme beneficiary selection, which will involve setting up of a selection committee, defining the requirements for the applicant, assessment of applications and distributing the successful applicants to different programme implanting partners.

- Design and implement incentive schemes to encourage and spur development of ICT initiatives using clearly defined selection criteria.

- Identification and establishment of partnerships with various innovation ecosystem players and possible funding options e.g. loans, grants, equipment, etc.

Idealization (stage one): This stage will last for about six months and it will be aimed at transforming the identified innovative concepts into prototypes. In so doing the concept

will be tested and aligned to the innovation model for purposes of creating resilient innovative products. Some of the activities at this stage will include;

- Training of innovators. This will involve assessment of innovators' competences to implement ideas, programme design and training delivery

- Research support; this will involve linking the innovators with relevant researchers and research groups to enable them access high quality scientific knowledge required to implement the innovation.

- Mentorships; this will involve exposing the innovators to experienced entrepreneurs, innovators, business leaders with the aim of making them appreciate the success of innovation.

- Innovation competitions; this will involve subjecting innovators to boot camps, hackathons and competitions to help them refine their ideas and get critical feedbacks.

Innovation Acceleration (stage two): This stage will last for about six months and will be aimed at transforming the prototypes into products, services or solutions. At this stage, we shall attract existing innovations that are in need of acceleration provided the prototypes meet the required standards to be able to come up with sustainable innovation products and services. The activities that will be conducted include;

- Training of innovators; this will involve assessment of innovators' competences to implement ideas, programme design and training delivery

- Research support; this will involve linking the innovators with relevant researchers and research groups to enable them access high quality scientific knowledge required to implement the innovation.

- Provision of infrastructure and expertise to test and validate the innovations.

- Technical and financial support to process the product certification.

- Technical and financial support to process the Intellectual property rights for the product

- Technical and financial support to undertake marketing and business development

- Provision of office facilities equipped with high-speed internet and associated equipment.

Business incubation (stage three): This stage will last for about 12 months and the purpose will be to transform products and services for commercial viability;

- Providing support in business development,

- Providing technical support to gather and interpret business intelligence,

- Attaching mentors to start-ups to support them with establishment of corporate governance systems and business growth strategies

- Technical and financial support to process the Intellectual property rights for the product

- It also provides provision of office facilities equipped with high speed internet and associated equipment

Learning and enterprise support (stage four). This will be conducted to reinforce the necessary skills required for innovators to be able to sustain the start-ups that will arise from the programme. The activities under this will include; continuous business development support, raising capital for enterprises, research and development;

- Facilitating establishment of corporate culture, sourcing for direct investment for growth, market expansion and support for product maturity

- Facilitating research around the product or enterprise ecosystem to provide empirical evidence to enhance business decision-making by the enterprise.

3.3.6 Monitoring and Evaluation Plan

The programme of this nature requires appropriate mechanisms to ensure that the activities are well implemented and the impact quantified. Accordingly, the Programme Management Unit (PMU) will leverage the experts provided by the Monitoring and Evaluation (M&E) committee, which shall define Key Performance Indicators (KPIs) for different stakeholders and actors, metrics of activity tracking and impact assessment.

The M&E will be undertaken at different levels using established sound models for process evaluation, impact assessment and peer review mechanisms. Process evaluation will aim to determine to what extent the programme has been implemented in accordance with the work plans and identify operational and strategic lessons for smooth implementation. Monitoring will involve description and measurement of observed outcomes along defined metrics agreed upon in the work plan. Impact evaluation will aim to measure the programme's success in achieving stated objectives using a counterfactual. While process evaluation requires careful description and monitoring of activities, milestones and outcomes, impact evaluation requires measurement of progress using tangible indicators affected by the program and how this differs from the situation without interventions.

The PMU will develop a detailed implementation plan and impact pathway, which maps how activities and inputs translate into output targets, outcomes and impacts. For each output target, a set of milestones with timelines will be developed. The process evaluation and monitoring process will regularly review attainment of these milestones and output targets, reasons for any divergence and suggest measures for real-time corrective action. The M&E committee will assess progress towards the defined milestones on a quarterly basis, utilizing comparable indicators of progress across the different stages of the systematic innovation management process.

Monitoring visits will be made by the M&E committee to the programme work sites to verify findings and gain insights on progress and adjustments needed. In consultation with target beneficiaries, partners and stakeholders, the PMU will identify and agree on specific indicators to be used for monitoring progress towards output targets, milestones, and social, economic and environmental outcomes. The first order impacts of the programme induced by delivery of specific outputs include; improved awareness on ICT innovation and their relevance, improved skills of the beneficiaries, new products, services & solutions; employment, improved exports of ICT, improved ranking on the

global innovation index hence attracting more direct foreign investment in the sector and improved uptake of local ICT innovation in service delivery.

The second order impacts that may result in the long term include; increased contribution of ICT to GDP from the current 3.2% to about 6%, sustained increase of ICT exports, vibrant economy driven by ICT innovations, accelerated integration of ICT in the economy, a nurtured culture of innovation and entrepreneurship within the Ugandan community, improved research output, improved international brand and recognition as a hub for innovation.

The programme will use participatory M&E methods as part of the performance measurement systems to improve evaluation by allowing partners, stakeholders and scientists to formalize impact pathways based on the logical framework and timely review and adjustment of the programme strategies. The monitoring and evaluation process will also function differently compared to the traditional approach, which assesses the progress and performance of technical interventions. Evaluation of the programme on the basis of its milestones will emphasize what has been learned in the process, rather than simply ticking boxes to show that milestones have/have not been accomplished. If a “failure” to complete a milestone as written leads to better understanding of the situation being addressed and development of a better way to accomplish the objective behind the milestone, then the initial effort was not necessarily a failure. The programme will implement annual review sessions to reflect on the lessons learnt that can be incorporated in future planning.

3.3.7 Programme Communication Strategy

This programme by design requires an efficient knowledge management strategy, as a means of creating the desired impact. The programme will take advantage of the free government air space on local televisions and radio stations to promote the programme activities and the vision. A combination of electronic (Radio, and web based tools such as emails, blogs) and print media channels (newsletters or magazines and local newspapers) will be used at community level. The Uganda media centre, which is directly under the minister who is overseeing this programme, will spearhead the visibility and programme campaign.

The programme will maintain an updated and interactive web portal as a first line communication tool, and leverage the wide government cyberspace to promote the programme activities. Literature about the programme will be extensively shared within the education sector, which is one of the key sectors, which generates ideas. The publicity and promotions committee of the programme implementation unit will define more concrete proposals on how to increase the programme visibility and success.

3.3.8 Risk Management Strategy

The programme faces two types of risks: those inherent by the nature of the programme itself and those based on the inability to perform planned actions due to managerial, logistical and human failures. A summary of the risks, their levels and mitigation strategies are summarized in Table 1.

As means of lowering risks associated to running innovation and incubation activities, this programme will enlist support services of experienced international and local programme implementation partners as consultants. Similarly, the programme will build existing experiences and innovation networks within the country and the region to pilot

the programme in the year one. The pilot will be scaled to partners and institutions, which have demonstrated capacity to run successful innovation Programmes, which are coordinated with the programme objectives and aspirations. The programme implementation will take a principle of co-creation with key sector players in refining and implementing the programme actions. Thus, individuals with experience in participatory innovation approaches will handle leadership and coordination responsibilities. The other category of risks include those affecting any government programme.

- Logistical problems, mainly the failure of operational funds/equipment/supplies to reach those who need them at the time and place that they are needed.
- Failure to complete activities on time, resulting in the delay of subsequent steps in the process.
- Failure of both individuals and organizations to undertake or complete actions that they had contracted/agreed to perform.

Table 4: Risks and Mitigation Plan

Risks to the programme	Risk level	Mitigation plan
1. Human capital risk		
1. The programme relies on a chain of stakeholders to realize its goal. Therefore a weak team coherence may slow programme progress and inhibit the attainment of the programme objectives.	Low	As a mitigation measure, the programme will develop implementation guideline that clearly defines what each stakeholder's roles and responsibilities, reporting schedules and requirements, M&E framework as part of good project management practice, and engage in the team building processes
2. Development of strong and effective collaborative networks with the stakeholder may become hard and inefficient. This may lead to reduced participation in the programme and hence failure to achieve the programme objectives	Low	Engage a diverse group of stakeholders, e.g., academic institutions, innovation hubs, government, and others. The programme will set clear criteria for collaboration amongst the stakeholders. Through the developed community strategy, the programme will maintain clear lines of communication to build strong working relationships, avoid duplication, and take advantage of shared knowledge.
3. There is a risk of turnover of critical partners, innovators, and programme staff at the different stages of the systematic innovation management process. This will affect the programme progress.	Medium	All stakeholders for the programme will be provided with contracts to commit on the activities they will be undertaking up to the end. In the unlikely event that any stakeholder is lost during the activity implementation, a new one will be identified to replace them. Engagement contracts with terms and conditions for innovators will be issued.
4. Partnerships in knowledge transfer is a critical stage in innovation which may be compounded by limited human capital	Low	Engaging process partners both international and national to beef up the required skills and knowledge to implement the programme. In addition the programme will be leveraged on the existing innovation networks and systems in the country to implement the programme activities.
2. Operational: Financial and sustainability risks		
1. Single source of funding. The programme is designed as a national intervention funded by the Government of Uganda through a Presidential initiative on ICT promotion. There could be a risk of other competing	Medium	The programme is designed to align to other national development agenda and thus the programme management unit will engage a number of stakeholders among the private sector, development partners and others to attract additional funding to the programme.

priorities that could lead to diversion of funds to address the urgent needs of the country.		
Management Risks		
1. Inability to develop and implement efficient monitoring and evaluation (M&E) of Programme	Low	The PMU will ensure a formulation of solid and effective M&E plan. The PMU will leverage existing M&E systems within the ministry of ICT and NG. The PMU will also develop a web based M&E system for the programme with advanced metrics of visualizing programme implementation and impact.

Table 2 – Risks and Mitigation Plans

3.3.9 Programme Sustainability Strategy

The sustainability of the NIISP and the wider digital ecosystem will rely on:

- Private sector engagement;
- Collaboration with government agencies
- Acquisition of a process partner with ability to attract international players to contribute to the programme
- Formulation of a commercial partnership with the start-ups that will arise from the programme.

3.3.10 Programme Management Strategy

The Ministry of ICT and National Guidance (MoICT & NG) and its agencies, supported by Ministry of Finance, Planning & Economic Development will manage the programme. There will be a Programme Ministerial Committee (PMC) and Programme Steering Committee (PSC) supported by the Programme Management Unit (PMU). The PMU will work through sub committees with specific thematic areas within specified terms of references. The financial management of the programme shall follow the existing financial management principles under the ministry as enshrined in the Public Finance management Act 2015 and others public financial management regulations. A joint M&E component will be constituted to ensure the successful implementation of the programme following the existing procedures as prescribed in the M&E policy of Office of the Prime Minister (OPM). The diagram below schematically presents the generic organization structure of the proposed programme implementation. The programme governance and management is detailed below. For all the committees the MoICT & NG will provide Secretariat:

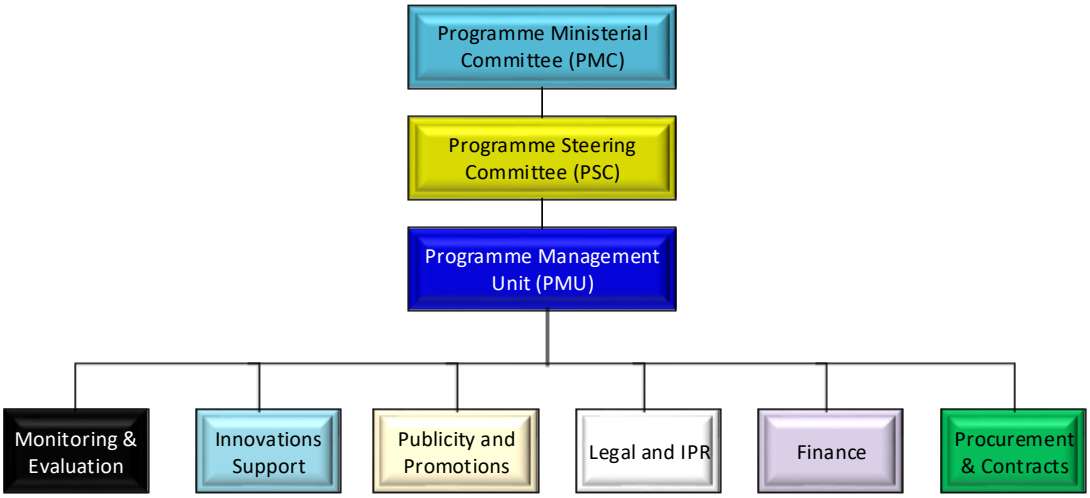

Figure 6 – Programme Management Structure

3.3.10.1 Programme Ministerial Committee (PMC)

The Minister of ICT & NG shall chair this committee. Other members shall include the Ministers of Education & Sports; Agriculture, Animal Industry & Fisheries; Health; Finance, Planning and Economic Development; Science, Technology and Innovation; and Local Government. The Permanent Secretary, Ministry of ICT & NG, will head the Secretariat. This Committee shall be responsible for the overall policy guidance of the Project. The over mandate of this committee shall be to provide overall policy direction.

3.3.10.2 Programme Steering Committee (PSC)

The Permanent Secretary MoICT & NG shall chair this committee. This committee shall be charged with the leadership and management of the project. This committee shall have membership from Education, Health, Finance and Local Government, ED UCC, and ED NITA-U, Academia, civil society, development partners, ICTAU, process implementation partners. The Secretariat shall be the Directorate, responsible for research and innovation in the MoICT & NG. The mandate of this committee shall be to provide overall technical direction.

3.3.10.3 Programme Management Unit (PMU)

The Director Information Technology and Information Management Services shall coordinate this Unit. The Secretariat shall be the Department responsible for research and innovation in the MoICT & NG. PMU shall be charged with the day to day management and running of the programme. The PMU shall have membership of the technical staff member from the Ministries of ICT, Education, Health, Finance and Local Government, UCC, and NITA-U. The PMU shall coordinate all the activities of the project in the two broad branches of ICT Parks and Innovation. The local and international

process partners will support the PMU from time to time. The PMU shall operate in form of committee, which shall include:

- Innovation technical support committee (Evaluation & selection of programme beneficiaries, development & implementation of support Programmes). Membership- international and local process partner, M& E, Academia representative, ICTAU, Option-representative from sector areas, MoICT & NG to provider secretariat

- M & E committee (develop KPI, track activity implementation and measure programme impact using econometrics) – M & E expert (chair), Innovation hub representative.

- Procurement and contracts committee (procurement planning & contracts management). Membership – MoICT & NG procurement committee international and local partner.

- Financial and Audit committee (Budget management, auditing). MoICT & NG finance committee with support from ministry of finance and the process experts.

- Publicity, Branding, and Marketing committee (Creating programme awareness, collection of business intelligence- local and international, marketing and promotion of innovations). Membership – MoICT & NG media centre, NITA-U, UCC, local & international expert, ICTAU.

- Legal and IPR Committee (providing legal support to innovators, especially IPR issues, company equity management). Registrar general (URSB), Legal unit UCC & NITA-U. MoICT &NG to provide.

3.3.11 Critical Success Factors

For the programme to succeed, the following critical success factors must be observed and regularly reviewed:

- Identification of scalable Innovative Ideas

- Existence of the requisite Curriculum: The Ministry of ICT&NG in collaboration of the Ministry of Education and sports shall offer direct guidance to the Universities to guide their curriculum to provide courses which are relevant to the market and which support the growth of the ICT industry

- Utilization of ICT innovation products by Government: It shall be important to guarantee market for the ICT products and services by government. The fact that government currently utilizes many imported ICT products and services show that the market is available once quality products and services are produced.

- Availability of Infrastructure for Innovation: Having invested in the national backbone and e-government infrastructure, government through the Ministry of ICT&NG and NITA U, is in the process of establishing a Cloud services platform

and robust Data Centres with support from the World Bank. The ICT Parks and innovators will therefore benefit from the available Cloud and Data Centres.

- Reduction in internet costs: Through various initiatives of the Ministry of ICT&NG, the country has witnessed a decrease in the cost of Internet. The price per Mbps per Month has already fallen from USD 1000 in 2010 to below USD 300 in 2015. However, to support innovation initiatives the cost has to further reduce to less than USD 50.

- Standardization and Certification: Confidence of Government and the other players shall be further enhanced through the development and implementation of Standards and Certifications of the ICT innovators, Hubs and Parks.

3.3.12 Results Matrix

RESULTS MATRIX FOR THE INNOVATION PROGRAMME					
OBJECTIVE, HIERARCHY & DESCRIPTION	**INDICATORS**	**MEANS OF VERIFICATION**	**BASELINE**	**TARGET**	**ASSUMPTIONS**
GOAL: To contribute towards enhancement of ICT Expertise in Uganda	No. of additional patented ICT solutions	Data from UBOS reports data from URA background to the Budget (BFP) National Accounts World Bank Reports surveys, global innovation index ranks, Bank of Uganda reports, Uganda Investments Authority reports, ITU reports	Baseline info to be collected	15	Conducive political, regulatory, business, educational and legal environment; economic stability; adequate infrastructure;
	Number of people employed in ICT sector (millions) /Proportion of population employed in the ICT sector		1.5millions (2011)	3.8 million (2020)	
	Proportion of local ICT products deployed.		Baseline info to be collected	Target to be set after baseline	
	Improved ranking in the global innovation index		99th /128	75th /128	
OUTCOMES					
Increased employment for the especially the youth in the ICT sector	No. of people employed in the innovation sub sector	MOICT & NG, UBOS, UCC, NITA-U, Surveys	1.3 M	2.3 M	Conducive political, regulatory, business, educational and legal environment; economic stability; adequate infrastructure;
	Number of start-ups as a result of direct Government support		0	200	
Increase in locally developed products, services and solutions on market	%age of locally developed products, services and solutions,	MOICT & NG, UCC, NITA-U, Surveys Netherlands Trust Fund(NTF II)	Baseline info to be collected	40%	
	No. of Registered		Baseline info	Target to be set after	

	intellectual property rights including patents		to be collected	establishing baseline	
Increased uptake of locally developed products, services and solutions by private sector and government	Number of government agencies and private sector that are using locally developed products, services and solutions	Reports from UBOS, MoICT, NITA, etc.	10	500	
Promotion of electronics manufacturing and assembly	An enabling policy environment established	Reports from MoICT,			
PROJECT COMPONENTS & OUTPUTS					
Output 1: Support for indigenous ICT innovators					Conducive political, regulatory, business, educational and legal environment; economic stability; adequate infrastructure ; availability of technical experts, experienced process partners, effective and efficient internal/local collaboration
Identification of Programme beneficiaries and implementing partners (Stage Zero)					
Activity 1.1: Creation of awareness for the programme through maintaining an updated programme web portal, maintaining an active social media presence, mass media announcements, talk shows, press conferences and releases	A well updated web portal for the programme, No. of updated social media applications used, No. of awareness campaigns made on radio, news papers, TV, No. of talk shows and press conferences made,	MOICT & NG, Project reports, M&E reports Surveys, MOU with partners,	0	100	
Activity 1.2: Engaging the different stakeholders through boot camps, hackathons, call for innovation concepts, awards, and	No. of boot camps and hackathons held, No. of competition calls		0	50	

partnerships.	made, No. of partnerships established, No. of ICT awards offered				s;
Activity 1.3: Programme beneficiary selection that will involve setting up of a selection committee, defining the requirements for the applicant, assessment of applications and distributing the successful applicants to different programme implementing partners.	Innovation Technical Support Committee established, TOR for the committee, set of requirements for applicants from stage 0-4, N0. of successful applicants		0	500	
Activity 1.4: Identification and establishment of partnerships with various innovation ecosystem players and possible funding options e.g. grants, equipment, etc	No. of MOU signed with partners (local and international), No. of grants received from funding agencies,		0	25	
Activity 1.5: Offering seed grants to innovators	No. of grants offered out		0	350	
Idealization (stage one)					
Activity 1.6: Training of innovators in critical skills	No. of training session offered		0	20	
Activity 1.7: Research support through linking the innovators to relevant researchers to enable them access high quality scientific knowledge required to implement the innovation.	MOUs established with research groups, No. of visits made to research groups		0	20	
Activity 1.8: Mentorships through exposing the innovators to experienced entrepreneurs, innovators, business leaders with the aim of making them appreciate the success of innovation.	No. of mentorship sessions, talks held, No. of attachments made to business leaders		0	100	
Innovation Acceleration (stage two					

Activity 1.9: Continuous training of innovators	Curricula developed for the programme, No. of trainings undertaken		0	20	
Activity 1.10: Provision of infrastructure and expertise to test and validate the innovations	No. of infrastructure and expertise established		0	2	
Activity 1.11: Provision of technical and financial support to process the product certification	No. of products certified, Amount spent on product certification, amount spent on technical support for certification		0	50	
Activity 1.12: Provision of technical and financial support to process the Intellectual property rights for the product	No. of products that will receive IPR, Amount spent on product IPR, amount spent on technical support for IPR		0	50	
Activity 1.13: Provision of technical and financial support to undertake marketing and business development	No. of products that will receive business development and marketed, Amount spent on product business development and marketing, amount spent on technical support for business development and marketing		0	50	
Activity 1.14: Provision of office facilities equipped with high speed internet and associated equipment	No. of equipped offices offered out to innovators,		0	100	
Business incubation (stage three)					

Activity 1.15: Provision of support in business development	No. of products that will receive business development and marketed, Amount spent on product business development, amount spent on technical support for business development		0	50	
Activity 1.16: Attaching mentors to start-ups to support them with establishment of corporate governance systems and business growth strategies	No. of start-ups receiving mentorship, amount spent on mentorship programs		0	100	
Activity 1.17: Processing technical and financial support for Intellectual property rights	No. of products that will receive IPR, Amount spent on product IPR, amount spent on technical support for IPR		0	50	
Activity 1.18: Provision of office facilities equipped with high speed internet and associated equipment	No. of equipped offices offered out to innovators,		0	100	
Learning and enterprise support (stage four)					
Activity 1.19: Facilitating establishment of corporate culture, sourcing for direct investment for growth, market expansion and support for product maturity	No of projects supported from external grants, presence of product within the market, product brand growth, product revenue growth		0	20	
Activity 1.20: Facilitating research around the product or enterprise ecosystem to provide empirical			0	50	

evidence to enhance business decision-making by the enterprise					
Output 2: Establishment of ICT parks					Adequate land available and funds available for purchase and construction of the ICT Park
Activity 2.1:Identify, acquire and transform existing physical infrastructure into innovation and incubation space	No. of ICT innovation / incubation centres/parks space identified	MOICT & NG Project management reports M&E reports surveys financial records	0	2	
Activity 2.2: Construct new buildings to provide space for innovation and incubation activities	No. of structures constructed, No. of ICT innovation / incubation centres/parks constructed		0	2	
Activity 2.3: Extend utilities and equip the centres (power; water; furniture etc)	No. of utilities procured, amount on utility bills		0	unknown	Availability of lines for power, fibre cables for internet and piping for water
Activity 2.4: Provision of high-speed broadband access to the parks.	No. of Mega bites delivered, No. of Access Connection points created, Internet bandwidth bills		0	unknown	
Activity 2.5: Plan to extend the NBI to these centres with proper standby arrangements.	No. of kilo metres of fibre cable used		0	unknown	
Activity 2.6: Build test labs & centre and equip them computer equipment including quality assurance.	No. of labs built and equipped, bills of quantities for equipment procured		0	10	Availability of funds
Activity 2.7: Construction of access roads and drainage systems.	No. of access roads and drainage constructed		0	2	Adequate infrastructure
Activity 2.8: Establish human capacity to run the innovation centres	No. of staff recruited and employed at the innovation centres		0	100	Adequate and competent

Activity 2.9: Hire both international and local process partners to facilitate the process of innovation and incubation set up	International and local Process Partner MOUs in place		0	2	human resource deployed within the ICT park
Activity 2.10: Promote the ICT innovation park to accommodate local and international partners	No. of partnerships / collaborations established		0	50	
Output 3: Developing and promoting indigenous ICT products, services and solutions for improved service delivery					
Activity 3.1: To perform activities in output 1	Details as per indicators in output 1	MOICT & NG Project management reports M&E reports surveys financial records	0		Market demand for the ICT products and services that are locally produced, conducive policies that support absorption of locally developed items
Activity 3.2: Identification of government needs that can be solved by locally generated ICT solutions	No. of projects identified and promoted		5	20	
Activity 3.3: Identify and promote existing innovative solutions that are viable and meet international standards.	No. of projects identified and promoted		1	20	
Activity 3.4: Carry out testing, verification, certification, type approval and quality assurance.	No. of ICT products tested, verified, approved and quality assured		0	20	
Activity 3.5:Support to ICT enabled services	No. of existing start-ups supported and BPO support		0	50	
Output 4: To promote local electronics manufacturing and assembly					Political support at all levels (Ministerial, Cabinet, and Parliament etc.)
Activity 4.1: Defining the policy framework to promote electronics and manufacturing	No. of policies designed and implemented	MOICT & NG Programme reports M&E reports Surveys	0	1	
Activity 4.2: Mobilizing private sector and partners	No. of partners participating in the manufacturing, assembling		0	10	

Activity 4.3: Promoting the uptake of locally manufactured products	No. of local products on market, revenue from local products		0	50	
Output 5: Programme Management					
Activity 5.1: Programme Management and Coordination	Rate of success on innovation, ratio of implemented activities against those planned, quality and timeliness of reporting, budget performance	Process partners Programme M&E reports, MOICT & NG Programme reports	0%	50%	Availability of guidelines to streamline partnerships, working environment,
Activity 5.2: Programme Monitoring and Evaluation	Rate of success on innovation, ratio of implemented activities against those planned, quality and timeliness of reporting, budget performance		0%	50%	
Activity 5.3: Knowledge sharing activities	No. of activities of activities deployed		0	50	

Table 3 – Results Matrix

4 Project Activity Plan

ACTIVITIES	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1: Support for indigenous ICT innovators																				

ACTIVITIES	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Identification of Programme beneficiaries and implementing partners (Stage Zero)																				
Activity 1.1: Creation of awareness for the programme through maintaining an updated programme web portal, maintaining an active social media presence, mass media announcements, talk shows, press conferences and releases																				
Activity 1.2: Engaging the different stakeholders through boot camps, hackathons, call for innovation concepts, awards, and partnerships.																				
Activity 1.3: Programme beneficiary selection that will involve setting up a selection committee, defining the requirements for the applicant, assessment of applications and distributing the successful applicants to different programme implementing partners.																				
Activity 1.4: Identification and establishment of partnerships with various innovation ecosystem players and possible funding options e.g. grants, equipment, etc.																				
Activity 1.5: Offering seed grants to innovators																				
Idealization (stage one)																				
Activity 1.6: Training of innovators in critical skills																				

ACTIVITIES	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Activity 1.7: Research support through linking the innovators to relevant researchers to enable them access high quality scientific knowledge required to implement the innovation.																				
Activity 1.8: Mentorships through exposing the innovators to experienced entrepreneurs, innovators, business leaders with the aim of making them appreciate the success of innovation.																				
Innovation Acceleration (stage two																				
Activity 1.9: Continuous training of innovators																				
Activity 1.10: Provision of infrastructure and expertise to test and validate the innovations																				
Activity 1.11: Provision of technical and financial support to process the product certification																				
Activity 1.12: Provision of technical and financial support to process the Intellectual property rights for the product																				
Activity 1.13: Provision of technical and financial support to undertake marketing and business development																				
Activity 1.14: Provision of office facilities equipped with high speed internet and associated equipment																				
Business incubation (stage																				

ACTIVITIES	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
three)																				
Activity 1.15: Provision of support in business development																				
Activity 1.16: Attaching mentors to start-ups to support them with establishment of corporate governance systems and business growth strategies																				
Activity 1.17: Processing technical and financial support for Intellectual property rights																				
Activity 1.18: Provision of office facilities equipped with high speed internet and associated equipment																				
Learning and enterprise support (stage four)																				
Activity 1.19: Facilitating establishment of corporate culture, sourcing for direct investment for growth, market expansion and support for product maturity																				
Activity 1.20: Facilitating research around the product or enterprise ecosystem to provide empirical evidence to enhance business decision-making by the enterprise																				
Output 2: Establishment of ICT parks																				
Activity 2.1:Identify, acquire and transform existing physical infrastructure into innovation and incubation space																				

ACTIVITIES	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Activity 2.2: Construct new buildings to provide space for innovation and incubation activities																				
Activity 2.3: Extend utilities and equip the centres (power; water; furniture etc.)																				
Activity 2.4: Provision of high-speed broadband access to the parks.																				
Activity 2.5: Plan to extend the NBI to these centres with proper standby arrangements.																				
Activity 2.6: Build test labs & centre and equip them with computer s for quality assurance.																				
Activity 2.7: Construction of access roads and drainage systems.																				
Activity 2.8: Establish human capacity to run the innovation centres																				
Activity 2.9: Hire both international and local process partners to facilitate the process of innovation and incubation set up																				
Activity 2.10: Promote the ICT innovation park to accommodate local and international partners																				
Output 3: Developing and promoting indigenous ICT products, services and solutions for improved service delivery																				
Activity 3.1: To perform activities in output 1																				

ACTIVITIES	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Activity 3.2: Identification of government needs that can be solved by locally generated ICT solutions																				
Activity 3.3: Identify and promote existing innovative solutions that are viable and meet international standards.																				
Activity 3.4: Carry out testing, verification, certification, type approval and quality assurance.																				
Activity 3.5:Support to ICT enabled services																				
Output 4: To promote local electronics manufacturing and assembly																				
Activity 4.1: Defining the policy framework to promote electronics and manufacturing																				
Activity 4.2: Mobilizing private sector and partners																				
Activity 4.3: Promoting the uptake of locally manufactured products																				
Output 5: Programme Management																				
Activity 5.1: Programme Management and Coordination																				
Activity 5.2: Programme Monitoring and Evaluation																				
Activity 5.3: Knowledge sharing activities																				

5 Programme Implementation Budget

The implementation budget is presented into three strands; a detailed activity budget, a summary output budget and the annualized budget.

ACTIVITIES	Year 1 (*1Billion)			Year 2 (*1Billion)					Year 3 (*1Billion)				Year 4 (*1Billion)				Year 5 (*1Billion)				Activity total	Responsible Party
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Output 1: Support for indigenous ICT innovators	2.33	1	2.33	1	3.33	2	3.33	2	3.33	2	3.33	2	3.33	2	3.33	2	3.33	2	3.33	1.775	49.025	Process Partners
Output 2: Establishment of ICT parks	2.915	1.435	1.385	0.385	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	13.8	MOICT & NG
Output 3: Developing and promoting indigenous ICT products, services and solutions for improved service delivery	0.3175	0.1175	0.1175	0.1175	0.405	0.21	0.205	0.205	0.405	0.205	0.205	0.21	0.405	0.205	0.205	0.205	0.405	0.21	0.205	0.13	4.675	MOICT & NG

Output 4: To promote local electronics manufacturing and assembly	0.2675	0.0675	0.2675	0.0675	0.105	0.11	0.255	0.105	0.105	0.105	0.105	0.11	0.105	0.105	0.105	0.105	0.105	0.11	0.105	0.105	2.5	MOICT & NG
Output 5: Programme Management	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	5	MOICT & NG
Total	6.08	2.87	4.35	1.82	4.57	3.04	4.52	3.04	4.57	3.04	4.37	3.04	4.57	3.04	4.37	3.04	4.57	3.04	4.37	2.74	75	

5.1 Summary of Implementation Budget

ACTIVITIES					
	Year 1 (*1 Billion)	Year 2 (*1 Billion)	Year 3 (*1 Billion)	Year 4 (*1 Billion)	Year 5 (*1 Billion)
Output 1: Support for indigenous ICT innovators	**6.66**	**10.66**	**10.66**	**10.66**	**10.435**
Output 2: Establishment of ICT parks	**6.12**	**1.92**	**1.92**	**1.92**	**1.92**
Output 3: Developing and promoting indigenous ICT products, services and solutions for improved service delivery	**0.67**	**1.02**	**1.02**	**1.02**	**0.945**
Output 4: To promote local electronics manufacturing and assembly	**0.67**	**0.57**	**0.42**	**0.42**	**0.42**
Output 5: Programme Management	**1**	**1**	**1**	**1**	**1**
Total	**15.12**	**15.17**	**15.02**	**15.02**	**14.72**

6 Appendices

6.1 Appendix 1 – Acronyms and Abbreviations

Term	Definition and Description
ICT	Information Communication Technology
NIISP	National ICT Innovations Support Programme
MoICT & NG	Ministry of Information Communication Technology and National Guidance
PS	Permanent Secretary
IPR	Intellectual Property Rights
NPA	National Planning Authority
GOU	Government of Uganda
NDP	National Development Plan
NRM	National Resistance Movement
SDGs	Sustainable Development Goals
GDP	Gross Domestic Product
NITA-U	National Information Technology Authority Uganda
UCC	Uganda Communications Commission
MoFPED	Ministry of Finance, Planning and Economic Development
ICTAU	ICT Association of Uganda
ACIA	Annual Communications Innovations Award
MDA	Ministries, Departments and Agencies
R & D	Research and Development
BPO	Business Process Outsourcing
IT	Information Technology
UCA	Uganda Consumer Association
UICT	Uganda Institute of Information and Communication Technology
NTF	Netherlands Trust Fund
UBOS	Uganda Bureau of Statistics
IFMS	Integrated Financial Management System
IPPS	Integrated Personnel and Payroll System
M&E	Monitoring and Evaluation
SME	Small Medium Enterprises
IDI	ICT Development Index
EU	European Commission
GII	Global Innovation Index

6.2 Appendix 2 – Selected Local Innovations

6.2.1 Jaguza

Jaguza worth USD 0.5M is a software application for Livestock keeping. It aims at helping farmers in detecting the early stages of diseases in animals today, and theft of livestock and domestic or farm reared animals. It is a system used to monitor and

diagnose the early stages of diseases in animals using sensor technology and locate the whereabouts of animals using RFID Chips, GIS, SMS Pin code Web App and GPS mapping algorithms to locate the whereabouts of the animals in a given geographical area. Jaguza's aim is to establish national wide network for detecting animal diseases and handling the dangerous outbreaks of diseases. The system uses sensor technology to detect the early viral phase of FMD for example, which is crucial before the disease becomes more contagious.

6.2.2 Angel's Finance

Angel's Finance worth USD 0.7M is a business incubation and financing organization whose aim is to support the growth and commercialization of businesses in Africa, and then specifically in Uganda. It looks for market-driven businesses and scalable social impact models that solve identified social problems in areas of technology, communication, health, education, financial inclusion and housing, to name but a few.

6.2.3 Ensibuko

Ensibuko worth USD 1M is a web and mobile application that enables Savings and Credit Cooperative Societies (SACCOS) of small holder rural farmers mobilise savings, receive and disburse loans easily and quickly using SMS and Mobile Money. The system enables farmers to register using SMS, save, receive and pay back loans using Mobile money. It enables members build trust in their SACCOS as the system promotes transparency and accountability.

6.2.4 WiNsenga

WiNsenga (Reproductive Health) worth USD 1M is an application for reproductive health in women. It is a portable tool that makes monitoring pregnancies and childbirth/labour easier and faster for the midwife/doctor, regardless of how experienced they are.

6.2.5 Incubation and innovation programmes

There are also a number of Incubation and innovation programmes undertaken and supported by the Private sector and NGOs. They have supported close to 3000 innovators. These include MTN Innovations Challenge, CAMTech Uganda - Mbarara University of Science and Technology, Resilient Africa Network (RAN), The Innovation Village, Centre for Innovation and Business Incubation, Uganda Technology and Management University, Outbox, Hive Co lab and Makerere University College of Computing and Information sciences among others. They have contributed 2 million USD in capital investments in various sectors such as agriculture, business, transport, health. Examples of some of the innovative ideas that have been successfully incubated to commercialization include Safe Boda, Ensibuuko, Yoza, Run for Your Life, MamboPay, and Common Sense.

6.3 Appendix 3 – Innovation and Incubation Centres in Uganda

1) The Innovation Village, Ntinda, www.innovationvillage.co.ug
2) Centre for Innovation and Business Incubation, UTAMU, www.cibi.utamu.ac.ug
3) Centre for Innovation and Professional Skills Development, CiPSD, Makerere University, www.cis.mak.ac.ug
4) RAN, Makerere, www.ranlab.org
5) Pulse Lab Kampala, http://www.unglobalpulse.org/kampala
6) FinAfrica , http://finafrica.org/
7) Outbox, www.outbox.co.ug
8) Global Business Labs Uganda, Makerere, http://globalbusinesslabs.com/
9) The Hub Kampala, http://thehubkampala.com/
10) Angels Hub, http://angelsinitiatives.org/
11) Hive Colab, https://hivecolab.org/
12) Ilab@Mak, Makerere, https://cedat.mak.ac.ug/research/ilabs
13) Graameen Foundation App lab, www.grameenfoundation.org
14) WITU Lab, www.witug.org
15) Mara Foundation, http://www.mara-foundation.org/
16) ComTech, MUST, http://www.must.ac.ug/research-innovation/innovation-centres
17) Microsoft Innovation Centre-Uganda, http://cis.mak.ac.ug/cipsd/business-units/mic.html