

Inclusion. Innovation. Beyond Broadband.

C O N N E C T E D K E N Y A 2 0 1 7

National ICT Master Plan



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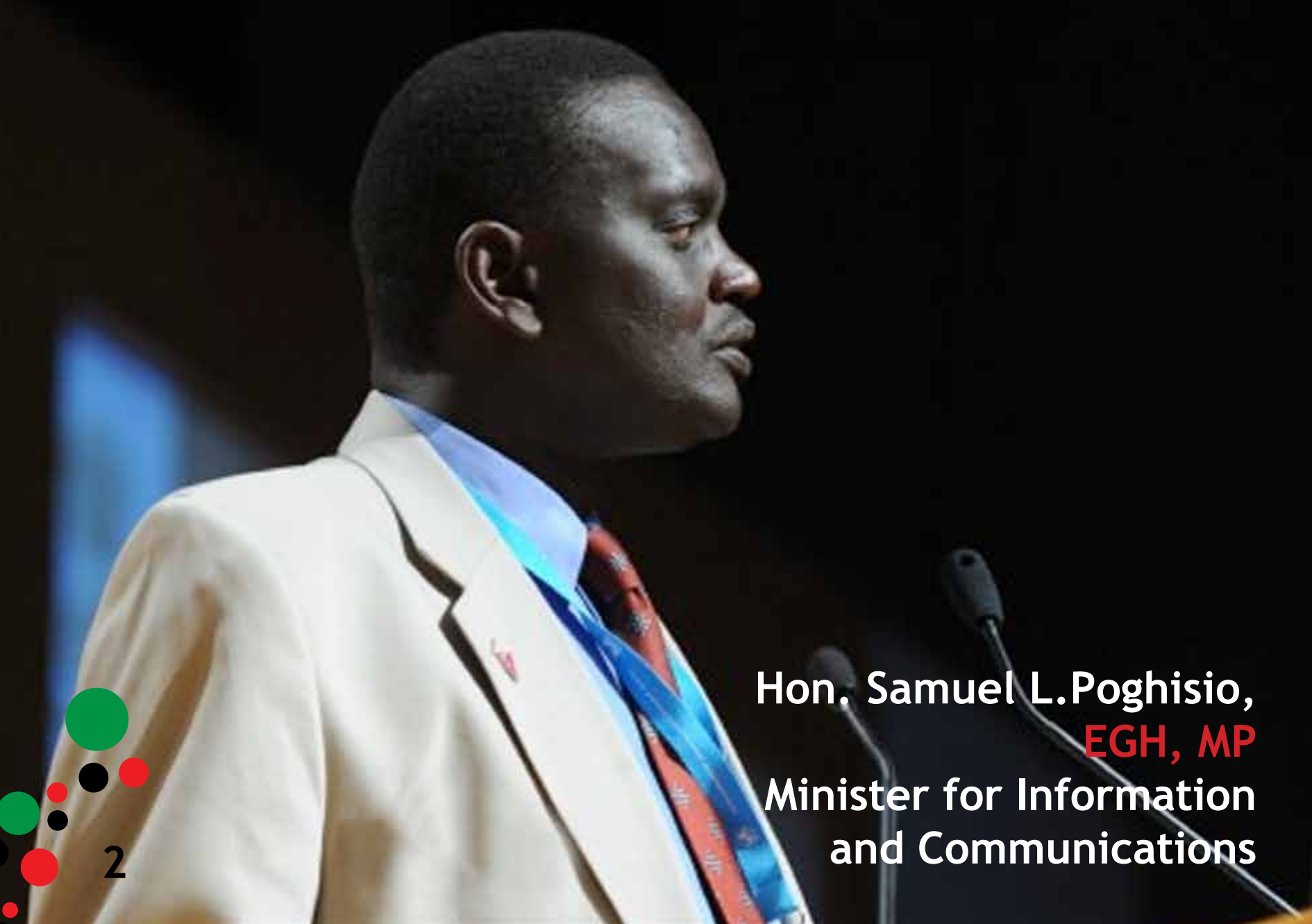
On behalf of

The Kenya ICT Board, Ministry of Information and Communication

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HE, President Mwai Kibaki, presides over the official ground breaking of Konza Technology City. January 2013





Hon. Samuel L. Poghisio,
EGH, MP
Minister for Information
and Communications



Minister's Statement

Access to information is crucial to economic growth. Information and communications technology offer a powerful tool that, if deployed equitably, can ensure citizens are empowered and Government can deliver services more effectively. Information is vital for the efficient delivery of public and private sector product and services that are responsive to the needs of citizens and businesses as well as capacity creation.

For a variety of reasons (economic and policy), developing countries like Kenya are less equipped to take advantage of the potential in ICT to stimulate growth, and are likely to fall behind advanced economies. The Kenya ICT Master Plan is therefore not designed in isolation, given that there is evidence from developed countries that investment in ICT facilitates economic growth by increasing productivity. As the Kenya Government ensures an enabling ICT environment and regulatory framework, this plan aims at stimulating the setup of ICT-related businesses to enhance employment creation.

At the heart of this document is a strategic intent to develop a robust ICT sector that will enhance economic growth through creation of businesses and hence employment. In the execution of this plan, Kenya will become a leading ICT hub for the region, improve the lives of her citizens and see significant ICT-led economic growth in line with Vision 2030. This ICT Master Plan aims at building and promoting an environment where more service sector businesses are created and are able to thrive through leveraging on ICT.

ICT offers key benefits that make life simpler and more convenient for citizens and businesses and provides channels to collaborate and share information, which in turn enables innovation.

The Government while guiding budgets will ensure that projects deliver the value they promise towards attainment of the objectives of this Master Plan. Achievements will underlie the Government's commitment in enhancing transparency, ensuring greater accountability to the public as well as opening up new opportunities for local entrepreneurs.

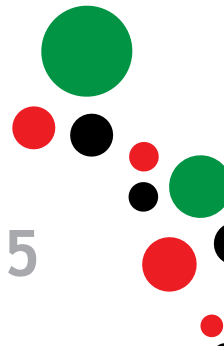


KONZA TECHNO



By 2017, Kenya becomes Africa's most globally respected knowledge economy

- Master Plan Vision



Optical Fiber Backbone Inf



Dr. Bitange Ndemo,
CBS

PS, Ministry of Information
and Communications



Our Journey

The Kenya ICT Master Plan 2017 is focused on driving real economic growth. The Ministry of Information and Communications will take a three-pronged approach in the execution of this plan, which recognizes Government projects that deliver citizen's needs, the need to strengthen industry through ICT and encouragement of the creation of ICT businesses.

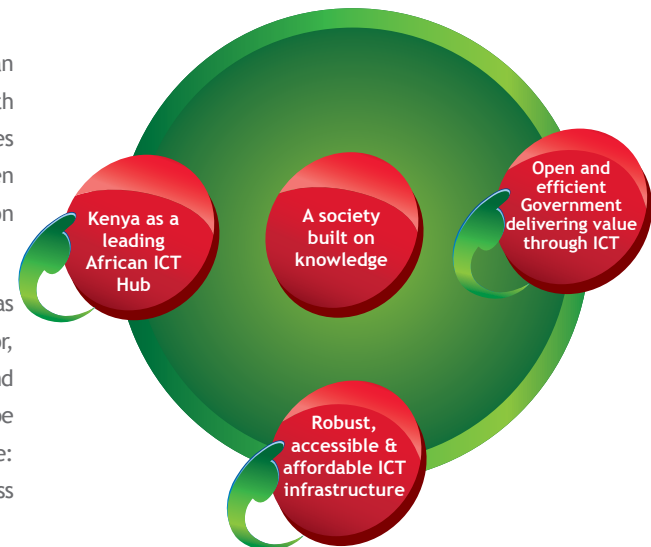
Kenya's ICT Master Plan aspires to position Kenya as a regional leader in ICT while delivering the latest and most robust infrastructure.

Open standards, transparency and accountability are all key to the success of this Master Plan. Further, the Ministry is diligently working on standardizing business processes and the development of sub-plans to allow for the delivery of innovative public services within Government.

We are strengthening governance and increasing engagement with Government and with Private Sector to remove barriers that would impede execution. This plan centers on the needs of the citizen to ensure all efforts are designed to address those needs and truly deliver a society built on knowledge.

There are challenges anticipated in enabling the realization of ICT as an integral component of Vision 2030. This plan has therefore, been designed with interventions that are specific to both Social and Economic Pillars. The initiatives in this plan have been mainstreamed with the objectives of Vision 2030 given that the Government acknowledges that the future of our economy depends on developing a skillful and knowledgeable human capital.

For Kenya to achieve full benefits of ICT, the plan has set seven key intervention areas under the vision 2030 social pillar namely: Education and Training, Health Sector, Water and Sanitation, Environment, Housing and Urbanization, Gender, Youth and Vulnerable groups, Social Equity and Poverty Reduction. In addition, there would be seven key areas of intervention under the vision 2030 economic pillar. These are: Tourism, Agriculture, Wholesale and Retail Trade, Manufacturing, Business Process Outsourcing and Financial Services and Creative Industry.



Strategic Goals

Every Citizen Connected

Every citizen, resident, home and institution will be connected through countrywide robust, accessible and affordable ICT infrastructure.

Kenya is Africa's ICT Hub

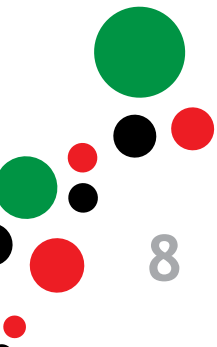
Kenya will become the leading ICT Hub in Africa, attracting leading global players and generating globally respected local entrepreneurship and innovation.

Public Services for All

Public Services will be available to all citizens through ICT and ICT will enable a truly integrated, open and efficient Government delivering meaningful value to citizens.

A Society Built on Knowledge

Kenya will be a Knowledge Based Society. All Kenyans will be able to use ICT to improve their knowledge, businesses and livelihood. ICT will be the greatest enabler of Kenya's economic growth.



Strategic Pillars

1. Enhanced Public Value

Enhancing the delivery and access of public services for all through strategic and innovative use of ICTs and achieve exemplary governance

One stop shop approach to the delivery of public services to persons and establishments;

Access by 100% persons.
Access by 100% establishments.
Access to 80% of public sector services.

Improved governance through a whole-of-government approach constitution to IT alignment;

Best in class enterprise architecture that addresses the imperatives of the new constitution.
Best in class implementation.

2. Development of ICT Businesses

Develop Kenyan ICT Business that lead the world in understanding emerging market needs

Establish eco-system for market adoption of locally developed innovations;

100 successfully commercialized businesses.
20 new innovations that are globally propagated through government co-facilitated commercialization.

An ICT Industry that is a substantial economic driver;

USD 2Bn sector.
500 new Tier 1 ICT companies.
50,000 jobs.

3. Strengthen ICT as a driver of industry

Transformation of key Vision 2030 economic sectors to significantly enhance their productivity and global competitiveness and growth

Establish eco-system for ICT adoption with special emphasis on SMEs;

Impact on GDP +25%.
60% automation of SMEs.
+50% productivity gain for Vision 2030 economic sectors.

Foundational Pillars

Integrated Country Positioning:

Integrate Kenya's ICT agenda into local and international communication including policy, political and diplomatic initiatives to promote Kenya's innovation and Konza Technology City.

- Campaign for Local and International ICT Country positioning.
- Konza City Marketing

Enhancing Citizen Capacity:

Deploy integrated, open and secure national networks across all technology domains with an emphasis on shared access, growing national capacity and inclusion of all citizens

- Campaign for Local and International ICT Country positioning.
- Konza City Marketing

Integrated ICT Infrastructure & Info-structure:

Minimize duplication and create true integration in the investment in public services ICT to enable best practice application of shared services, national data infrastructure, open data, and policy frameworks

- Next generation super-broadband networks, enhanced NOFBI, thematic super networks (Health, Agriculture, Education, Trade)
- World class Government Shared Services backbone & Citizen end to end services, Citizen services centre
Core shared services applications

Strategic Pillar 1: Enhanced Public Value

The Public Value pillar will focus on enhancement of the quality of life for all Kenyans through affordable, accessible and available ICT. The goal is to attain +90% inclusion of Kenyan society to public services, information and knowledge through ICT.

The plan will allow for ubiquitous solutions for centralized public service delivery.

The pillar will address the following services;

Health, Education, Agriculture, Youth, Gender and Vulnerable Groups.

Connected Health

ICT adoption in the health sector will focus on enhancing health service provision for Kenyans. This will ensure faster service delivery for all.

Expected outcomes:

- A working Health Information Management System
- A Telemedicine strategy
- Counterfeit drug control services
- Medical information and mobile health applications availability to citizens

Connected Education

Education is the foundation of knowledge for all. ICT within the education sector will ensure connectivity for all students by providing virtual classrooms to enable learning through online participation.

Expected outcomes

- Connected academic centres
- Access to online resources for students and teachers
- Increase online participation by adults
- Improved quality of education
- National Schools Education Network (SENet)

Connected Agriculture

Kenya is an agricultural country. Adoption of ICT will facilitate access to information for improving production among farmers. Through this, Kenya will increase her exports to other countries while reducing imports and increasing food security.

Expected outcomes

- Connected and ICT savvy farmers
- Affordable connectivity for farmers
- Social networks and collaboration tools

Youth, Gender and Vulnerability Groups

Kenya's population majority consists of the youth and with the gender balance initiatives, Kenya, through ICT will ensure that IT literacy in the country is increased especially among the youth and vulnerable groups.

Expected outcomes

- Affordable connectivity in youth service organizations
- IT savvy youth
- Increase employment levels among the youth through ICT opportunities
- Increased availability of information to the youth

Strategic Pillar 2: Development of ICT Businesses

This pillar focuses on developing a globally competitive ICT industry as the foundation of a knowledge economy. Included here is the establishment of smart parks, smart infrastructure, smart platforms and centers of excellence that attract foreign direct investment, and create employment.

It further addresses Technology Innovation, Konza Technology City, BPO/ITES Industry, Digital Economy Development, Centers of Excellence, Technology Innovation. This shall entail creation of policies and infrastructure necessary to foster creativity and innovation at all levels.

Technology Innovation

Technology innovation aims to develop a creative and innovative ICT sector for the country. This shall entail creation of policies and infrastructure necessary to foster creativity and innovation at all levels.

Action	Description	Outcome(s)
Develop Industrialization Science and Technology Parks	Champion the development of science and technology parks that will provide the thrust for innovation, economic transformation, attract foreign direct investment and position the country as science and technology giant.	Economic transformation Foreign Direct Investment Innovation
Develop software and hardware development standards	Champion the development of software and hardware development standards to prepare local developers with necessary skills and increase their competitiveness at the global stage.	Software development standards Hardware manufacturing standards Competitive skills
Promote Intellectual Property Rights (IPR) to safeguard innovation	To safeguard the innovation, together with responsible state agencies champion the enforcement of intellectual property rights in the country, create awareness among stakeholders and protect the creative industry.	Increased awareness on IPR Protect Innovation
Recognize and Reward ICT innovators	Together with other industry stakeholders, champion the creation of mentors and role models by recognizing and rewarding ICT innovators through public acknowledgements and awards.	Mentors programme
Establish Centers of Excellence	Champion the establishment of centers of excellence to exhibit the use and adoption of ICT in different industries, sectors and fields. This is meant to showcase the possibilities of technology.	Centers of Excellence

Table 1: Technology Innovation



Konza Technology City

The vision for Konza Technology City is to build a sustainable world-class technology hub with a vibrant mix of businesses, residents, and urban amenities that will be a major economic driver for the nation.

Action	Description	Outcome(s)
Identify priority sectors, assesses competitiveness and maps companies to value chain	<ul style="list-style-type: none"> Develop a 4-stage process for: <ul style="list-style-type: none"> Prioritizing sectors Defining enablers for competitiveness Identifying ICT opportunities across the value chain Mapping companies against the set criteria 	Commitment from key investors
Developing incentives for investment	<ul style="list-style-type: none"> Creating a portfolio of incentives to attract ideal investors 	A great ecosystem of investors across key sectors who are able to contribute to the attainment of the Konza vision
Implementation of the Konza Technology City Project	<ul style="list-style-type: none"> Empower enabling sectors, e.g. Financial, Health, Education, etc Deploy infrastructure Deploy reliable telecommunication services Implement high-class shared amenities, e.g. roads, sanitation, etc 	Deliver Africa's number 1 technology city

Table 2: KONZA Technology City

BPO/ITES and the ICT Industry

Having been identified as a flagship project in Vision 2030, Business Process Outsourcing and IT Enabled Services(BPO/ITES) presents a tremendous opportunity for the country if leveraged well. This project area will explore and execute key strategies to unlock this potential.

Action	Description	Outcome(s)
Develop a market for BPO/ITES both locally and Internationally	Create BPO opportunities and proactively market Kenya abroad as a BPO/ITES destination	Delivery of BPO services locally and internationally
Develop and Implement National BPO/ITES strategy	Development of a Techno-city for promoting BPO/ITES, IT Tourism and Employment creation	Fully operational Techno-city offering employment, entrepreneurship and ICT export opportunities
Develop National BPO/ITES standards	BPO/ITES standards are necessary to ensure credibility of the industry and fair trade	A formalized and regulated BPO/ITES industry
Develop and implement a National ICT R&D strategy	The ICT R&D strategy will include development of well resourced incubation centers, and a comprehensive, consolidated value chain between developers and the market	An influx for local innovations into the market through the existence of a supported value chain

Table 3: BPO/ITES and the ICT Industry

Digital Economy Development

The Digital Economy is a key input in propelling economic growth and has been proven to create employment and improve income levels. It is essential in ensuring the uptake of ICT infrastructure and promoting economic growth. The focus of this project area will

Action	Description	Outcome(s)
Increase enterprises - SMEs and SMMEs - online participation	Support creation of online trading capabilities, including solutions in logistics and secure payment, access to IT cloud applications and web and mobile applications	Seamless sales fulfillment, improved service delivery and affordable operational tools for SMMEs
Encourage and Promote Telecommuting	Promotion of Fiber Connectivity to the home to enable home offices, entertainment and education through home learning	Increased online access for telecommuters Increased localized learning tools

Table 4: Digital Economy Development



Center of Excellence

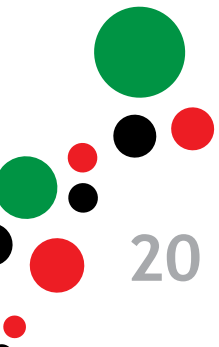
This Masterplan will be supported by a local resource base developed through well-equipped research and development environments, which allows for testing and creation of new concepts.

Action	Description	Outcome(s)
Establish technology research and integration centres (TRIC)	Focus on research, development, and deployment of efficient and affordable technologies	Local R&D Centres with adoptable solutions 47 Technology Adoption and Integration Centers
Establish Technology Project Implementation Methodology for local SMEs	Develop tools for SMEs to use to implement projects and make them readily available	Improved quality of products and services and efficient use of business tools through project management training and resources for SMEs
Establish Permanent Demo Centers	Develop training centres for SMEs on business skills through Digital Villages	Digital Villages spread country-wide with SME business skills training centres

Table 5: Center of Excellence

Strategic Pillar 3: Strengthen ICT as a driver of industry

Transformation of key Vision 2030 economic sectors to significantly enhance their productivity, global competitiveness and growth.



Financial Services

Goal:

Programs in the Financial Services sector aim to transform Kenya into a trusted gateway and an innovative hub to East Africa for financial services through ICT.

Highlighted Outcomes:

An all encompassing e-Transaction law

Champion the enactment of e-Transaction legislation that will bring in legal certainty for e-Commerce and e-Business and therefore ensure full participation. This will also ensure all required standards are considered in the regulatory process

Promote the development of affordable e-services

Promote adoption and localization of global e-services Increased awareness on availability, safety and access to e-services.

Promote awareness on cyber security

Both financial and non-financial institutions need high awareness of the need for secure online systems. This will ensure a secure online environment for conducting business and other economic activities. Encourage the use of security standards while designing, building and deploying IT systems.

Tourism and Hospitality

Goal:

ICT will be used to improve the experience of visitors to Kenya before, during and after their visit, and enhance the growth and competitiveness of the Tourism and Hospitality sector. The main focus will be on supporting a Digital Concierge Program.

Highlighted outcomes:

Facilitate the development of a digital concierge programme

Accelerate the development of informational, transactional, location-based and mobile-commerce services by solution providers through common reusable content and functionalities

Facilitate networks for innovation of tourism innovation and destinations

Work with responsible ministries, agencies and other stakeholders to generate new innovative products and services through the use of ICT and broadband infrastructure to reach new markets and deliver exceptional tourist experience. Promote the development of an m-Tourism subsector that will utilize the momentum gained by the mobile industry. This may include the development of mobile applications, games and services for the sector.

Facilitate the use of ICT to promote and enhance the touristic offer

Assist the responsible Ministry and agencies to take full advantage of the available ICT and broadband infrastructure to promote, enhance and animate the Kenya touristic offer including the use of analytics and business intelligence solutions

Manufacturing

Goal:

ICT is a key enabler for the manufacturing sector. It is transforming the global manufacturing arena while at the same time opening up opportunities. Innovation and ICTs are transforming many sectors to anywhere, anytime platforms. In the manufacturing sector, the focus will be design anywhere, make anywhere, and sell anywhere.

Highlighted outcomes:

Facilitate the automation of the manufacturing value chain

Automation within the manufacturing industry and especially its value chain will lead to efficiency which brings a host of benefits including lower cost of production and hence competitiveness at the local, regional and international markets.

Promote manufacturing intelligence and digitally enabled manufacturing

Knowing what to produce and when is the next generation manufacturing trend that avoids waste and increases return on investment. This involves analyzing consumer trends and habits through analytics and business intelligence tools. Konza will promote the establishment additive manufacturing, leveraging the presence of world class technology institutions.

Promote green manufacturing

Sustainable manufacturing means a sustainable economy and a sustainable country. Together with responsibly ministries promote the use of green sustainable technologies and energy sources.

Transport and Logistics

Goals

Kenya is the transport and logistics hub of East Africa and as such programs in the Logistics sector will focus on using ICT to entrench Kenya's position as a high-value hub and a supply chain nerve center.

Highlighted Outcomes

Facilitate setting up of an online trade exchange portal

Together with responsible ministry and other stakeholders, facilitate the setting up of an online trade exchange portal will provide the much-needed centralized information on trade including products and encourage buying and selling of commodities and services online.

Facilitate the development of a national logistics and transport network

In collaboration with the responsible Ministry and other stakeholders develop a national online transport and logistics network that will provide a one-stop shop for standardized logics and supply chain services.

Facilitate the development of a Trade Information Management System

Assist the responsible Ministry to develop a Trade Management Information System that capture statistics on trade, products and services, regulatory, trade facilitation information and data for effective decision making.

Goals

The high-tech sector has developed at extraordinary speed over the last couple of decades, at a scale far beyond early predictions. This development has also come with a growing energy need. The initiatives here are meant to promote innovative use of energy, adoption of green and sustainable energy sources.

Highlighted Outcomes

Promote the use of alternative energy (Green ICT)

Together with the responsible Ministry encourage the use of alternative sustainable energy to power ICT use and deployment.

Promote the development of Energy Efficient ICT Solutions
Encourage ICT practitioners, device manufacturers, system designers and developers to develop energy efficient solutions in line with sustainable ICT.

Promote the use of artificial intelligence on energy consumption
Through the responsible Ministry and Agencies, encourage the use of artificial intelligence and smart grid to improve and increase reliability, efficiency and sustainability of electricity and other forms of distributed energy.

Creative Industry

Goal

Digital content has been identified as a critical enabler for rapid up take of broadband technology. Availability of local and relevant digital content and services contributes to an increased use of broadband infrastructure.

Highlighted Outcomes

Increase trade opportunities for Creative Industry

Support the creation of a Centre of Excellence to promote the arts and sciences. The Centre will collaborate with private and public sector to promote and enabling environment for the creative industry.

Raise the Profile of Creative Industry

Establish programs to highlight, recognize and celebrate exceptional talent in Kenya. By promoting local professionals, the program hope inspire and draw Kenyans to participate in the creative industry. This will help to increase the talent pool in the creative industry it.

Promote efficiency, quality and quantity of goods and services in the Creative Industry

Support the Creative Industry with IT infrastructure like cloud computing, access to fiber optic networks and e-commerce tools.

Foundational Pillar

The foundational pillars will form the platforms upon which the strategic pillars will be executed. This will consist of integrated ICT infrastructure and info-structure, country positioning, enhanced citizen capacity.

Integrated ICT infrastructure and info-structure

Action	Description	Outcome(s)
Roll out a National Next Generation Broadband Network	The rollout of a Next Generation Nationwide Broadband and Wireless Networks as the cornerstone for achieving the Connected Kenya Masterplan as it connects Government agencies, businesses, schools, hospitals and homes. By 2030, 100% of all sectors must have countrywide connectivity.	Provision of countrywide last mile connectivity solutions
Establish a National cloud computing platform for use by both private and public sector	Establishment of a national cloud environment for local businesses to offer Software as a Service to citizens and customers.	Centralized affordable cloud services Citizens service centres across the counties
Implement a National Open Data and strategic data Programme	Work with multiple government agencies, private sector and development partners to avail to the public important machine readable data Develop strategic programme in the management of national data	World class Open Data Portal Open Data based developer and application eco-system Integrated national data management framework

Table 5a: Center of Excellence



Integrated ICT infrastructure and info-structure (Cont.)

Action	Description	Outcome(s)
Develop a National framework for Information and Cyber Security through a proactive approach to the country security needs	Incorporate a comprehensive and integrated cybersecurity programme from vision to operational capability implementation	<ul style="list-style-type: none">Government cybersecurity organisation incorporating multiple agenciesNational cybersecurity governance frameworkNational cybersecurity policy and standardsRaised cybersecurity awareness across KenyaHolistic comprehensive government cybersecurity architecture technology pipeline and implementation plan

Table 5b: Center of Excellence

Country Positioning

Action	Description	Outcome(s)
Develop an integrated multi-sector positioning strategy	Konza Technology City will be the basis for promoting Kenya as the Silicon Savannah to deliver the Master plan objectives	Established PPPs for delivering the Master plan Completion of Phase 1 of Konza as a smart city with a world class data centre and world renowned research based technology university and 10 local/ International anchor tenants
	Drive local sector relevance for Konza	Establish incubation and local centre of excellence for local firms Develop partnership between local and international firms for mutual growth

Table 6: Country Positioning



