



STRATEGIC PLAN

2018-2022

**A VIBRANT AND GLOBALLY COMPETITIVE
INNOVATION AGENCY**

MARCH 2018

VISION

A key enabler of socio-economic development through innovation

MISSION

To develop and manage a dynamic national innovation system that facilitates taking ideas to the market

CORE VALUES

Innovativeness; Probity; Partnership; Professionalism and Teamwork

GLOSSARY OF TERMS

Incubation: The maintenance of enabling environmental conditions for the purpose of facilitating the growth or development of infant technologies, ideas or industries.

Indigenous Knowledge: The tacit knowledge and wisdom developed over generations of holistic traditional utilization of the lands, natural resources, and environment.

Informal sector: (Also known as *Jua Kali*) The sector employs a majority of the Kenyan population, engaged in self-taught entrepreneurial and small-scale production activities. Revenues generated from the informal economy may supplement incomes generated in the formal sector of the economy.

Innovation: creations or improvements which may be deemed as deserving promotion and protection. It may refer to incremental, radical, and revolutionary changes in thinking, products, processes, or organizations. Innovation, occurs if someone improves on, or makes a significant contribution to an existing product, process or service. To be called an innovation, an idea must be replicable at an economical cost and must satisfy a specific need.

Innovation lab/hub: A space that is set up with the intention of promoting collaborative activities amongst multi-disciplinary teams, who share common goals for achieving innovation to drive collective social impact.

Invention: An invention is a new configuration, product, process or service. In its purest sense, “invention “can be defined as the creation of a product or introduction of a process for the first time. Inventions can extend the boundaries of human knowledge or experience. To be patentable an invention must be novel and have utility.

New Technology: A set of creative techniques which offers a significant improvement (whether measured in terms of increased output or savings in costs) over the established technology for a given process in a specific historical context. Defined thus, what is seen as new is obviously subject to continual redefinition, as successive changes in technology are undertaken.

Research and Development (R&D) refers to the creative work undertaken on a systematic basis in order to increase the stock of knowledge including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications.

Science and Innovation Park: includes a technology park, science fair, and any other area designed and zoned for scientific or technological research and related activities.

Science: Science refers to a system of acquiring knowledge. The term science also refers to the organized body of knowledge people have gained using that system. Science

as defined above is sometimes called pure science to differentiate it from applied science, which is the application of research to human needs.

Start-up: A newly emerged entrepreneurial venture that aims to meet a marketplace need by developing a viable business model around an innovative product, service, process or a platform.

Technology Transfer: Refers to the process by which skills, knowledge, technologies, intellectual property or capabilities are transferred to any other entity, including industry, academia, state and local governments, or other government entities to meet public and private needs. The recipient can then further develop and exploit the technology into new products, processes, applications, materials or services.

Technology commercialization: is the process of taking an idea to market and creating financial value.

Technology: Technology may be defined as the practical application of science, especially to industrial or commercial objectives. In this document technology includes products, materials, services equipment and systems.

ABBREVIATIONS AND ACRONYMS

CEO	Chief Executive Officer
CUE	Commission for University Education
EASTECO	East African Science and Technology Commission
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on Research and Experimental Development
GII	Global Innovation Index
GOK	Government of Kenya
ICT	Information Communication Technology
IPR	Intellectual property right
LIWA	Linking Industries with Academia Trust
ME&R	Monitoring, Evaluation and Reporting
MTP	Medium Term Plan
NACOSTI	National Commission for science, technology and innovations
NIS	National Innovation System
PESTEL	Political, Economic, Social, Technological, Environmental and Legal
PMS	Performance Management System
PPP	Public Private Partnership
R & D	Research and Development
SCAC	State Corporations Advisory Committee
SMEs	Small and Medium Enterprises
ST&I	Science Technology and Innovation
STISA	Science Technology and Innovation Strategy for Africa
SWOT	Strengths Weaknesses, Opportunities and Threats

FOREWORD



PROF. REUBEN MARWANGA
Chairman of the Board

The economic growth of any country is largely a result of the transformation and translation of knowledge into products, services and processes. Evidence shows that global economic competitiveness, sustainable development and equity concerns can be addressed by intensifying technological innovations. This goes hand in hand with the fact that the development of innovations is highly dependent on well-defined and supportive policies that effectively address citizen needs and aspirations.

The Kenya Vision 2030 has the main goal of transforming the country into a middle-income economy and recognizes research and innovation as driver for economic growth and development. In line with the aspirations of the Vision this Strategic Plan (2018-2022) provides direction on the implementation of the core mandate of the Kenya National Innovation Agency (KENIA) of developing and managing the Kenya National Innovation System for purposes of national socio-economic transformation.

The Strategic Plan has been developed with the appropriate alignment to the ST&I Sector Medium Term Plan III (2018-2022) and the Kenya Vision 2030, while ensuring that it is founded on the ST&I Act No 28 of 2013 that established KENIA. It is envisaged that through this plan, KENIA will facilitate the integration of technological innovation into socio-economic development thus establishing and maintaining competitive advantage through effective translation of knowledge into products, services and processes. KENIA will implement its activities in collaboration and synergistically with other key agencies and stakeholders. In addition, this plan is expected to provide direction for identifying strengths and addressing limitations in the national innovation system for faster to technology adoption, transfer and commercialization for increasing national productivity and prosperity.

In pursuance of the mandate of KENIA, it is envisaged that Kenya will be a globally competitive nation with a dynamic and competent innovative workforce. This will be aided by a favorable public policy environment that ensures continuous integration of technological innovations into the national and county development strategies.

Consequently, the economy will be transformed. The key outcomes to be realized include job creation and reduction of unemployment especially for the youth; wealth creation from new products, services and processes; and emergence of new businesses and acceleration of small and medium enterprises (SMEs). Other outcomes are: improvement in the country's competitiveness due to better ranking in the Global Innovation Index and hence becoming a more attractive foreign direct investment (FDI) destination; and enhancing the quality of life for the Kenyan people. The development of this Strategic Plan has been a long process involving a wide scope of relevant stakeholders and it is hoped that its implementation will strengthen the role of ST&I in the country's socio-economic development agenda.

PREFACE



DR. SALOME GUCHU
Ag. Chief Executive Officer

The ST&I sector has multiple and unique issues which call for a comprehensive approach. This Strategic Plan is a step by KENIA to address the underlying challenges facing the national innovation ecosystem in Kenya. The Strategic plan has been developed in line with vision 2030 to serve as a road map for the development, coordination and management of the national innovation ecosystem. The plan will guide KENIA in the delivery of its core mandate with tangible results in the next five years and in so doing contribute to the national development goals.

The Plan endeavors to address issues affecting the ST&I sector by providing broad-based strategies that offer meaningful opportunities to maximize potentials in services provision. The implementation of the strategy will be based on various objectives that will be used to implement the six strategic issues with an aim of strengthening the National Innovation System. The six strategic issues include the following:

- Institutional capacity
- Promotion and awareness
- Partnerships and linkages
- Development and commercialization of Innovations
- Financial and resource mobilization
- Policies and legal framework

The Plan is a statement of intent whose key result areas will only be realized through effective implementation. The responsibility of executing the strategies rest on collaboration of various actors with KENIA playing the coordination role during implementation. Monitoring, evaluation and reporting system has also been developed as an integral component of the plan in order to ensure effective and efficient implementation. The Agency anticipates maximum support from all actors in the innovation ecosystem in order to achieve all the laid-out objectives and outcomes.

I sincerely thank all those who participated in the formulation of the Strategic Plan for their valuable contribution which will definitely be put into good use.

EXECUTIVE SUMMARY

The Kenya National Innovation Agency (KENIA) Strategic Plan has been developed in line with the guiding legal and policy frameworks, including the Constitution of Kenya 2010, Kenya Vision 2030, the Medium-Term Plans and the ST&I Act, 2013 among others. Stakeholder involvement is imperative in the successful implementation of this Strategic Plan, as it is based on the principles of partnerships, teamwork and wide participation.

The Strategic Plan has five chapters as outlined below:

Chapter One provides background on the evolution of technological innovations as practiced in Kenya against the best practices that would spur more growth and the justification for the strategic plan.

Chapter Two highlights the situational analysis which consists of stakeholder mapping, Strengths, Weaknesses, Opportunities and Threats (SWOT). It also includes Political, Economic, Social, Technological, Environmental and Legal (PESTEL) analysis as well as some of the achievements and challenges facing development of innovations in Kenya.

Chapter Three uses the SWOT and PESTEL analysis to identify, strategic objectives and strategies under the following six strategic issues: 1) institutional capacity; 2) promotion and awareness; 3) partnerships and linkages; 4) development and commercialization of innovations; 5) financial and resource mobilization; and 6) policies and legal framework. The section elucidates objectives under each of the strategic issues and provides for the strategies to address the issues.

Chapter Four expounds on the implementation plan by illustrating the organizational structure for realizing the strategic plan. The chapter also provides for the activities, the indicators, the collaborators, the timeframes and the cost implications in implementing the plan. Risk factors which may affect the implementation of the Strategic Plan have been identified and appropriate mitigating factors recommended. Financial resource requirements and mobilization strategies are also addressed in this chapter.

Chapter Five provides a Monitoring, Evaluation and Reporting plan that will be used to ensure the successful implementation of the strategic plan.

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KENYA 
VISION 2030



CHAPTER ONE: INTRODUCTION

1.1 Background

The Government of Kenya appreciates the crucial role that science, technology and innovation play in economic development and today's demands for knowledge-based development. Technological development and Innovations are essential ingredients in the industrialization and sustainable development of nations. In a knowledge-based economy, the capacity to compete in the global marketplace is highly dependent on the ability to innovate and apply the relevant technology to industries and productive sectors. Investments in innovations and integration of the same into social, economic and governance policies can increase global market competitiveness, create employment and increase productivity. All these contribute to achievement of the overarching Kenya Vision 2030 goal, which is 'a transformed nation that is globally competitive and prosperous with a high quality of life by the year 2030'. This requires enhanced process of utilization and application of innovation across all sectors of the economy, as well as promotion of innovation at all levels of Government.

The Science, Technology and Innovation (ST&I) Act No. 28 of 2013 established the Kenya National Innovation Agency (KENIA), the National Commission for Science, Technology and Innovation (NACOSTI) and the National Research Fund (NRF) to drive the Science, Technology and Innovation agenda in Kenya in a complimentary model. It is important to note that the innovative performance of a country depends to a large extent on how the different actors in the ST&I sector relate to each other as elements of a collective system of knowledge creation and use for technological development. This explains why the Government of Kenya identified the need to harmonize the application of research, science technology and innovation towards the realization of the development agenda through the establishment of the relevant institutions. The ST&I Policy also prescribe the strategic thrusts for the invigoration of the National Innovation System.

The National Innovation System (NIS) comprises of a set of functioning institutions, organizations and policies, which interact constructively in pursuit of a common set of socio-economic goals and objectives. The major components of the national innovation system include: demand for ST&I, education and research system, business system, intermediate organizations, ST&I infrastructure, framework conditions as well as governance systems. Currently, Kenya's innovation system is linear and does not effectively serve critical national needs in the production and utilization of the knowledge generated from research. Any achievements that the country can identify with are based on isolated efforts leading to limited socio-economic impact. Hence one of the major dilemmas the country faces is transforming these individual achievements into a dynamic system to enhance national

benefits. The innovation system as it is currently cannot effectively establish and sustain Kenya's distinction in the generation, application and management of science, technology and innovation. To coordinate the fragmented National Innovation System, KENIA was established.

KENIA is mandated to undertake the development and management of the Kenya National Innovation System. The agency's mandate and functions generally focus on developing a multi-disciplinary and multi-sectoral approach to utilization of knowledge through entrepreneurship development that is essential to achieving the Knowledge Economy and sustainable socio-economic development envisioned in Vision 2030. Special attention is given to the need to develop the institutional capacity, create awareness and disseminate information on innovation, strengthen and coordinate the innovation system, harness innovations for transformation of the economy and to mobilize financial resources to support innovation processes in the country.

As part of the key achievements in the innovation ecosystem, Kenya in collaboration with the NEPAD office of Science and Technology initiated African Science, Technology and Innovation Indicators (ASTII) Programme to enable Kenya measure the development of ST&I Sector using an agreed African ST&I Indicators Manual. The ASTII survey provides a framework for responding to the socioeconomic challenges facing the continent on ST&I issues. Globally, the Global Innovation Index 2017 ranking placed Kenya in the 80th position coming ahead of all countries in the Sub-Saharan Africa other than Mauritius (64) and South Africa (57). The ranking was supported by high companies' spending on R&D and the existence of good scientific research institutions.

Over the last five years, a total of Ksh. 400 million was disbursed as research grants to support innovations in priority areas; and an award scheme for recognition of Kenyan scientists was established. During the same period, the annual allocation to the research endowment fund grew from 200 million in the 2009/10 Financial Year to 3 billion Kenya shillings in the 2016/17 Financial Year. This is targeted to reach the equivalent of 2% of the country's GDP as provided for in the ST&I Act, 2013.

However, the national innovation system experiences a number of challenges including: lack of a coordinated national innovation agenda; lack of an integrative regulatory frameworks to facilitate effective integration of ST&I into the economy; silo mentality of researchers; non-alignment of academic curricula; and low commercialization rate of innovations. Other challenges are weak linkages and ineffective coordination between government, private sector and researchers; perception of the IP process as complex and low levels of awareness on intellectual property rights by innovators; inadequate data to measure innovations; inadequate funding and support for innovations.

In order to address these challenges, KENIA has developed this Strategic Plan which lays the foundation for development of the agency's priorities over a five-year period. Specifically, the plan will guide the agency in enhancing its performance and service

delivery, stimulating strategic thinking, providing a basis for resource mobilization, and allocation as well as contributing to the attainment of the Kenya Vision 2030 and the Third Medium Term Plan goals and aspirations.

1.2 Rationale for the Strategic Plan

In order to address the challenges in the national innovation system, the agency seeks to develop and implement strategies to initiate and promote local and international collaborations and partnerships, establish and regularly update a database on innovation, promote commercialization of innovations and mobilize financial resources to support innovation processes. Kenya National Innovation Agency develops its first strategic plan since its operationalization in 2015 to provide strategic direction for the implementation of its mandate and functions. The strategic plan will specifically guide KENIA to identify issues of innovation relevant to the country, and to develop and implement strategies to effectively exploit the national innovation system for socio-economic development in the next five years starting 2018. The plan will also guide KENIA in enhancing its performance and service delivery as well as stimulate strategic thinking and innovative ideas for its operations through increased mobilization and internal allocation of resources.

The strategies developed in the plan will ensure fulfillment of the overall mandate of KENIA and thus attain the national aspiration of having a well-developed interface between knowledge generation and utilization across all sectors. KENIA will work closely with the other two institutions NACOSTI and NRF developed under the ST&I Act 2013 and a network of all relevant institutions in Government, private sector, academia and the general public to achieve impact in all sectors.

One of the major outcomes will be a strengthened socio-economic situation of the country through wider utilization of research outputs and technology acquisition resulting in new wealth. The linkages approach to be proposed in various KENIA programmes and activities will enhance technology transfer and knowledge sharing; improve creation and adaptation of new products, services, processes, business models; and increase commercialization of research and innovation outputs. This will stimulate the innovation ecosystem and create new economic sectors, wider employment opportunities in the counties and nationally.

1.3 Legal and Policy Frameworks

1.3.1 Legal Frameworks

The Constitution of Kenya 2010 recognizes the role of science and technology in development of the country, as well as, the promotion of intellectual property rights of the people of Kenya. In line with the Constitution, the Science, Technology and Innovation Act, No. 28 of 2013 establishes KENIA with a mandate to develop and manage the National Innovation System. KENIA's operations are therefore within a legal environment that is based on the Constitution of Kenya.

The Agency also recognizes various existing legislations that are pertinent for support towards achievement of its overall mandate. These legislations include: Industrial Property Act; Copyright Act; Seeds and Plant Varieties Act; Trademark Act; TVET Act, Education Act; Universities Act; and Public Private partnerships Act; among others.

1.3.2 The Policy Frameworks

The national development blueprint, Kenya Vision 2030 recognizes application of Science, Technology and Innovation to raise productivity and efficiency levels across economic, social and political pillars. The Vision also emphasizes that Research and Development (R&D) plays a critical role in accelerating socio-economic development.

Further, the five-year Medium-Term Plans (MTPs) of the Vision have identified various priority areas to be addressed through Science Technology and Innovation. In the MTP II (2013-2017), among the critical components identified to facilitate the process is research through various initiatives such as Public Private Partnerships (PPPs); linking industry with academia; value chain analysis; and synergy and initiatives for closed-cycle cluster approach for enhanced cooperation. The initiatives consist of key components that are relevant to the mandate and functions of KENIA in harnessing availability of necessary technologies in all sectors of production as well as in ensuring quality of products, processes and services. In the draft Sector Plan for science, technology and innovation MTP III (2018-2022), the role of KENIA is well captured under two programmes, namely: coordination of technology, innovation and commercialization; and county technology and innovations delivery services.

The ST&I policy and strategy provided for the creation of KENIA, as well as the National Commission for Science, Technology and Innovation (NACOSTI) and the National Research Fund (NRF) to drive the ST&I agenda in the country using the synergetic approach. The synergistic approach encompasses regulation activities by NACOSTI; funding activities by NRF and the development and management of innovation ecosystem by KENIA. In accomplishing its mandate, KENIA will facilitate in nurturing innovations and consequently encourage and promote growth of startup companies and industries. This attests that the mandate and functions of KENIA are in tandem with the overall national development goal of the Vision.

There are other policy frameworks which support and require the role of KENIA and are thus recognized as pertinent in development of effective innovation ecosystem. These include the national industrialization policy, which recognizes innovation as central to meeting the rapidly changing consumer tastes and preferences while also boosting productivity and competitiveness of the industrial sector. The national industrialization policy therefore identifies a number of interventions, including: enhancing standards, quality infrastructure and intellectual property rights regime; and strengthening industrial research, development and innovation, among others. Achievement of these interventions requires coordinated effort of all actors, including the role of KENIA.

As a key framework in the education sector, the National Education Sector Plan Volume III (2015/16 -2019/20) supports efficiency in education, training and research for global competitiveness. The plan illustrates possible related actions of various stakeholders including government, private sector, development partners and others in implementing strategic priorities in the sector. Among the objectives of the plan that are relevant to the mandate and functions of KENIA include: ensuring of improved application of research, science, technologies and innovation skills; enhancing of quality, novelty, and a diversity of ST&I products through continuous research and human resource capacity development as well as information sharing and management; and mobilizing active participation of all stakeholders in the innovation system including the under-represented groups.



Figure 1: KENIA Stakeholders Forum

CHAPTER TWO: SITUATION ANALYSIS

2.1 Introduction

The chapter takes note of the situation in which KENIA is operating in by undertaking a situational assessment of its micro and macro environments. Strengths, Weaknesses, Opportunities and Threats (SWOT) and Political, Economic, Socio-cultural, Technological, Environmental and Legal (PESTEL) tools are used to analyze respective environments. It also takes cognizant of KENIA's performance through the achievements, challenges and lessons learnt for the time it has been in operation.

2.2 Status of the Kenyan Economy

Kenya's Gross Domestic Product (GDP) is estimated to have expanded by 5.8 per cent in 2016 compared to a revised growth of 5.7 per cent in 2015. The agriculture, forestry and fishing sectors remain the main contributor with 15.2 per cent share of GDP growth. Education, Construction and ICT sectors have lower contribution as drivers of the national economic growth with contributions of 8.2%, 11.7% and 6.1% respectively. Manufacturing sector is also lagging behind with 6.3% in 2015 from 5.2% in 2014.

Under the economic pillar of Vision 2030, Kenya aims to achieve an average of 10% annual economic growth within the Vision horizon. The Vision proposes intensification of ST&I to raise productivity and efficiency across the three pillars of the Vision. Therefore, it is envisaged that the attainment of the economic vision and strategy of adding value to products and services will be driven by ST&I as key foundation.

2.3 Global Environment

The seventeen sustainable development goals (SDGs), which are meant to transform the world, recognize the importance of innovation with goal 9 specifically emphasizing on building of resilient infrastructure, promotion of inclusive and sustainable industrialization and fostering innovation. Among the targets for achievement of this goal is to enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, including encouraging innovation and substantially increasing the number of research and development workers as well as to support domestic technology development, research and innovation in developing countries. The mandate and functions of KENIA as outlined in the ST&I Act are therefore not only aligned to the national development agenda but also to the global goals.

According to Global Innovation Index (GII) 2017, Kenya ranks 80th position out of 127 countries with an average GII score of 30.95 and innovation efficiency ratio of 0.66. Among the 27 lower middle-income countries, Kenya ranks 10th and is 3rd in Africa. Kenya's innovation efficiency ratio also has an impressive rank of 50. However, the GII report also indicates that despite being among the innovation achievers globally, Kenya scores poorly on the innovation input sub-index, ranking at position 91 compared to 70th position on the output sub-index. The country therefore needs to improve on the effectiveness of the national innovation system by paying attention on the input pillars of innovation, especially the human capital and research pillar as well as on infrastructure pillar. The comparison of the country's overall GII with the innovation input and output sub-indices and pillars is shown in Figure 2.

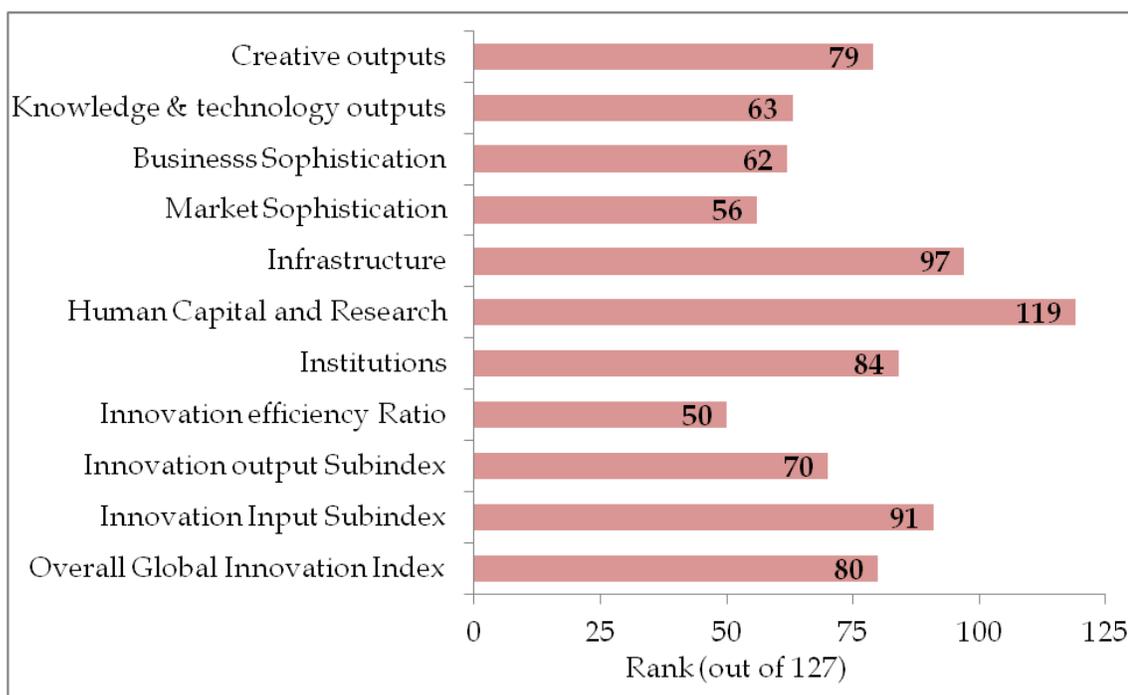


Figure 2: Kenya's Global Innovation Index and the Innovation Input and Output Pillars Ranking

Similarly, the Global Competitiveness Index (GCI), 2016/17 shows that Kenya is at 96th position out of 138 countries with an impressive performance on innovation and sophistication factors sub-index ranking at 40th position and efficiency enhancers' sub-index at 75th position (Figure 3). However, the report also shows that Kenya is performing poorly on the basic requirements sub-index. This poor performance on the basic requirements sub-index is mainly attributed to high inefficiency in the health and primary education pillar, which ranks at 114th position as well as on the macroeconomic environment pillar, which ranks at 122nd position. Like is the case for the innovation inputs in the GII, basic requirements sub-index in GCI are about the contribution in terms of the inputs. Therefore, according to both the GCI and GII reports, Kenya must assess and enhance the contribution on innovation inputs in order to ensure a dynamic and effective innovation system with high innovation efficiency ratio and more robust output results.

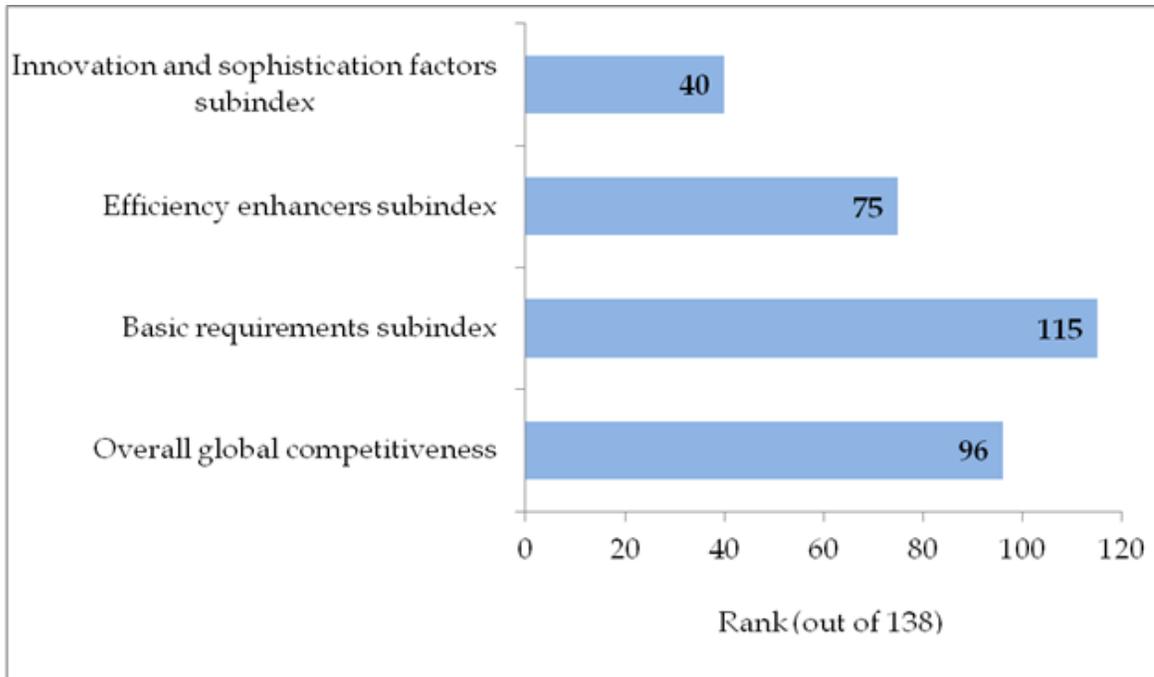


Figure 3: Kenya's Global Competitiveness Index and Sub-Indices Ranking

2.4 Regional Environment

In the region, the African Union (AU) member states have agreed on a strategic framework for inclusive growth and sustainable development of the continent, which is referred to as AU Agenda 2063. The AU Agenda 2063 recognizes ST&I as multi-functional tools and enablers for achieving continental development goals. In the first ten-year implementation plan (2014-2023) of the Agenda, the Science Technology Innovation Strategy for Africa (STISA-2024) is among the continental frameworks that have been recognized and captured in the priority areas of the Plan to ensure coherence and convergence. The STISA-2024 undertakes to accelerate Africa's transition to an innovation-led, knowledge-based economy by improving Africa's STI readiness in terms of infrastructure, professional and technical competence, and entrepreneurial capacity as well as implementing specific ST&I policies and programmes that address societal needs in a holistic and sustainable way. By developing and managing the national innovation ecosystem, KENIA is thus well aligned to the regional frameworks and the overall goal for the region.

Additionally, there are various regional institutions that are coordinating and implementing different ST&I programmes. Among these is the Partnership for Africa's Development (NEPAD) Agency, which runs the African Science Technology and Innovation Indicators (ASTII) Initiative, a programme for monitoring Africa's scientific and technological development. The Agency has also set up five ST&I hubs across five universities on the continent. Another notable regional institution is the East African Science and Technology Commission (EASTECO), which is an East African Community (EAC) institution.

The Commission is mandated to coordinate and facilitate the partner states in the activities related to development and application of ST&I in all its aspects including; policy development, research and development, knowledge and skills development, technology acquisition, adaptation and utilization, administrative issues, resource mobilization and utilization, as well as programme, product and project development and implementation. KENIA is thus cognizant of the crucial role played by the regional governance structures in promotion and implementation ST&I agenda.

2.5 Local Environment

Kenya is experiencing a proliferation of innovation spaces such as incubators, co-working spaces, social innovation labs, and maker spaces, which are largely concentrated in the capital city, Nairobi. Innovation spaces in the country are typically based in academic or government institutions, or they may operate as independent ventures run by private investors. To build on the momentum created by this vibrant innovation scene, the government, through the Ministry of Information, Communication and Technology (ICT), plans to set up innovation hubs in each of the 210 counties in the country.

The growth of innovation spaces across the country can be partly attributed to Kenya's fast mobile internet speeds that was ranked the 14th fastest according to content delivery network Akamai in 2017. Additionally, the mobile penetration across the country is over 90%, enabling internet access, as well as the ubiquity of mobile money transfer services that Kenya is known for.



Figure 4: Increased ICT innovations with Fast Mobile Internet and High Mobile Penetration

(Innovator Eric Murithi showing H.E. President Uhuru Kenyatta the UPESY Mobile Application Innovation for Emergency Response and Security Solution)

2.6 The Desired Kenya National Innovation System

The major components of the desired national innovation system (NIS) include: demand for ST&I, education and research system, business system, intermediate organizations, ST&I infrastructure, framework conditions as well as governance systems. KENIA is part of the system and thus identifies with the various actors and components of the system. Figure 5 illustrates the desired Kenya national innovation system, whereby actors are expected to have dynamic interactions and contributions for the effectiveness of the system. The activities and programmes in this strategic plan are thus designed in consideration of all the stakeholders in the NIS so as to adequately promote innovation and strengthen the efficiency of the system.

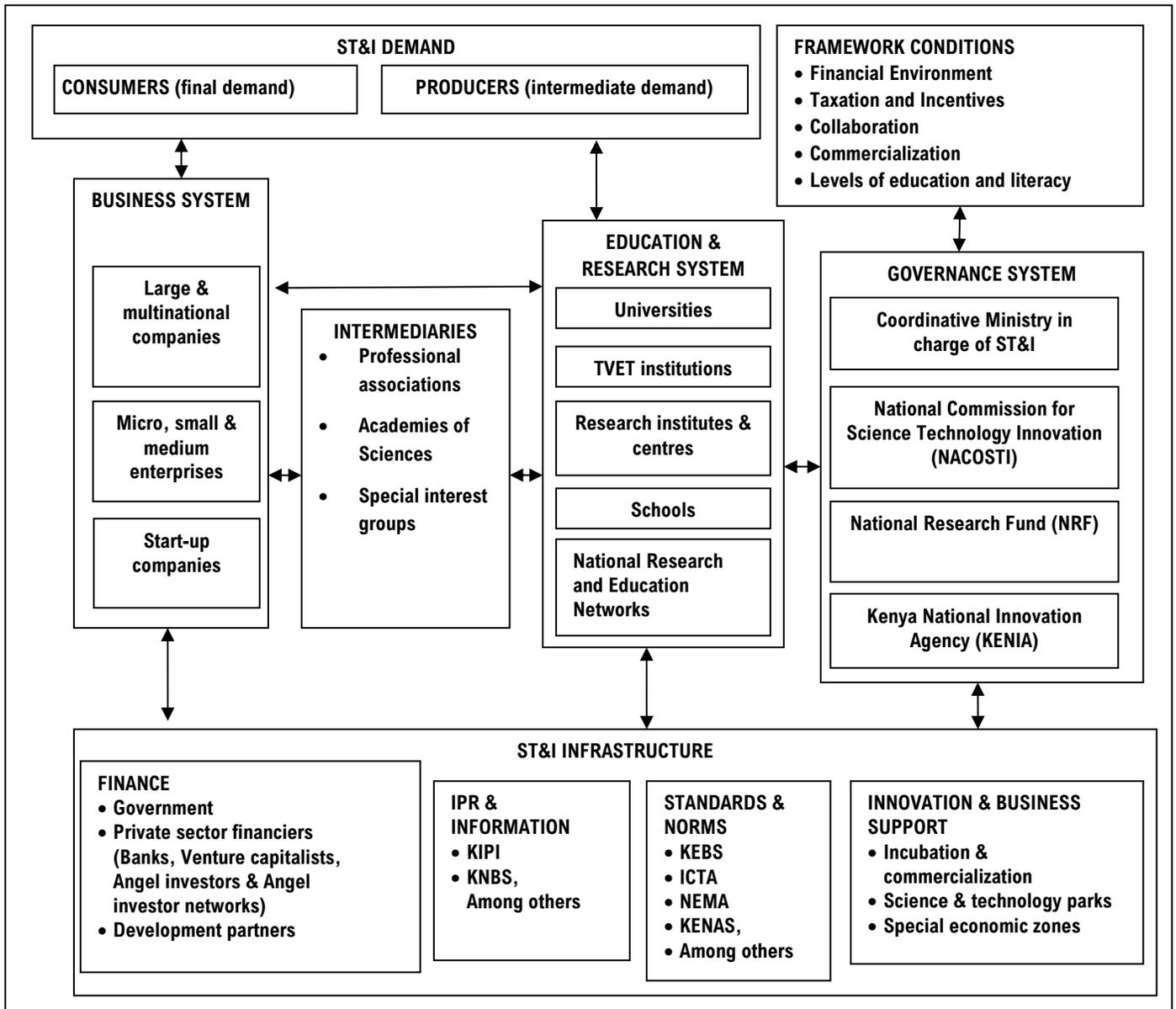


Figure 5: The Kenya National Innovation System



Figure 6: A young innovator showing his Innovation to H.E. President Uhuru Kenyatta at Nairobi Innovation Week (Sign IO - a sign language to speech translation glove to provide communication solution by innovator Roy Allela)

2.7 Governance and Organizational Structure

The Agency is governed by a Board consisting of nine members inclusive of the Chairperson. The Chairperson and the Board members are appointed as per the provisions of the ST&I Act 2013.

The proposed organizational structure of KENIA provides for a Chief Executive Officer supported by heads of three Directorates of the Agency. Currently, the Agency has a gap in the required human resource capacity for purposes of achieving its mandate and functions. However, one of the Agency's initial objectives is to strengthen institutional capacity, which will bridge this gap and ensure enhanced human resource capacity.

2.8 Facilities and Infrastructure

Being a newly established institution, the Agency is experiencing major challenges in terms of office facilities and infrastructure, including space, equipment and furniture. Provision of adequate facilities and infrastructure is however among the priority of the Agency to strengthen its capacity.

2.9 Performance Review

At its inception stage, the Agency is setting up institutional capacity and processes including staffing, office and equipment, resource mobilization, policy framework and regulations, and creating networks with various actors in the innovation system. These are meant to support the accomplishment of the mandate of KENIA, which is to develop and manage the National Innovation System.

2.9.1 Achievements within the innovation ecosystem

There exist some milestones within the innovation ecosystem, which are recognized as achievements for the NIS. These milestones include:

- Having institutional and Governance framework with operational institutions, including KENIA, NRF and NACOSTI;
- Running of National innovation awards for recognition and award of innovators across various sectors of the economy;
- Growth of research fund nationally;
- Initiation, promotion and funding of projects for development of Science and Technology Parks;
- Increased establishment of local, regional and international collaborations and linkages in Science, Technology & Innovation;
- Development of competency-based curriculum in the education system for nurturing creativity and innovation.

2.9.2 Challenges in the innovation ecosystem

Among the key challenges within the national innovation system includes:

- Weak linkages in the national innovation system actors especially the industry, research, academia;
- Lack of a National Innovation Policy;
- Lack of innovation standards;
- No established innovation management capabilities;
- Weak intellectual property regime;
- Low awareness in innovation and IP issues;
- Inadequate data and information on innovation;
- Inadequate ST&I infrastructure;
- Brain drain;
- Low commercialization of innovations;
- Skills mismatch;
- Low funding for innovation

2.9.3 Emerging Issues

There are various emerging issues that have some effects on the development and management of the national innovation ecosystem. These include:

- Globalization of Intellectual Property Rights;
- ICT penetration;
- Demographic transition;
- Growth of capital and financial markets;
- Rapid growth of University education sector;
- Curriculum reforms;
- Devolution and decentralization;
- Sustainable development focus on green economy, climate change and resilience.

2.10 Stakeholder Analysis

The innovation sector stakeholder's analysis is conducted to identify the key areas of synergy and complementarities with KENIA. Table 1 gives a summary of the key stakeholders.



Figure 7: Participants at a Design Thinking Workshop

Table 1: Summary of Key Stakeholders

Stakeholder	Role(s)/ Functions	Areas of Synergy with KENIA
1. The Government (Ministries/Departments/Agencies)	<ul style="list-style-type: none"> - Make relevant policies - Budget allocation - Law enforcement - Intellectual Property Rights (IPRs) 	<ul style="list-style-type: none"> - Enabling policy environment - Adequate budget allocation - Intellectual Property (IP)
2. Academia (Universities, research institutions and other training institutes)	<ul style="list-style-type: none"> - Undertake training - Conduct research - Outreach and consultancies 	<ul style="list-style-type: none"> - Acquire and nurture new ideas generated - Sector specific expertise
3. Incubation Centers	<ul style="list-style-type: none"> - Nurture new ideas generated 	<ul style="list-style-type: none"> - Expertise and infrastructure for developing innovations - Facilitate the uptake of new promising ideas
4. Industry	<ul style="list-style-type: none"> - Production of goods and services - Provide employment - Provide internships and attachments - Additional resource mobilization 	<ul style="list-style-type: none"> - Opportunities for commercialization of innovations - Participation in development of innovations - Liaise with academia in identifications of noble ideas which can be commercialized - Offer technical and financial assistance for developing innovations
5. Key Regulatory Agencies	<ul style="list-style-type: none"> - Enforce laws and regulations 	<ul style="list-style-type: none"> - Partnership in developing and managing innovations - Source of data for innovation activities
6. Local and International Funding Agencies (Development Partners)	<ul style="list-style-type: none"> - Resource mobilization - Offer technical assistance 	<ul style="list-style-type: none"> - Funding for innovation management and programmes nurturing innovations; - Tap on technical assistance for development and management effective innovation ecosystem.

7. Parliament	<ul style="list-style-type: none"> - Enactment of Legislation - Oversight and accountability - Approves Finance Bills 	<ul style="list-style-type: none"> - Laws affecting the operations of the Agency - Adequate funding
8. Judiciary, mediators and arbitrators	<ul style="list-style-type: none"> - Litigation; Arbitration; mediation 	<ul style="list-style-type: none"> - Fair settlement of disputes
9. Media	<ul style="list-style-type: none"> - Dissemination and communication 	<ul style="list-style-type: none"> - Enhanced publicity, advocacy and communication
10. General Public	<ul style="list-style-type: none"> - Consumers and Generators of Innovations 	<ul style="list-style-type: none"> - Create market for technological innovations - Creating confidence in local innovations - Source of innovative ideas
11. Diaspora	<ul style="list-style-type: none"> - Source of innovative ideas and expertise - Funding of innovations 	<ul style="list-style-type: none"> - Scouting for innovations - Source of knowledge - Funding of innovations
12. Devolved Government	<ul style="list-style-type: none"> - Funding Innovations - Provide facilities and infrastructure for developing innovations - Awareness creation about innovations 	<ul style="list-style-type: none"> - Infrastructure and funding support - Scouting for indigenous innovations
13. Intermediary Organizations	<ul style="list-style-type: none"> - Facilitate linkages and partnerships within the innovation system 	<ul style="list-style-type: none"> - Partners of KENIA
14. Informal Economy (Jua Kali)	<ul style="list-style-type: none"> - Consumers and Generators of Innovations 	<ul style="list-style-type: none"> - Create market for technological innovations - Creating confidence in local innovations - Source of innovative ideas

2.11 Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

An analysis of the Agency internal and external environment is to provide detailed information on how the environment impacts on the operations of the Agency. Internal environment explores Strengths and Weaknesses (which we will refer to as Internal Challenges) of the Agency while external environment provides the Opportunities that are available and Threats (which we will refer to as External Challenges) that may affect the Agency's operations.

2.11.1 Strengths

Strengths are internal favorable factors of an organization. Table 2 outlines KENIA strengths and their respective strategic implications and responses.

Table 2: Strengths and Strategic Responses

Strengths	Strategic Implication	Strategic Response
1. Established under an Act of Parliament (ST&I Act, 2013) which provides a legal framework	Clarity of mandate and functions	<ul style="list-style-type: none"> - Sensitize stakeholders on legal framework - Implement law towards functional performance.
2. Clear and focused mandate	Makes work more efficient	<ul style="list-style-type: none"> - Generate and implement strategic objectives to achieve the mandate
3. A Competent Board in place with relevant and varied experience	Effective governance	<ul style="list-style-type: none"> - Tap into board's diverse experience - Develop Board Charter - Set and evaluate Board targets
4. A competent interim technical Secretariat in place with relevant and varied experience	Effective technical management and operations	<ul style="list-style-type: none"> - Appoint substantive staff through a competitive recruitment process - Motivate staff

2.11.2 Internal Challenges

Weaknesses are internal unfavorable factors of an organization. Table 3 outlines KENIA weaknesses and their respective strategic implications and responses.

Table 3: Internal Challenges and Strategic Responses

Internal Challenges	Strategic Implications	Strategic Response
1. Inadequate human resource capacity	<ul style="list-style-type: none"> - Operational and effectiveness challenges encountered 	<ul style="list-style-type: none"> - Determine appropriate staff establishment - Vet and appoint staff on deployment - Recruit appropriate staff - Motivate to retain staff
2. Inadequate infrastructure and equipment	<ul style="list-style-type: none"> - Operational and effectiveness challenges encountered 	<ul style="list-style-type: none"> - Acquire and equip offices and other facilities - Acquire ICT infrastructure
3. Inadequate funding	<ul style="list-style-type: none"> - Operational and effectiveness challenges encountered 	<ul style="list-style-type: none"> - Develop resource mobilization and disbursement policy and regulations
4. Low visibility among stakeholders and general public	<ul style="list-style-type: none"> - Low quality of innovation services and output - Low uptake of innovation services 	<ul style="list-style-type: none"> - Launch KENIA among stakeholders - Brand and market KENIA to improve visibility

2.11.3 Opportunities

Opportunities are external favorable factors of an organization. Table 4 outlines KENIA's opportunities and their respective strategic implications and responses

Table 4: Opportunities and Strategic Responses

Opportunities	Strategic Implications	Strategic Response
1. Government prioritization of ST&I	- Realization of KENIA mandate	- Take advantage of this opportunity and enhance the operational capacity of KENIA
2. High demand for quality technology products and services	- Potential for enhanced uptake of KENIA services	- Develop a policy on emerging technologies - Develop capacity to manage emerging technologies.
3. Rapid growth of industry, tertiary institutions, informal and SME sector	- Potential for enhanced uptake of KENIA services	- Enhance KENIA's capacity to cope
4. Expansion of the research system and the university sector	- Enhanced research activities and generation of innovations - Increased players in the innovation landscape - Increased demand for KENIA services	- Establish collaboration and partnership with research and development institutions and development partners
5. Growing population of young technopreneurs	- Potential for enhanced uptake of KENIA services	- Link technopreneurs to opportunities for growth
6. Vision 2030 and the Sustainable Development goals which recognize innovation as a tool for achieving its targets	- More focus placed on the organization	- Align strategies with Vision 2030 goals and objectives
7. Increased market demand for innovative products, process and services due to rapid growth of SMEs	- Potential for enhanced uptake of KENIA services	- Enhance KENIA's capacity to cope

8. Existing and emerging regional bodies on ST&I	<ul style="list-style-type: none"> - Technical and financial support 	<ul style="list-style-type: none"> - Establish collaborations and partnerships with emerging regional bodies on ST&I
9. Rapid ICT development and adoption	<ul style="list-style-type: none"> - Increased knowledge and information access - Growth of young ICT innovators 	<ul style="list-style-type: none"> - Increase dissemination of knowledge and information to the public - Tap and enhance utilization of the ICT innovations for development of local industries
10. Ongoing reforms in the education system	<ul style="list-style-type: none"> - Supporting human resource base 	<ul style="list-style-type: none"> - Ensure collaborations and linkages with the education sector

2.11.4 External Challenges

Threats are external unfavorable factors that affect an organization. Table 5 outlines KENIA threats and their respective strategic implications and responses.

Table 5: External Challenges and Strategic Responses

External Challenges	Strategic Implications	Strategic Response
1. Inadequate funds and Reliance on funding mobilized by NRF	- Restricted planning of programmes, projects and activities	- Expand the organizational funding mechanism
2. Change in Government priorities	- Change in policies	- Focus on the larger policy document such as Vision 2030 and the ST&I Act
3. Rapid technological obsolescence	- Sustainability	- Use market relevance to determine innovation development - Prioritize innovation development and funding
4. Low appreciation and adoption of locally made products and services	- Low levels of investment in local R&D	- Work with other stakeholders to sensitize the Government and the public on the need to consume locally developed innovations
5. Inadequate public awareness and resistance to adopt an innovation culture	- Low uptake of local innovations	- Work with other stakeholders to create a supportive innovation culture
6. Weak institutional framework for development of innovations	- High propensity of duplicating R&D initiatives - Slow translation of research results into products, processes and services	- Build the capacities of institutions in research management
7. Cheap imports	- Low market for local innovations	- Develop policies to encourage local investment in R&D - Create nationally customized investment models - Engage and encourage local potential R&D investors

2.12 PESTEL Analysis

The Analysis appreciates the Political, Economic, Social, Technological, Environmental and Legal factors that can either support or impede the process of implementation of the strategies. Some of the main PESTEL components are analyzed in Tables 6, 7, 8, 9, 10 and 11.

Table 6: Political Factors

Factor	Favorable factors	Risk factors
Political Goodwill and stability	<ul style="list-style-type: none"> -Government manifesto prioritizes establishment of Innovation centres to support the generation of highly creative Kenyans; -Political stability in Kenya 	<ul style="list-style-type: none"> -Change in government -Political instability
East Africa Community Integration	<ul style="list-style-type: none"> - Commitment of EA presidents to establish political integration. - This favors ST&I development - Free movement of human capital in the region - Increased scope for partnerships - Increased resource mobilization 	<ul style="list-style-type: none"> -Different political ideologies -Disintegration of EAC -Political realignment with other blocs

Table 7: Economic Factors

Factor	Favorable factors	Risk factors
Economic growth	<ul style="list-style-type: none"> -Kenyan economy has been expanding over the years leading to greater opportunities for utilization of innovative ideas. -Creating resources for the innovations to grow. -Diversification of industries that assist in the commercialization of innovations 	<ul style="list-style-type: none"> -Economic decline -Change of economic policy -Stringent austerity measures -Change of policy by external partners -Insecurity -Unfavorable macro-economic conditions
Devolution	<ul style="list-style-type: none"> -Increase of resources at the county level that can trigger competition and innovation -Expansion of economic activities 	<ul style="list-style-type: none"> -Amendment of the constitution that can reduce allocation of resources -County government policies and ideologies

Table 8: Social Factors

Factor	Favorable factors	Risk factors
Population structure and growth rate	-Young innovative population. -Growing middle class demanding for improved/better products and services	-Youth unemployment -HIV AIDs and drug abuse -High dependency rate
Employment and labor demand	Expansion of employment opportunities due to increased: demand from industry growth of startups	Decline in industrial developments Inadequate support to startups
Culture	Cultural diversity	Cultural barriers associated with the resistance to technology adoption

Table 9: Technological Factors

Factor	Favorable factors	Risk factors
Technological advancement	-Existence of a critical ST&I infrastructure and institutions -Demand for new skills	-Obsolescence of technologies -Availability of the technologies -Cost of technologies
Automation	-Deployment of ICT for ease of service delivery including storing and sharing information	-Security problems to the systems -Rapid change in the ICT systems that may require retraining of managers

Table 10: Environmental Factors

Factor	Favorable factors	Risk factors
Physical Environment	Demand for innovative environmental sustainability Adoption of the green technology	Climate change Inaccessibility and cost of the green technologies
Natural Resources	-Discovery of new resources (such as petroleum, natural gas, coal, titanium, uranium) -Demand for innovation in the emerging technologies	Environmental degradation

Table 11: Legal Factors

Factor	Favorable factors	Risk factors
Legal framework	<ul style="list-style-type: none"> -The constitution, 2010 -The ST&I Act, 2013 -Universities Act, 2012 -TVET Act, 2012 -Special Economic Zones Act 	<ul style="list-style-type: none"> -Dependency on the NRF Board of Trustees to mobilize resources for KENIA as provided in the ST&I Act, 2013. -Existence of fragmented legal frameworks governing the Innovation system.
Policy framework	<ul style="list-style-type: none"> The Kenya Vision 2030 ST&I policy and Strategy Education and Training policy National Industrialization Policy and Strategy 	<ul style="list-style-type: none"> Change in policies that have effects on the innovation ecosystem.
Regulatory framework	<ul style="list-style-type: none"> Existence of regulatory institutions and various professional bodies that assure quality and relevance in ST&I 	<ul style="list-style-type: none"> Conflict in various regulatory frameworks by public institutions and professional bodies.

CHAPTER THREE: STRATEGIC MODEL

3.1 Introduction

The Strategic Model identifies the vision, mission, core values, the strategic issues and the strategies that can be implemented to achieve the mandate and core functions of the organization. Being the first strategic plan, emphasis is placed on the establishment of structures, operationalization of policies and building capacity to ensure that the organization has ability to support the innovations and the national innovation system for advancement ST&I for socio-economic development.

3.2 Mandate, Functions, Vision and Mission

3.2.1 Mandate

The mandate of KENIA is to develop and manage the Kenya National Innovation System.

3.2.2 Core Functions

There are several functions of KENIA, which are stipulated in the ST&I Act No 28 of 2013, which are thus categorized to support the attainment of the mandate in the following ways:

- Capacity building;
- Promotion and Awareness
- Development and Commercialization of innovations;
- Financial and Resource Mobilization;
- Policies and Legal frameworks;
- Linkages and Partnerships;

3.2.3 Vision

A key enabler of socio-economic development through innovation

3.2.4 Mission

To develop and manage a dynamic national innovation system that facilitates taking ideas to the market

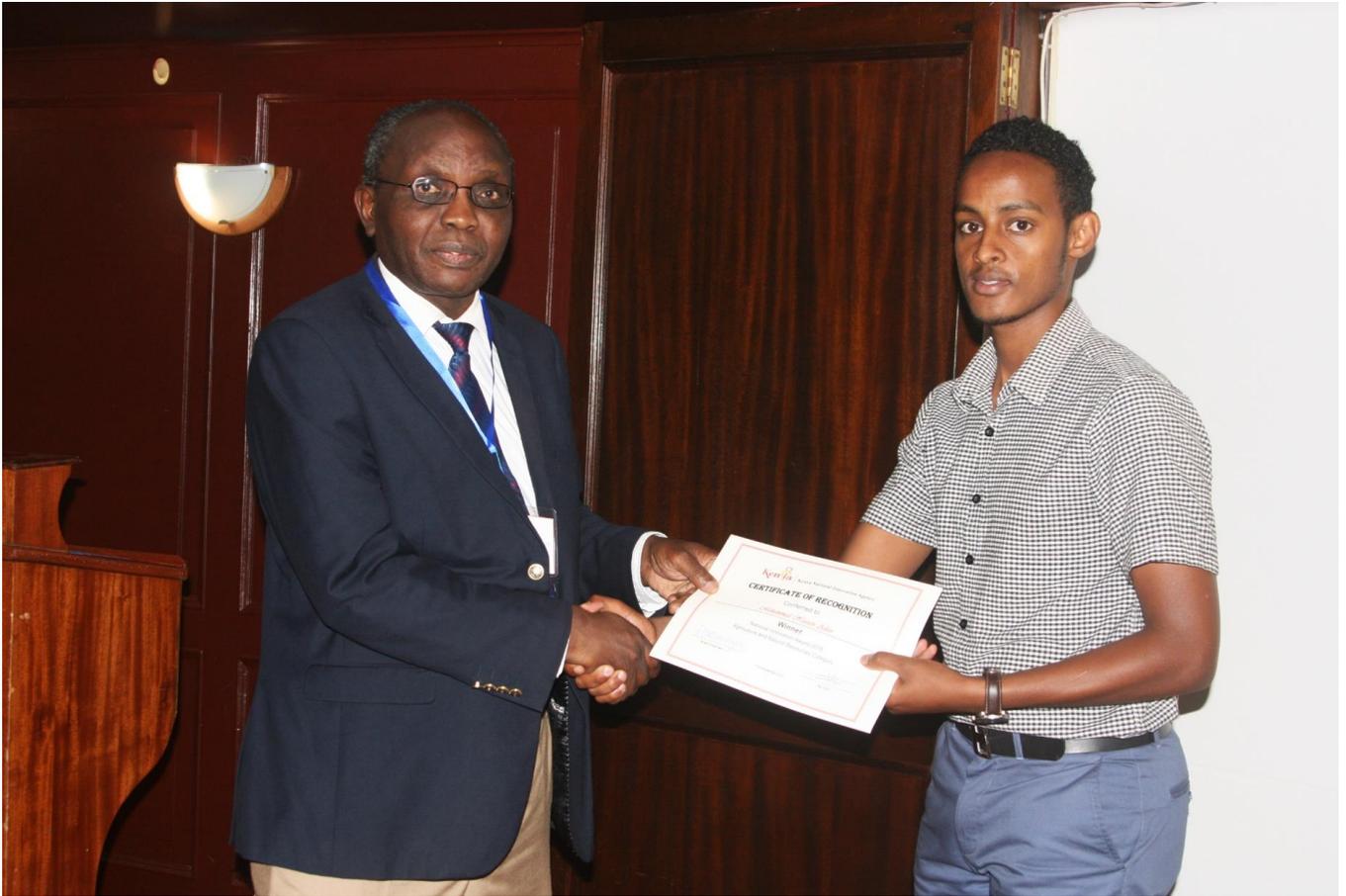


Figure 8: Recognition and Award of Kenyan Innovators

3.2.5 Core Values

In order to stimulate development and exploitation of technology and innovation for socio-economic development, the following core values have been considered and will apply:

- **Innovativeness:** Foster a culture to continually nurture and implement new ideas that add value in the form of increased competitiveness and sustainability;
- **Probity:** Committed to being honest accountable, transparent and efficient;
- **Partnership:** Leveraging ideas, practices and capabilities created locally and globally;
- **Professionalism:** Committed to the highest levels of achievement obtainable through competence and critical skills;
- **Teamwork** -Embrace collaboration both within the Agency and with all partners in the provision of services.

3.3 Strategic Issues, Objectives, Strategies and Expected Outcomes

This plan has identified 6 strategic issues arising from the foregoing strategic analysis and the mandate of KENIA. In the strategic plan period of 2018-2022, the Agency will pursue the following strategic issues, objectives, strategies and expected outcomes emanating from the situational analysis:

- Institutional capacity
- Promotion and awareness
- Partnerships and linkages
- Development and commercialization of innovation
- Financial and resource mobilization
- Policy, legal and regulatory

Strategic Issue 1: Institutional Capacity

Institutional capacity involves developing and strengthening the skills, abilities, processes and resources of the organizations needed to achieve its functions. Institutional capacity consists of provision of institutional support, mechanisms for plan implementation and supporting elements.

Strategic objective: To strengthen institutional capacity

Strategies:

The following are the strategies to be implemented to strengthen institutional capacity:

- Develop the Agency's human resource capacity
- Provide adequate infrastructure and equipment
- Improve the Agency's visibility

Expected outcomes: Enhanced resources capacity; Improved image

Strategic Issue 2: Promotion and awareness

The culture of translating research into innovations for commercialization and socio-economic benefits is still low in Kenya. There is a growing need to enhance public awareness on the importance of innovations and its implication to everyday life, covering the ethical, moral, legal, social and economic aspects. The mechanisms for effective communication and profiling of innovations for development among the scientific community, policy makers, products and services, consumers of innovations and other actors are therefore essential.

Strategic Objective: To create awareness and disseminate information on innovation

Strategies

The following are the strategies to be implemented to create awareness and disseminate information on innovation:

- Establish and regularly update a database on innovations
- Create awareness of IPR among Innovators
- Establish a recognition system for promising innovators

Expected outcome: Increased innovations; Increased protected innovations

Strategic Issue 3: Partnerships and Linkages

Linkages in the Kenya's National Innovation System have remained weak despite the potentials for both formal and informal networks. Capacity of local firms, particularly micro, small and medium scale enterprises, to identify and assimilate new and existing knowledge and technologies to increase regional and global competitiveness has also remained low. This has impacted negatively on sharing of knowledge between the industry and academia to facilitate market driven R&D for maximum benefits from research results.

Strategic Objective: To strengthen and coordinate the innovation system through partnerships and linkages

Strategies:

To strengthen partnerships and linkages, the Agency will pursue the following strategies:

- Foster strategic partnerships between the government, universities, research institutions, private sector, communities and non-state actors.
- Establish international collaborations and partnerships

Expected outcome: Value-adding partnerships

Strategic Issue 4: Development and commercialization of innovations

The realization of full potential of ST&I in Kenya will depend on appropriate development, identification, acquisition, transfer, diffusion and application of emerging and relevant technologies from development of local innovations and collaborating partners. Identification and development of innovations that add value to Kenya's indigenous resources and which provide holistic and optimal solutions that are suited to Kenyan socio-cultural-economic values are necessary for sustainable development. This will be done by encouraging and facilitating the formation and growth of new businesses based on the research knowledge and expertise available within knowledge-based institutions and providing infrastructure required by innovators to develop and commercialize their innovations.

Strategic Objective: To harness innovations for transformation of the economy

Strategies:

The following are the strategies to be implemented to harness innovations for national socio-economic development:

- Promote technology development and transfer
- Promote commercialization of innovations
- Engage venture capitalists and angel investors and financial sector to support innovative ideas in national priority areas

Expected outcome: Increased contribution to socio-economic development

Strategic Issue 5: Financial and Resource Mobilization

Currently, KENIA is solely dependent on budgetary allocation from the Government. The allocation is not adequate for implementation of the Agency's programmes, hence slowing down the delivery of its functions and mandate.

Strategic Objective: To mobilize financial resources to support innovation processes

Strategies

The following are the strategies to be implemented to mobilize financial resources to support innovation processes:

- Solicit for additional resources from Government and other stakeholders
- Enhance the financial contribution of the private sector, strategic investors and development partners
- Develop a framework to acquire rights in technological innovations supported by the Agency

Expected outcome: Sustainable funding of KENIA

Strategic Issue 6: Policy, legal and regulatory frameworks

Innovation and technological developments present issues of governance that must be addressed if the benefits of research are to be optimized and the undesirable outcomes mitigated. A coherent and focused policy, legal and regulatory frameworks that will ensure commitment of the actors to all aspects of innovation development and management will be developed. The focus will be on providing an enabling environment that supports the growth, development and utilization of innovations and ensure that the sector supports national development.

Strategic Objective: To develop and review policy, legal and regulatory frameworks

Strategies

The following are the strategies to be implemented to ensure that relevant policy, legal and regulatory frameworks are in place to effectively achieve the mandate of KENIA

- Develop and implement the national innovation and commercialization policy
- Develop other relevant policies and regulatory frameworks for effective support for innovations

Expected outcome: Dynamic and active innovation ecosystem

3.4 Summary of Strategic Issues, Objectives, Strategies and Expected Outcomes

The Agency has identified strategic objectives, strategies and expected outcomes based on the Strategic issues presented in the previous section. The presentation of the strategic objectives on each of the strategic priorities is as shown in Table 12.

Table 12: Summary of Strategic Issues, Objectives, Strategies and Expected Outcomes

Strategic issues	Strategic Objectives	Strategies	Expected Outcomes
1. Institutional capacity	1.1 To strengthen institutional capacity	1.1.1 Develop the Agency's human resource capacity 1.1.2 Develop institutional policy 1.1.3 Provide adequate infrastructure and equipment 1.1.4 Improve the Agency's visibility	Enhanced resources capacity Improved image
2. Promotion and awareness	2.1 To create awareness and disseminate information on innovation	2.1.1 Develop and regularly update a data base on innovation 2.1.2 Create awareness of IPR among Innovators 2.1.3 Establish a recognition system for novel innovations	Increased innovations Increased protected innovations
3. Partnerships and linkages	3.1 To strengthen and coordinate the innovation system through partnerships and linkages	3.1.1 Foster strategic partnerships between the Government, Universities, Research Institutions, private sector, communities and non-state actors 3.1.2 Initiate and promote International Collaborations and Partnerships	Value-adding partnerships
4. Development and commercialization of innovation	4.1 To harness Innovations for transformation of the economy	4.1.1 Promote technology development and transfer	Increased socio-economic

		<p>4.1.2 Promote commercialization of Innovations</p> <p>4.1.3 Engage venture capitalists and angel investors and financial sector to support innovative ideas in national priority areas</p>	development contribution
5. Financial and resource mobilization	5.1 To mobilize financial resources to support innovation processes	<p>5.1.1 Solicit for additional resources from Government and other stakeholders</p> <p>5.1.2 Enhance the financial contribution of the private sector</p> <p>5.1.3 Develop a framework to acquire rights in technological innovations supported by the Agency</p>	Sustainable funding of KENIA
6. Policies and legal framework	6.1 To develop and review policy and legal framework	<p>6.1.1 Develop and implement the national innovation and commercialization policy</p> <p>6.1.3 Develop other relevant policies</p>	Dynamic and active innovation ecosystem

CHAPTER FOUR: IMPLEMENTATION PLAN

4.1 Introduction

The successful implementation of this Strategic Plan will be based on engagement and commitment of all stakeholders as KENIA provides the appropriate coordination and direction. The implementation responsibilities of this strategy will be cascaded to all levels in order to allow for maximum participation of all the relevant stakeholders.

The Agency will coordinate the implementation with involvement of all staff serving in different responsibilities in line with the organizational structure. This Chapter therefore provides the proposed organizational structure of KENIA. A five-year implementation matrix is also outlined.



Figure 9: Stakeholders Engagement Session in a KENIA Forum

4.2. Organizational Structure

The Agency has a proposed organizational structure (Figure 10) with optimal staffing levels to deliver the strategic plan.

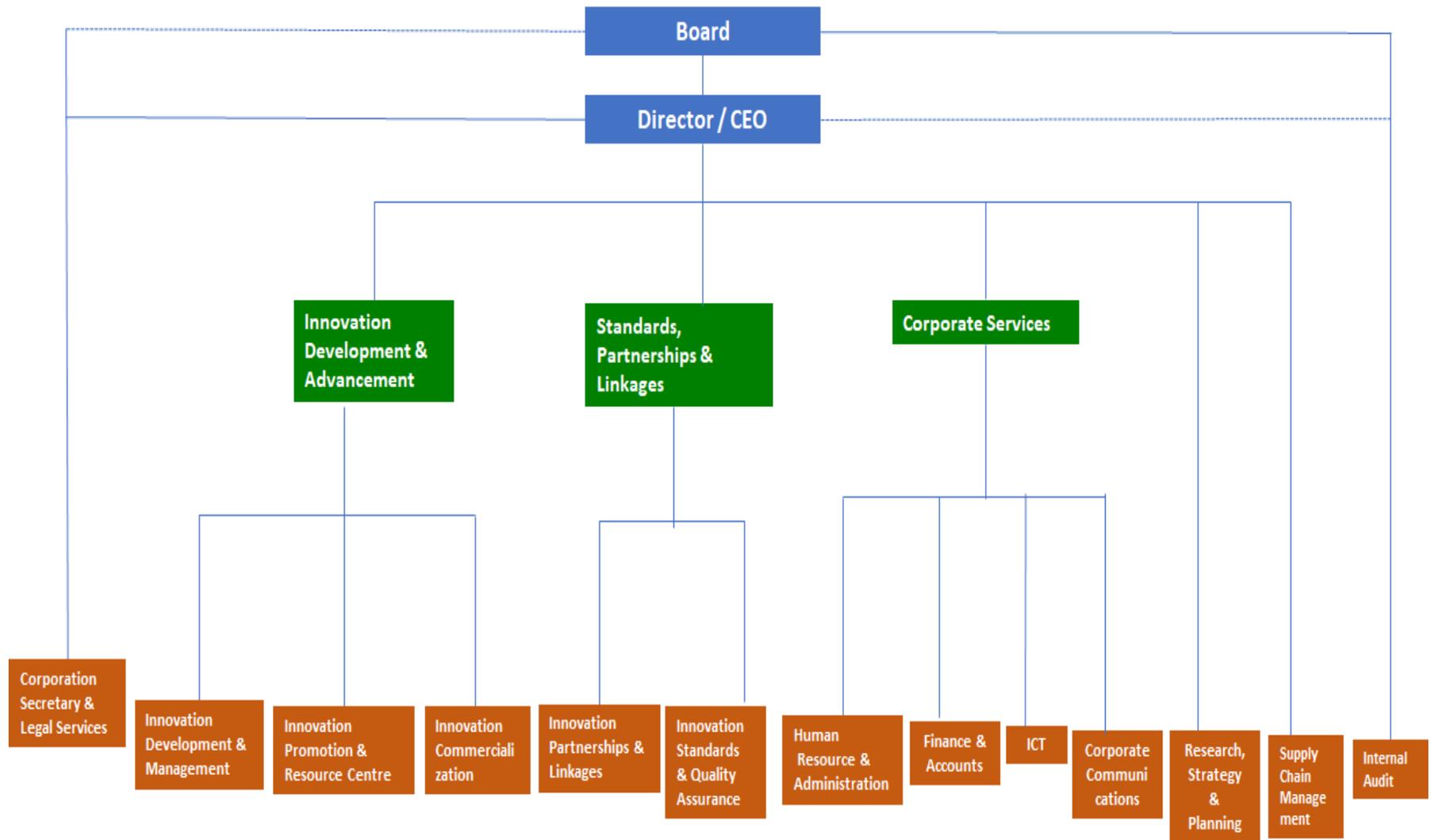


Figure 10: Organizational Structure for KENIA

4.3 Implementation Matrix

This section presents the implementation matrix which covers the strategic themes, strategic objectives, strategies, activities, implementing actors, time frame, resource requirements, expected outputs and output indicators.

Table 13: Implementation Matrix

	Performance Indicator	Target					Total Budget ('000)
		2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	
Strategic Issue 1: Institutional Capacity Development							
Strategic Objective 1: To strengthen institutional capacity							
Outcome 1: Enhanced resources capacity							
Develop the Agency's human resource capacity	No. of staff recruited	-	10	15	33	33	152,000
	No. of staff trained	3	10	15	33	33	13,950
Provide adequate infrastructure and equipment	% office space designed and partitioned	10	90	-	-	-	25,000
	% office space equipped	5	20	20	25	30	12,950
	No. of vehicles procured	1	1	2	-	1	33,000
Outcome 2: Improved image							
Improve the Agency's visibility	Degree of meeting service charter	Baseline	10% increase	10% increase	10% increase	10% increase	2,500
	No. of times KENIA appears positively in media per quarter.	1	2	2	2	2	2,800
	Stakeholder satisfaction index	Base-line	10% increase	10% increase	10% increase	10% increase	1,250
Sub-total 1							243,450

	Performance Indicator	Target					Total Budget ('000)
		2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	
Strategic Issue 3: Partnerships and Linkages							
Strategic Objective 3: To strengthen and coordinate the innovation system							
Outcome 5: Value-adding partnerships							
Foster strategic partnerships between the Government, Universities, Research Institutions, private sector, communities and non-state actors	No. of Joint Programme Frameworks developed	-	1	-	-	-	1,500
	No. of joint programmes implemented	-	-	-	1	1	40,000
	No. of exchange programmes implemented for professionals and students	1	1	1	1	1	10,000
Establish international collaborations and partnerships	No. of Policy Frameworks developed	1	-	-	-	-	1,500
	No. of collaborations and partnerships established	1	1	1	1	1	5,000
Sub-total 3							58,000
Strategic Issue 4: Development and Commercialization of Innovations							
Strategic Objective 4: To harness innovations for transformation of the economy							
Outcome 6: Increased socio-economic development contribution							
Promote technology development and transfer	No. of Technology Transfer Frameworks	-	1	-	-	-	10,000
	No. of programmes for identifying and nurturing technological innovation	-	-	1	1	1	150,000

	Performance Indicator	Target					Total Budget ('000)
		2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	
Promote commercialization of Innovations	No. of commercialized innovations	-	6	6	6	6	24,000
	No. of Centers of Excellence for technology development in key sectors	-	-	-	-	1	300,000
	No. of and science and innovation parks initiated	-	-	-	1	1	80,000
	No. of County technology and innovations advisory and prospecting centres technically supported	-	-	-	10	10	20,000
Engage venture capitalists and angel investors and financial sector to support innovative ideas in national priority areas	No. of investors identified and engaged	-	2	2	2	2	2,000
	No. of frameworks for venture capitalists and angel investors to finance innovative ideas in national priority areas developed.	-	-	-	-	1	1000
	No. of innovator pitching/ investor match-making forums held	-	1	1	1	1	8,000
Sub-total 4							595,000

	Performance Indicator	Target					Total Budget ('000)
		2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	
Strategic Issue 5: Financial and Resource Mobilization							
Strategic Objective: To mobilize financial resources to support innovation processes							
Outcome 7: Sustainable funding of KENIA							
Solicit for additional resources from Government and other stakeholders	Funds raised from programme-based budget proposals	Baseline	30% increase	50% increase	100% increase	200% increase	5,000
	Funds mobilized from diaspora and/or investment in local innovations	Baseline	30% increase	50% increase	100% increase	200% increase	5,000
Enhance the financial contribution of the private sector	Funds mobilized from Public Private Partnerships (PPPs) in innovations	Baseline	30% increase	50% increase	100% increase	200% increase	500
	Amount of funds raised from development partners	Baseline	30% increase	50% increase	100% increase	200% increase	5,000
Develop a framework to acquire rights in technological innovations supported by the Agency	No. of frameworks for acquiring rights in technological innovations supported by public funds	-	-	-	1	-	500
Sub-total 5							16,000

	Performance Indicator	Target					Total Budget ('000)
		2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	
Strategic Issue 6: Policies and Legal Framework							
Strategic Objective: To develop and review policy, legal and regulatory frameworks							
Outcome 8: Dynamic and active innovation ecosystem							
Develop and implement the national innovation and commercialization policy	No. of innovation & commercialization policies developed	-	1	-	-	-	4,000
	No. of national innovation forums organized	1	1	1	1	1	49,000
Sub-total 6							53,000
TOTAL IMPLEMENTATION COST							1,100,450

4.4 Risk Management

KENIA is vulnerable to a broad range of risks that can threaten development effectiveness. These risks can spring from several factors and are addressed as outlined;

- Competition of funding from Government allocation.
- Political interference and patronage networks will be overcome by adhering to our values of transparency and accountability.
- Resistance to the implementation of proposed programmes /activities by some stakeholders will be overcome through sensitization and capacity building.
- Staff turnover, redeployment or shortages of highly trained technical staff is likely to affect delivery of services will necessitate introduction of incentives and further training.
- Restructuring or re-organization of State Departments in MoE that may cause disorientation in implementation will require appropriate capacity building.
- Resistance by stakeholders to adapt to new technological changes will entail adopting an inclusiveness approach in management.
- Vulnerabilities may exist at any stage and among any group of actors from policy makers to other levels of staff. Weak accountability increases the likelihood of misaligned priorities, resource leakages and poor service delivery. This will be overcome by strengthening accountability in the management system of the Agency.

4.5 Assumptions, Risks and Uncertainties

The successful implementation of this Strategic Plan takes into account the following assumptions:

- That during the period of the implementation, a reasonably stable and conducive political environment will exist.
- That there shall be availability of funds from the exchequer
- That development partners will continue to offer supplementary funding as well as technical assistance as has been anticipated.
- That there will be no significant calamities such as civil unrests, droughts, floods and epidemics that will constrain the implementation of the plan.
- Development partners will buy into the Vision and objectives that KENIA has stated in its Strategic Plan.

4.6 Financial Resource Requirements and Mobilization

4.6.1 Introduction

This section addresses the financial resource requirement and sources of funds. It also gives strategies to be employed in financial resource mobilization in order to enable the Agency to implement this strategic plan.

4.6.2 Financial Resource Requirement

The implementation of this strategic plan is estimated to cost Kshs. **1,100,450,000** over the five years. It is projected that the first year would require Kshs. **35,750,000** the second year Kshs. **106,650,000** the third year Kshs. **189,600,000** the fourth year Kshs. **207,600,000** and the fifth year Kshs. **569,350,000** as shown in Table 14.

Table 14: Financial Resource Requirements

Strategy	Activity	Target					Total Budget ('000)
		2018 /2019	2019 /2020	2020 /2021	2021 /2022	2022 /2023	
Strategic Issue 1: Institutional Capacity Development							
Strategic objective: To strengthen institutional capacity							
Develop the Agency's human resource capacity	Recruit staff	-	2,000	50,000	50,000	50,000	152,000
	Train staff	450	2,500	3,000	4,000	4,000	13,950
Provide adequate infrastructure and equipment	Design and partition office space	-	5,000	20,000	-	-	25,000
	Equip office	450	2,500	3,750	3,750	2,500	12,950
	Procure office vehicles on priority basis	5,000	8,000	12,000	-	8,000	33,000
Improve the Agency's visibility	Develop and implement a service charter	2,000	-	-	-	-	2,000
	Develop and implement a communication strategy	-	2,800	-	-	-	2,800
	Conduct annual customer satisfaction surveys	250	250	250	250	250	1,250
Strategic Issue 2: Promotion and Awareness							
Strategic objective: Awareness and dissemination of innovation information							
Establish and regularly update a database on innovation	Establish an integrated Knowledge Management Information System	-	5,000	10,000	10,000	-	25,000
	Conduct Innovation Indicators surveys	-	25,000	-	-	25,000	50,000
Create awareness of IPR among Innovators	Develop and implement awareness programme on intellectual property rights among innovators	2,000	2,000	2,000	2,000	2,000	10,000
	Develop framework for acquiring rights or interests in any technological innovation	-	10,000	-	-	-	10,000

Strategy	Activity	Target					Total Budget ('000)
		2018 /2019	2019 /2020	2020 /2021	2021 /2022	2022 /2023	
	supported by the Agency						
	Organize open forums for IPR awareness	2,000	2,000	2,000	2,000	2,000	10,000
Establish a recognition system for novel innovations	Giving recognition awards to outstanding innovators	6,000	6,000	6,000	6,000	6,000	30,000
Strategic Issue 3: Partnerships and Linkages							
Strategic objective: Strengthening and coordination of innovation system							
Foster strategic partnerships and linkages between the Government, Universities, Research Institutions, private sector, communities and non-state actors.	Develop and implement a framework for joint programmes	-	-	1,500	20,000	20,000	41,500
	Develop exchange programmes	2,000	2,000	2,000	2,000	2,000	10,000
Establish International Collaborations and Partnerships	Develop a Policy framework for innovation collaboration and partnerships	-	-	-	500	1,000	1,500
	Identify, establish and maintain international collaborations and partnerships	1,000	1,000	1,000	1,000	1,000	5,000
Strategic Issue 4: Development and Commercialization of Innovations							
Strategic objective: To harness innovations for transformation of the economy							
Promote technology development and transfer	Develop Technology Transfer Framework	-	10,000	-	-	-	10,000
	Establish and implement a programme for identifying and nurturing technological innovation	-	-	50,000	50,000	50,000	150,000

Strategy	Activity	Target					Total Budget ('000)
		2018 /2019	2019 /2020	2020 /2021	2021 /2022	2022 /2023	
Promote commercialization of Innovations	Support commercialization of innovations	-	6,000	6,000	6,000	6,000	24,000
	Establish Centers of excellence for technology development in key sectors	-	-	-	-	300,000	300,000
	Support creation of science and innovation parks	-	-	-	20,000	60,000	80,000
	Support County technology and innovations advisory and prospecting centres	-	-	-	10,000	10,000	20,000
Engage venture capitalists and angel investors and financial sector to support innovative ideas in national priority areas	Develop a framework for venture capitalists and angel investors to finance innovative ideas	-	500	500	500	500	2,000
	Undertake innovator pitching/ investor match-making forums	-	2,000	2,000	2,000	2,000	8,000
Strategic Issue 5: Financial and Resource Mobilization							
Strategic objective: To mobilize financial resources to support innovation processes							
Solicit for additional resources from Government and other stakeholders	Prepare, present and justify programme-based budget proposals	1,000	1,000	1,000	1,000	1,000	5,000
	Develop and implement a programme to attract Diaspora funding support and or investment in local innovations	-	-	5,000	-	-	5,000
Enhance the financial	Develop and implement programmes to promote Public Private	100	100	100	100	100	500

Strategy	Activity	Target					Total Budget ('000)
		2018 /2019	2019 /2020	2020 /2021	2021 /2022	2022 /2023	
contribution of the private sector	Partnerships in innovations funding						
	Develop project proposals for funding by development partners	1,000	1,000	1,000	1,000	1,000	5,000
Acquire rights in technological innovations supported by the Agency	Develop framework to acquire rights in technological innovation supported by public funds	-	-	-	500	-	500
Strategic Issue 6: Policies and Legal Framework							
Strategic objective: To develop and review policy and legal framework							
Develop and implement the national innovation and commercialization policy	Develop and implement a National Innovation Policy	-	4,000	-	-	-	4,000
	Organize national innovation forums	9,000	10,000	10,000	10,000	10,000	49,000
TOTAL		35,750	106,650	189,600	207,600	569,350	1,100,450

4.6.3 Financial Resource Mobilization Strategies

Analysis of Table 14 anticipates that there will be an increasing need for financial resources during the strategic plan period to meet the costs of all the planned activities. The following strategies have been devised for mobilising additional funds to bridge the financial resource gaps:

1. Government grants

The Government has demonstrated goodwill of providing funds towards the operationalization of the Agency. In the short- to medium-term, the Management will develop work plans with budgetary requirements and projections for submission to the Government through the parent Ministry's Annual Budget and Medium-Term Expenditure Framework (MTEF) to source for funding from the Exchequer.

2. Tapping into Diaspora Funding

The Agency will develop and implement programmes to attract Diaspora funding support and or investment in local innovations.

3. Grants from strategic partners and collaborators

The Agency will prepare proposals based on planned activities and seek strategic partnerships in funding identified projects, training, research and development. These will include Development partners, Non-Governmental Organizations, and Private Sector players.

4. Funds from the National Research Fund

Section 36 (1) (a) of the ST&I Act obligates the National Research Fund to mobilize resources for KENIA from the Government, the private sector, venture capital, development partners and other sources. KENIA will engage NRF through the Ministry responsible for science, technology and innovation to determine the proportion of monies raised by NRF that will be available to KENIA to pursue its mandates.

CHAPTER FIVE: MONITORING AND EVALUATION

5.1 Introduction

Successful implementation of the strategic plan will depend on how effectively the planned activities and outputs are monitored and evaluated to inform interventions and ensure that implementation is on track. Under this strategic plan, Monitoring and Evaluation will provide timely information for KENIA to assess progress on implementation of its objectives and evaluate achievements. This section discusses the Monitoring and Evaluation plan for the strategic plan.

5.2 Institutional Framework for Monitoring and Evaluation

M&E will be based on a framework developed annually with details on definition of responsibilities, tracking of indicators, adoption of monitoring and evaluation mechanisms, progress reporting process, timelines and financing of activities. Implementation and tracking of the Strategic Plan will be done at all levels of KENIA as illustrated in Figure 11 and its outputs will form part of KENIA quarterly and annual performance reports. The reports will in turn lead to critical assessment of KENIA's objectives in regularly scheduled senior management meetings and in the staff meetings at the department level.



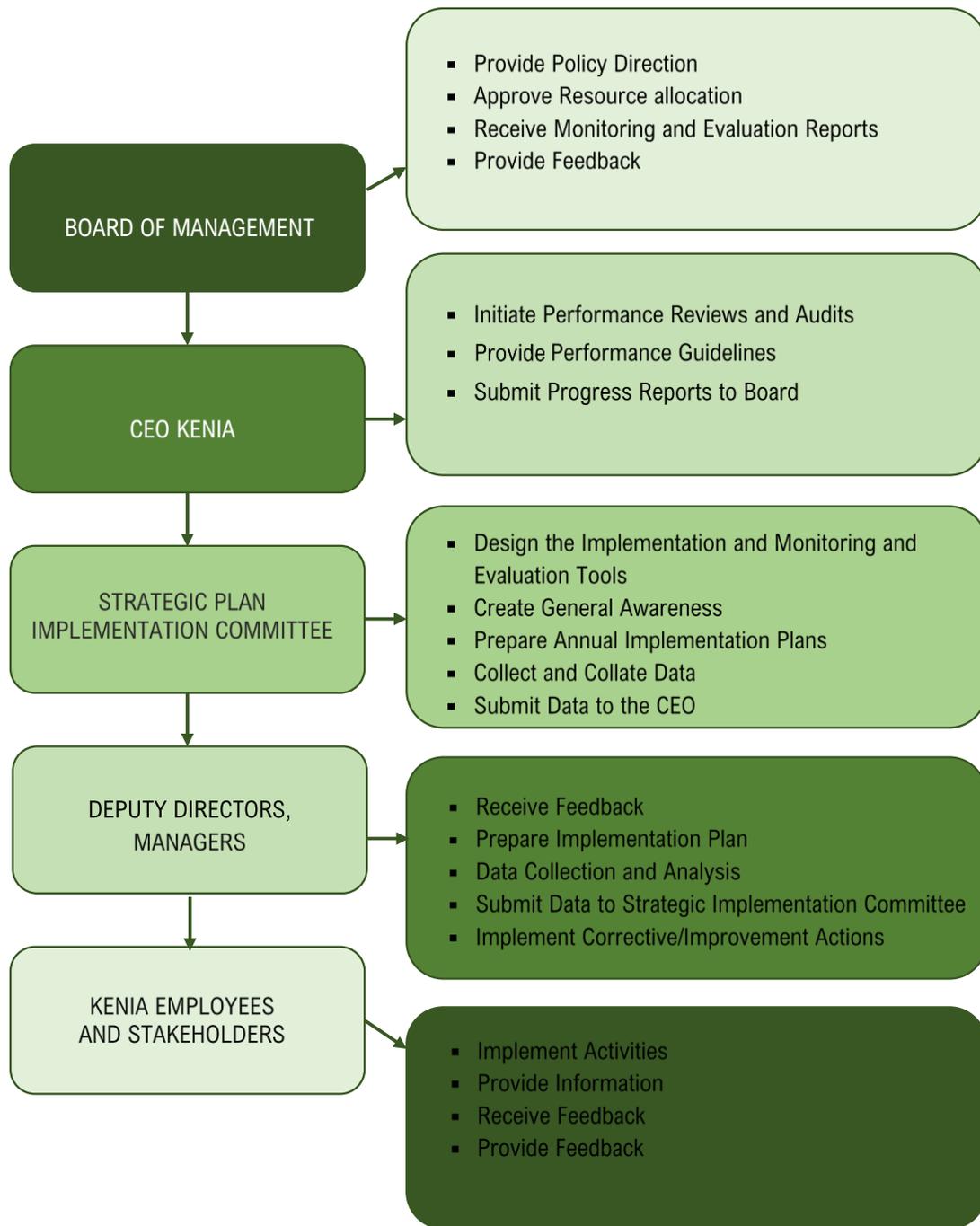


Figure 11: Monitoring and Evaluation Functional Structure

5.3 Monitoring and Evaluation Mechanisms

Monitoring and evaluation of outcomes will be particularly important in enabling KENIA to determine whether additional time for implementation will be required and whether additional financial and human resources will be necessary. Monitoring, which is first part of the process, will be based on the following guidelines:

- All functional areas will monitor activities under their responsibilities based on the observations of progress in their levels of jurisdiction. Unit or section heads will be in charge of monitoring processes falling under their responsibility. This will include accounting for inputs, activities and outputs. Focus must be on the objectives listed for implementation in the strategic plan.
- Departments/Divisions will monitor the outputs realized by the units/sections under them to generate outcomes as indicated in this Strategic Plan.
- It will be the ultimate responsibility of the heads of Division to monitor the overall results of the departments in the implementation of this Strategic Plan. This will be done by tracking outcome indicators based on the achievements of the departments.

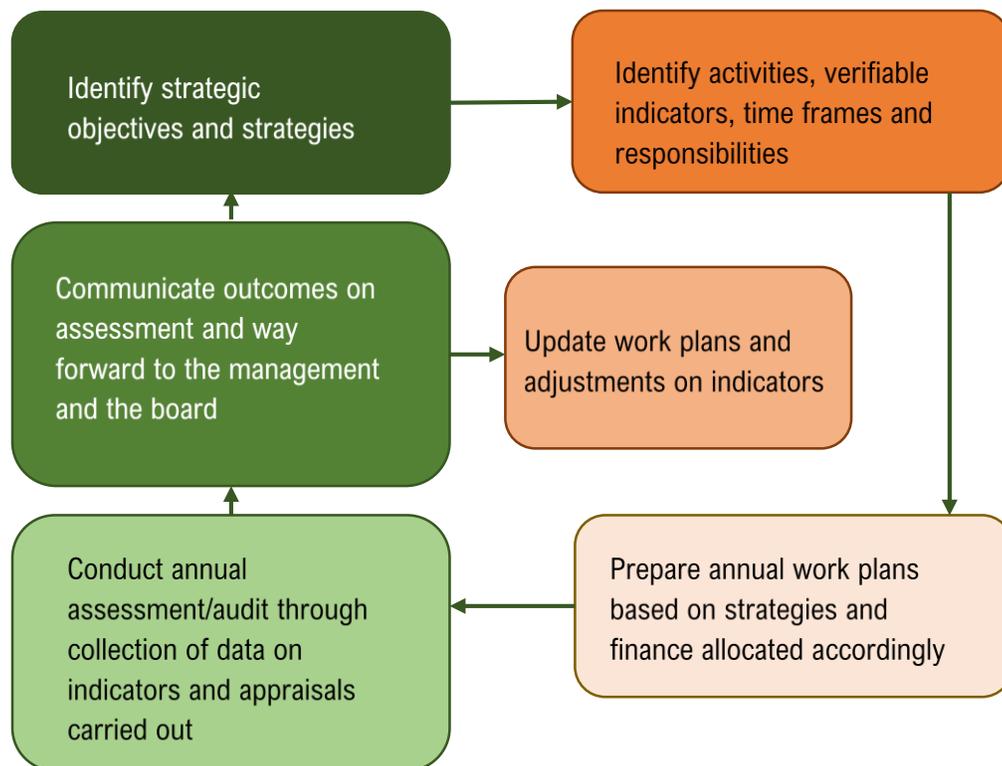


Figure 12: Monitoring and Evaluation Framework



Figure 13: Participants at the Leaders in Innovation Fellowship - A Strategic Partnership Programme

5.4 Linking M&E to Performance Management

The implementation of the plan will also embrace the performance management concept which entails the setting up of standards and targets, measuring actual performance against set targets and reporting on the results. This approach aligns this plan with the Kenya Vision 2030 that requires that the public sector improves its provision of services to attain competitiveness.

5.5 Monitoring Methodologies

The Office of the Directors (technical and corporate services) will host and provide leadership and technical direction to the monitoring and evaluation activities. Monitoring will involve routine data collection and analysis on the success of the implementation of this strategic plan. The results from the analysis will then be used to inform decision making at all levels. The objectives of the strategic plan will be reinforced through corrective measures when and if necessary.

This will be achieved by:

- Developing of monitoring and evaluation indicators at all levels of implementation
- Establishing the Monitoring and Evaluation Committee convened by the CEO
- Carrying out continuous data collection, analysis and reporting on a quarterly basis
- Carrying out random inspections and making objective observations
- Conducting specially designed surveys and rapid assessments to assess progress
- Carrying out participatory M&E
- Undertaking independent mid- and end-term evaluations

APPENDICES

6.1 Partnership and linkages

- Linking Industry with Academia - LIWA (www.liwatrust.org)
- Annual Nairobi Innovation week at University of Nairobi (www.innovationweek.co.ke)
- Science week with National Commission for Science, Technology and Innovation (www.nacosti.go.ke)

6.2 A sample of innovation labs in Kenya

LAB'S NAME	BRIEF DESCRIPTION
AKIRACHIX	AkiraChix is a not for profit organisation that aims to inspire and develop a successful force of women in technology who will change Africa's future. (Nairobi).
BITHUB.AFRICA	BitHub.Africa is a commercial Blockchain Accelerator that is driving the adoption of blockchain technology and solutions across Africa. (Nairobi).
C4D LAB	C4DLab is an R&D and Startup Incubation hub at the University of Nairobi. The lab aims at contributing towards building the Silicon Savannah, leveraging on the large University community. (Nairobi).
CHANDARIA BUSINESS AND INCUBATION CENTRE (BIIC)	Chandaria BIIC accommodates both Kenyatta University students and other Kenyans in need of support. It also promotes a culture of innovation among Kenyan youth through various programmes and a platform to provide solutions to challenges facing various industries. (Nairobi).
GROWTH AFRICA	Growth Africa works with entrepreneurs and companies which through their business make a significant positive difference to their surroundings and society at large. (Nairobi).
IBIZAFRICA	iBizAfrica business incubator carries out the Entrepreneurship and Incubation theme of iLabAfrica. iBizAfrica seeks to provide a nurturing environment that builds on the potential of the

	youth to develop ICT solutions and businesses that work for the common good in society. (Nairobi).
IHUB	iHub serve the tech community, by connecting organizations and people, building market relevant solutions and being ahead of the curve of innovation. (Nairobi).
ILAB AFRICA	iLabAfrica is a Centre of Excellence in ICT innovation and Development based at Strathmore University. The research center is involved in interdisciplinary research, students' engagement, collaboration with government, industry and other funding agencies. (Nairobi).
KENYA CLIMATE INNOVATION CENTRE (KCIC)	The KCIC provides incubation, capacity building services and financing to Kenyan entrepreneurs and new ventures that are developing innovative solutions in energy, water and agribusiness to address climate change challenges. (Nairobi).
LAKE HUB	Lake hub is a technology innovation hub in Kisumu; an open space for entrepreneurs, technologists, investors and makers. (Kisumu).
LIVING LAB UON	The Living Lab at the University of Nairobi is a co-creative space for researchers and experts who have a common interest in sustainable urban change. At the Living Lab, researchers explore design thinking both as a facilitatory tool and as a research method for innovating in the urban space. (Nairobi).
M-LAB	m-Lab aims to foster innovation and entrepreneurship within the Kenyan community, with a focus on Web and mobile services. The Lab will provide a full range of resources and initiatives: training, business development support, community creation). (Nairobi).
MT. KENYA HUB	The hub incubates startups, accelerate innovations offer training and provide innovators a platform to get funded by our selected investors. Working with partners, the hub holds events including Meetups, Training and Hackathons. (Nairobi; Nyeri).

NAILAB	Nailab is a business incubator that offers an entrepreneurship programme focusing on growing innovative technology driven ideas. The lab creates an enabling environment that inspires and stimulates innovation and entrepreneurship. (Nairobi).
NAIROBI GARAGE	Nairobi Garage is a fully serviced, coworking office space for startups, techies and entrepreneurs. Members of the garage have access to hand-picked, quality professional services from a network of partners and providers. Members connect also access essential services that are optimised for growth. (Nairobi).
NAIROBI THINKLAB	The lab is an IBM facility that allows clients and partners from across the Middle East and Africa region to gain hands-on experience of IBM's latest cognitive, cloud, big data analytics and mobile technologies. Fitted with some of the most advanced interactive technologies to demonstrate the lab's latest solutions in key areas such as education, healthcare, water management, public safety and financial inclusion. (Nairobi).
GODOWN ART CENTRE	The GoDown centre is East Africa's key institution in nurturing talent in the arts, in a society where artists, confident in their own culture, effectively unleash their creative potential, and make their full contribution to an East African society which values arts and culture as an integral part of life.
PAWA254	Pawa254 has a hub which serves as a community-based working environment. It attracts creatives, techies, changemakers and entrepreneurs to work and collaborate in a diverse creative community focused atmosphere. (Nairobi).
SEVEN SEAS TECHNOLOGIES (SST) INNOVATION LABS	SST Group is taking strides to tackle head-on the challenges that face Kenyan start-up culture: why most fail within their first year. (Nairobi).
SOTE HUB	Sote Hub provides an open space for young innovators and startups to design market solutions to local challenges. The hub provides services such as: incubation, co-working space,

	impact outsourcing and networking opportunities. (Taita-Taveta; Kwale; Nairobi).
SWAHILI BOX	Swahili Box is a project of M-Power (CBO). The Technology Open Space in Mombasa, Kenya which focuses on socio-economic technology empowerment, inspiring and developing individuals and help them develop new and innovative ideas through networking, access to training and support and professional mentoring and coaching. (Mombasa).
TECHBRIDGE INVEST	Techbridge builds and invests in scalable, sustainable businesses in East Africa. It creates job opportunities and profitable businesses where it is needed. (Mombasa).
UBUNIFU	Ubunifu is a network of creative entrepreneurs bridging the unmet need for creative actualization in art, culture, technology, media, adventure, entertainment and anything in between. The focus of the hub is on emerging creative colonies and the budding creative industries in rural and peri-urban areas.
VILLGRO KENYA	Villgro Kenya is working to inspire a new wave of innovative thinking towards the deep-rooted health challenges in Africa, through social entrepreneurship and impact investment.



Kenya National Innovation Agency
9th Floor, Utalii House
Tel +254-020-2219420
Email: info@innovationagency.go.ke
Website: www.innovationagency.go.ke
NAIROBI, KENYA.