EUROPE, MIDDLE-EAST, AND AFRICA

KENYA

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University of Nairobi

UNDERSTANDING KENYA'S INNOVATION SYSTEM

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- **Content and research:** Madara Ogot, Rita Muriuki, Timothy Waema, Tonny Omwansa (University of Nairobi). Nathan Kably, Benjamin Reid (Reviewers).
- **Design:** Priscila Vanneuville
- **Disclaimer:** Information and data collected in 2019.

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COUNTRY PROFILE

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1.1 INTRODUCTION

After two decades of economic decline in the 1980s and 1990s, which saw Kenya's per capita income drop from Kshs. 3,813 in 1990 (in constant 1982 prices; GBP 29.4) to Kshs. 3,360 in 2002 (GBP 25.9), the Government under President Mwai Kibaki, sworn-in on December 29 2002, embarked on an ambitious programme of economic recovery. This effort was guided by the Economic Recovery Strategy for Wealth and Employment Creation 2003-2007,[1] followed by several key policy initiatives:

- This period included the development of the first National Information and Communication Technology (ICT) policy in 2006, which sought to provide a policy framework to guide all activities in harnessing the potential of ICT for economic growth and poverty reduction.[2]
- In 2007, the Youth Enterprise Fund was established to provide affordable financial and business development support services to young people, encouraging them to be job creators and not job seekers. Cumulatively by May 2019, the fund had disbursed loans amounting to Kshs.12.8 billion (GBP 95.9 million)[3] to 1.2 million youth.[4]
- Also established in 2007 was the Women Enterprise Fund, mandated to mobilise resources for sustainable access to affordable financial and business support services to empower Kenyan women.
- Finally, in 2007, the Kenya ICT Board was mandated to promote Kenya as an ICT hub, advise government on the development and promotion of ICT industries, and to provide government and other stakeholders with skills, capacity and funding to implement and coordinate ICT projects.[5]

By the end of the period, the Gross Domestic Product (GDP) growth had risen from 0.5% in 2003 to 7% in 2007.[6]

The momentum in economic growth was severely curtailed, however, as a result of the 2007-2008 post-election violence that resulted in significant loss of life, displacement of more than 35,000 people, destruction of property and major disruption in the nation's social and economic life. Kenya's development blueprint, Vision 2030, which aims to transform the country to a middle-income, rapidly industrialising country offering a high quality of life to all its citizens by 2030, was launched in 2008, together with the first medium-term plan 2008-2012 (MTP I), under the theme 'A Globally Competitive and Prosperous Kenya' that sought to transform Kenya into a knowledge-based society.[7]

1 Ministry of Planning and National Development (2003)
2 Ministry of Information and Communication (2006)
3 Conversion 1 GBP = Kshs. 133.47
4 Youth Enterprise Development Fund (2019)
5 ICT Authority (2013)
6 Ministry of Planning and National Development (2008)
7 Ministry of Planning and National Development (2008)

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1.1 INTRODUCTION

Between 2008 and 2012, significant achievements strengthening the innovation ecosystem included: an increase in primary to secondary school transition rates from 64% to 77%, and in the number of students enrolled in university education by 103%; completion of three submarine fibre optic networks connecting Kenya to the global internet networks, and laying of 5,500 km of terrestrial fibre optic network resulting in a dramatic reduction in internet cost. The latter two had a transformative impact on the innovation ecosystem. It encouraged the establishment of an entire ICT-based industry geared around the development of innovative mobile-based services.

M-Pesa, launched in 2007, together with other mobile money transfer and payment services revolutionised the financial services sector in Kenya through easy access and low transaction costs. The mobile payment platforms created new opportunities for tech startups to build mobile-based services that have triggered innovation in numerous sectors including agriculture, health, and commerce, with Kenya dubbed the 'Silicon Savannah'. For the period July to September 2018, for example, the number of mobile sending/ withdrawal transactions and mobile commerce transactions had soared to 730 million and 527 million respectively, corresponding to a value of Kshs. 2.0 trillion (GBP 14.98 billion) and Kshs. 1.55 trillion (GBP 11.61 billion) respectively.[8]

Another major project, Konza Techno-City, launched in 2009, is expected to drive Kenya towards a knowledge-based economy. Construction work began in 2013 and is expected to take 20 years and create 200,000 tech jobs by 2030.[9]

The growth in real per capita income grew at only 7.8% between 2008-2012, with youth unemployment remaining high at 25%.[10] At the end of this period, Kenya achieved lower middle-income status.

Launched in 2012, the National Industrialisation Policy provides a framework for the coordination of the numerous policies, strategies, and activities within the industrialisation process in Kenya.[11] Key focus areas in the policy included the establishment of special economic zones, industrial zones and SME parks; improved market access through promotion of consumption of locally manufactured products; and strengthened industrial research, development and innovation.

8. Communications Authority of Kenya (2018)
9. Konza City website, http://www.konzacity.go.ke
10. Ministry of Devolution and Planning (2013)
11. Government of Kenya (2012)

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1.1 INTRODUCTION

A second medium-term plan (MTP II) (2013-2017) was launched in 2013 and targeted six priority sectors under the economic pillar: tourism; agriculture, livestock and fisheries; trade; manufacturing; internet technology-enabled services; and oil and other minerals. In that period also, the devolved structure of government in the Constitution 2010 was implemented, and the constitution expressly recognised the contribution of science and indigenous technologies to development. In 2013, the ICT Authority was established - replacing the Kenya ICT Board - with the broader mandate to manage all government ICT functions, maintenance of ICT standards across government, and promotion of ICT literacy, capacity, innovation and enterprise. The enabling environment created by these and other initiatives saw the number of active innovation tech hubs reach 48 in 2019, the fourth highest in Africa after Nigeria, South Africa and Egypt.[12] 47 Huduma Centres were established across the country, providing integrated service delivery through multi-channel, single-window, citizen access to transactional government services, face-to-face, online and on mobile platforms.

The 2012 Education 13 and 2013 Technical and Vocational Education and Training (TVET) Act led to the establishment of the TVET Authority mandated to assure standards, quality, and relevance within all TVET institutions and to spur the sector to produce adequate and skilled middle-level human resources required to meet the country's needs.

The 2013 Science, Technology and Innovation (ST&I) Act established the Kenya National Innovation Agency (mandated to develop and manage the national innovation system), the National Research Fund (mandated to facilitate research for the advancement of ST&I), and the National Commission for Science Technology and Innovation (mandated to regulate and assure quality in the science, technology and innovation sector). To date, these agencies have not been fully facilitated to adequately meet their mandates.

During the period 2013-2017, the average GDP growth rate increased to 5.9% from an average of 3.8% in 2008-2012.[14] Kenya rose in the Ease of Doing Business index ranking from 121 in 2013 to 61 in 2018. Research funding from Government in 2018, however, was only 0.8% of GDP, far below the 2% target.

12 Giuliani and Ajadi (2019)
13 Government of Kenya (2012a)
14 Kenya National Bureau of Statistics (2013)

COUNTRY PROFILE

1.1 INTRODUCTION

With an estimated population of 49 million, Kenya is currently implementing the third medium-term plan (MTP III) (2018-2022), which aims to achieve an annual GDP growth rate of 7% by 2023.

In 2018, Kenya's real GDP growth was estimated at 6.3%, primarily driven by agricultural production, manufacturing, transportation and the service sectors.[15] Due to the high unemployment rate estimated at 11.5% in 2017 (with youth unemployment estimated at 26.2%),[16] and the over-reliance on agricultural products for export, the MTP III aims to increase the manufacturing sector's contribution to GDP and to exports; attain and sustain an annual growth rate of 15% in the industrial sector;[17] and focus on labour-intensive sectors (agro-processing, textiles and clothing, leather and leather goods), medium to high technology sectors (iron and steel, machine tool and spares, agro-machinery, and pharmaceuticals), and advanced manufacturing technologies – biotechnology and nanotechnology.[18]

Initiatives are also underway to establish national science and technology innovation parks.[19]

GLOBAL INNOVATION INDEX (2019)*	RANK 77 (TOP 10 IN LOWER MIDDLE-INCOME COUNTRIES), SCORE 31.2
Global Competitiveness Index (2018)****	Rank 91 with total score of 3.98
R&D Gross Domestic Expenditures as a % of GDP*	0.8
High-tech exports (% of manufactured exports)*	0.3
Resident patent granted (2018)***	10
Resident patent granted as a % of total granted (2018)***	31.25%
Ease of Doing Business (2018)**	Rank 61 with total score of 70.31

15 Kenya National Bureau of Statistics (2019)
16 United Nations Development Programme (2018)
17 Government of Kenya (2012b)
18 Government of Kenya (2012b)
19 National Treasury and Planning (2018)
* Cornell University et al. (2019)
** World Bank Group (2019)
*** Kenya Industrial Property Institute (2018a-l)
**** World Economic Forum

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1.2 STATISTICAL HIGHLIGHTS

For Kenya, levels of innovation as measured by the Global Innovation Index have outperformed the level of economic development each year between 2010 and 2018.[20]

Kenya ranked second after South Africa in Sub-Saharan Africa in the Global Innovation Index, and the country continues to improve year on year.

A close observation, however, reveals that although the inputs to the innovation ecosystem are strong, their inefficient use has led to low outputs, which could be much higher.

	MALAYSIA	SOUTH AFRICA	KENYA	EGYPT	RWANDA
Overall GII Score	42.68	34.04	31.13	27.47	27.38
Institutions	71.6	65.9	59.2	47.9	68.1
Human Capital and Research	44.2	30.4	17.5	19.7	17.8
Infrastructure	51.8	41.1	29.6	36.8	40.0
Market Sophistication	57.8	58.6	51.8	41.0	55.2
Business Sophistication	39.3	32.7	32.2	21.2	36.2
Knowledge and Technology Outputs	32.1	23.9	20.1	22.1	5.7
Creative Outputs	32.8	20.8	28.3	21.1	16.9

Source: Cornell University et al. (2019)

20 Cornell University et al. (2019)

1.3 HIGHLIGHTS OF KEY INNOVATION PROGRAMMES

KONZA TECHNOPOLIS

Currently under development as a smart sustainable city and innovation ecosystem, the Konza Technopolis, launched in 2009, has the potential to significantly contribute to the country's knowledge-based economy. It seeks to be a global technology hub focused on ICT, life sciences, and engineering. As of 2020, much of the work on utilities and access roads has been done, as well as construction of an initial office block, but construction is still a long way to completion. Also under development, with the assistance of the Korean Advanced Institute of Science and Technology (Korea KAIST), is the Kenya Advanced Institute of Science and Technology (Kenya KAIST), a post-graduate only university.
See www.konzacity.go.ke

HE AJIRA DIGITAL PROGRAMME

A Government initiative launched in 2017 by the Ministry of Information, Communication and Technology. It aims to empower more than one million youth to access digital job opportunities through positioning Kenya as a choice labour destination for multinational companies, and by encouraging local and public sector companies to create digital work. The main objectives are to raise the profile of digital work; promote a mentorship and collaborative learning approach to finding digital work; provide Kenyans with access to digital work, and finally promote Kenya as a destination for online workers.
See www.ajiradigital.go.ke

CONSTITUENCY INNOVATION HUBS

These are one of the pillars in the Ajira Digital Programme, which aims to introduce young people to online work and provide them with the necessary tools, training and mentorship to enable them to work and earn a decent income. They will provide free WiFi access, business and IT training, and working spaces. A total of 1,160 innovation hubs are to be set up, representing four per constituency. The first hub was opened in Nairobi in 2018, with nationwide roll-out underway. See www.ict.go.ke

KENYA INDUSTRY AND ENTREPRENEURSHIP PROJECT (KIEP)

Launched by the Ministry of Industry, Trade and Cooperatives in 2019, running to 2022. The project aims to increase innovation and productivity in select private sector firms by strengthening the innovation and entrepreneurship ecosystem to improve the survival and growth rates of technology-enabled start-ups in Kenya, as well as supporting small and medium-sized enterprises (SMEs) to boost their productivity and internal capabilities for innovation to better compete for local and international market opportunities. KIEP aims to strengthen the innovation ecosystem as part of the implementation of the Kenya industrial transformation programme.
See www.kiep.go.ke

1.3 HIGHLIGHTS OF KEY INNOVATION PROGRAMMES

KENYA YOUTH EMPLOYMENT AND OPPORTUNITIES PROJECT (KYEOP) MBELENABIZ PROGRAMME

The programme aims to expand new and existing youth-led enterprises through grant funding and/or business plan training. MbeleNaBiz is implemented by the Micro and Small Enterprises Authority (MSEA) and the Ministry of Public Service, Youth and Gender Affairs. The programme goals are to create jobs and to increase income for young men and women. By investing in young entrepreneurs whose ventures will generate employment opportunities and earnings for unemployed youth, the programme seeks to contribute to the development of an inclusive economy providing opportunities for as many Kenyans as possible. The first competition closed in September 2019. It is expected that 750 businesses will be awarded between Kshs. 900,000 (GBP 6,680) and Kshs 3.6 million (GBP 26,720).
See www.mbelenabiz.go.ke

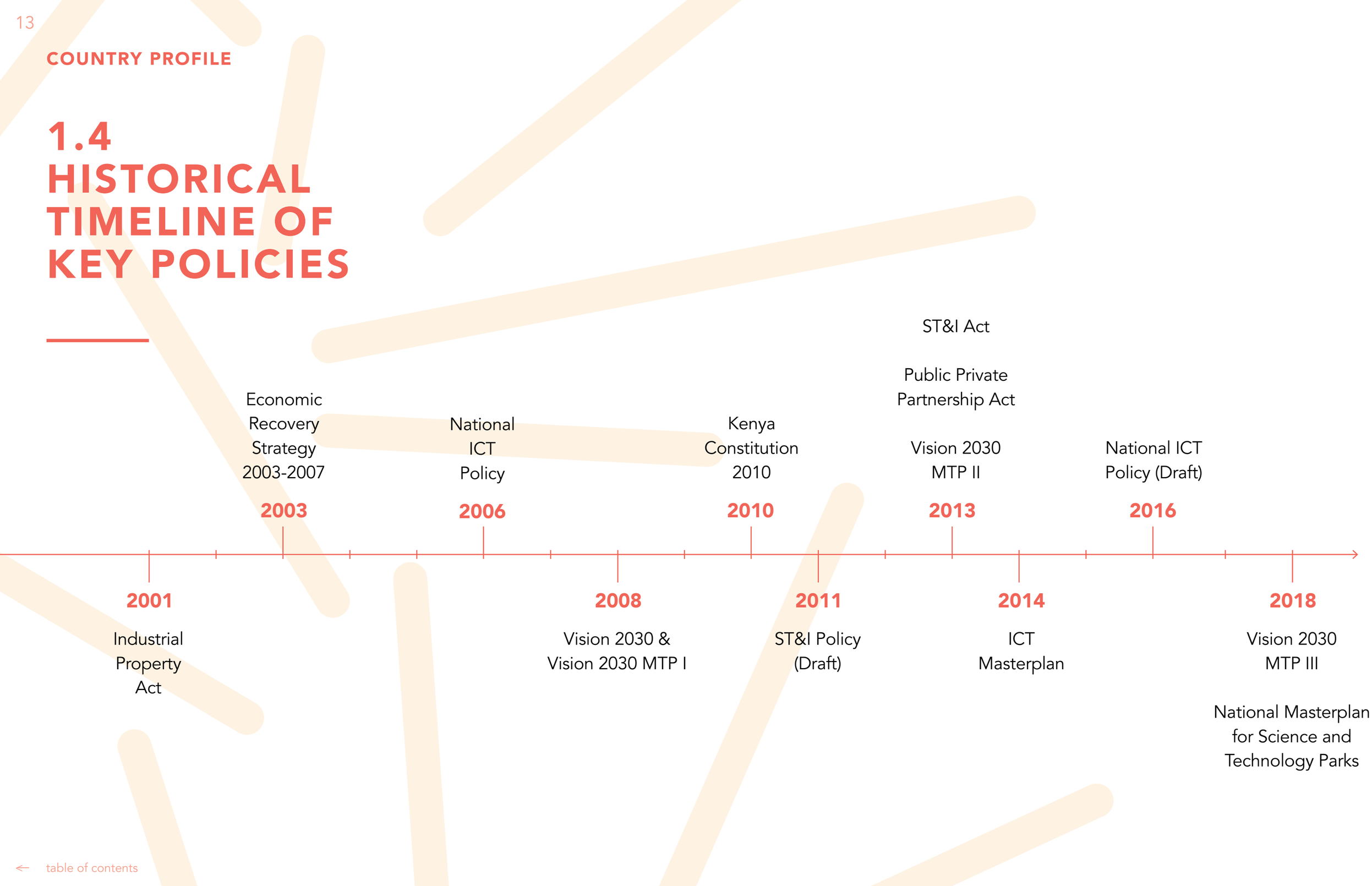
MINISTRY OF EDUCATION SCIENCE AND TECHNOLOGY PARKS

The Ministry has developed a national masterplan 2018-2028 for the establishment of four to five university-based science and technology parks over the next 10 years, with the first one beginning construction in 2019 at the Dedan Kimathi University of Technology. The parks seek to stimulate and manage the flow of knowledge and technology among universities, R&D institutions, companies and markets; facilitate the creation and growth of innovation-based companies through incubation and spin-off processes; and provide other value-added services together with high-quality space and facilities.
See www.stp.dkut.ac.ke

KENIA NATIONAL INNOVATION AWARD & LEADERS INNOVATION FELLOWSHIP PROGRAMME

is a collaborative programme between the KENIA, the NRF, and the Royal Academy of Engineering (RAEng) in the UK. The programme is implemented under the umbrella of Kenya-UK Newton Fund Programme. The purpose of the programme is to nurture Kenyan technological innovators and support commercialisation of innovations. The programme is a platform for developing capacity on entrepreneurship and commercialisation of research outputs including intellectual property right issues. The first cohort completed their programme in 2019.
See www.innovationagency.go.ke

1.4 HISTORICAL TIMELINE OF KEY POLICIES



1.4 HISTORICAL TIMELINE OF MAJOR INNOVATION EVENTS

2002

Establishment of Kenya Industrial Property Institute

2007

Establishment of Women Enterprise Fund and Youth Enterprise Fund

Launch of M-Pesa mobile transfer and payment service

2009

Launch of Konza City

2010

Pioneer innovation tech hub iHub opens

2012

Completion of connection of 3 undersea fibre optic cables

2013

Establishment of TVETA ICTA NACOSTI KENIA NRF

2018

Launch of Ajira Digital Programme

Opening of first of 1,160 Constituency Innovation Hubs

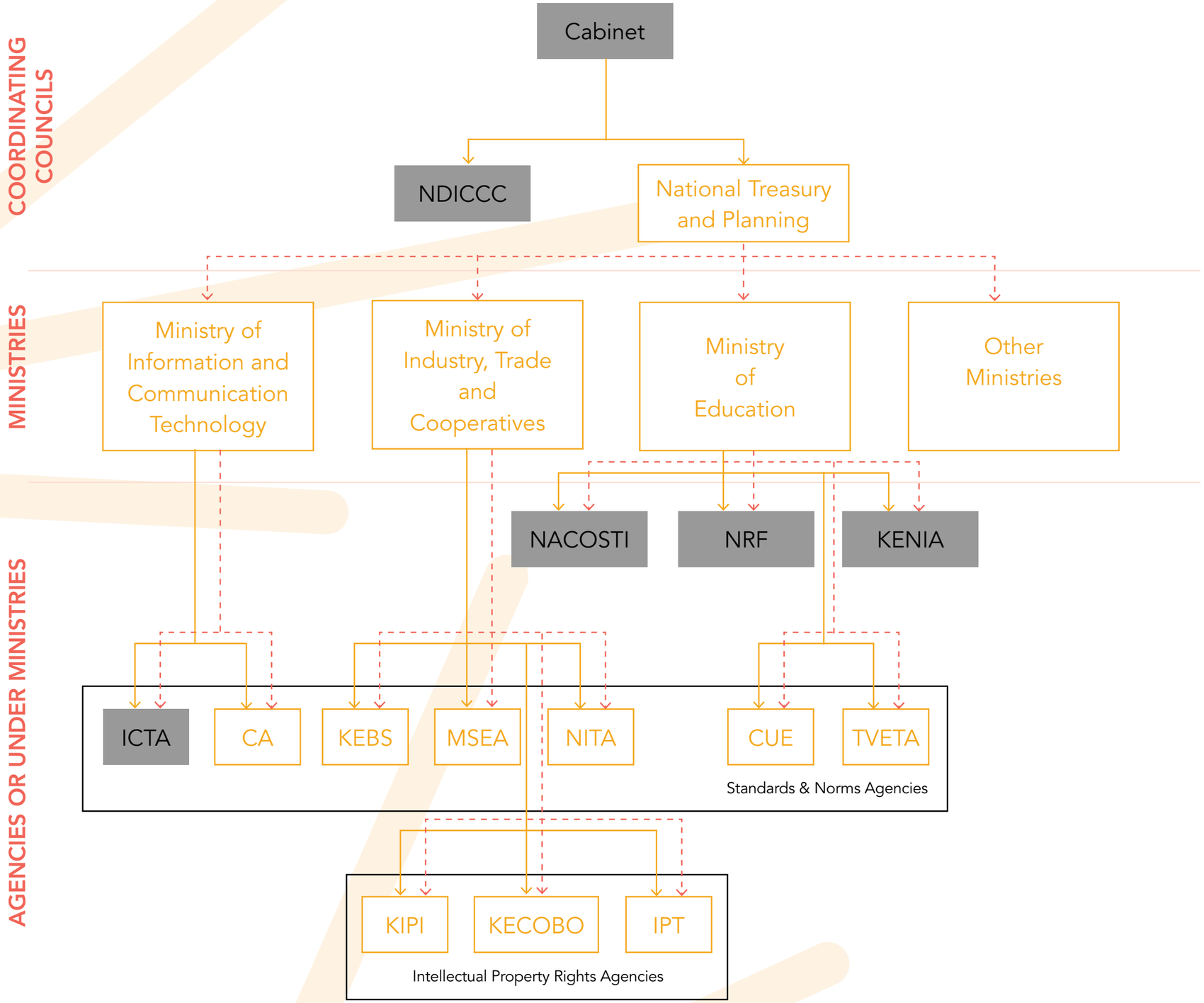
2019

Launch of Kenya Industry and Entrepreneurship Project

COUNTRY PROFILE

1.5.1 INSTITUTIONAL MAP OF THE INNOVATION SYSTEM

- This institutional map represents the existing organisational structure of the national system of science, technology and innovation.
- The agency groupings into Standards and Norms Agencies, and Intellectual Property Rights agencies is from the Science, Technology and Innovation Policy (2013).



Political influence

Provides funds

Major Institutions

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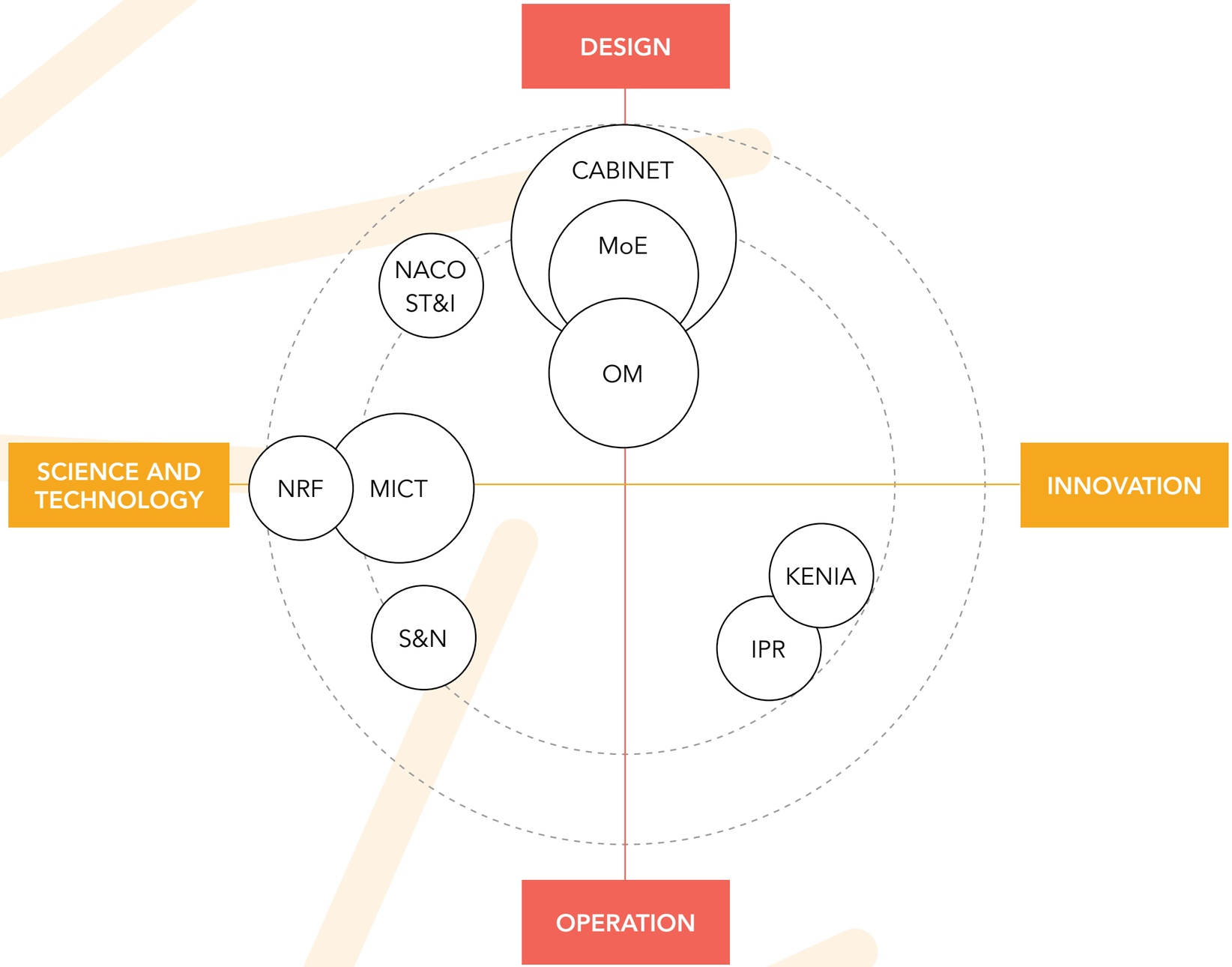
1.5.2 ROLE AND INFLUENCE DIAGRAM OF KEY MINISTRIES AND AGENCIES

- Intellectual Property Rights (IPR) agencies include KIPI, KECOBO, IPT
- Standards and Norms (S&N) agencies include CUE, KEBS, ICTA, NITA, MSEA, TVETA
- Other Ministries (OM)

Level of influence: the bigger the size of the bubble, the more influence in the innovation system.

This influence map is indicative and reflects the insights of the project team rather than a formal statement of roles and structures.



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1.6 GLOSSARY OF INSTITUTIONAL ABBREVIATIONS AND ACRONYMS

- **CA:** Communications Authority
- **CUE:** Commission for University Education
- **EPZA:** Export Processing Zones Authority
- **KECOBO:** Kenya Copyright Board
- **KENIA:** Kenya National Innovation Agency
- **KICTB:** Kenya Information and Communication Technology Board
- **NDICCC:** National Development Implementation and Communication Cabinet Committee
- **NT&P:** National Treasury and Planning
- **IPT:** Industrial Property Tribunal
- **ICDC:** Industrial Commercial Development Corporation
- **ICTA:** Information and Communication Authority
- **KENET:** Kenya Education Network
- **KIPI:** Kenya Industrial Property Institute
- **KNSA:** Kenya National Academy of Science
- **KOTDA:** Konza Technopolis Development Authority
- **MoE:** Ministry of Education
- **MSEA:** Micro and Small Enterprises Authority
- **MICT:** Ministry of Information Communications and Technology
- **NACOSTI:** National Commission for Science, Technology and Innovation
- **NITA:** National Industrial Training Authority
- **NRF:** National Research Fund
- **SEZs:** Special Economic Zones
- **ST&I:** Science, technology and innovation
- **STPs:** Science and Technology Parks
- **TVETA:** Technical, Vocational Education and Training Authority
- **UNDP:** United Nations Development Programme
- **UNESCO:** United Nations Education, Scientific, and Cultural Organisation
- **UNIDO:** United Nations Industrial Development Organisation

1.7 STRENGTHS AND WEAKNESSES ANALYSIS

	STRENGTHS	WEAKNESSES
INSTITUTIONAL FRAMEWORK	• Strengthening of the legal, regulatory and institutional framework for governance of the science, technology and innovation sector through the enactment of the ST&I Act (2013), which among others, provides for the establishment of the Kenya National Innovation Agency (KENIA), the National Research Fund (NRF) and the National Commission for Science, Technology and Innovation (NACOSTI).[21] • The Science, Technology and Innovation (ST&I) Policy was developed in 2012, but is still under review by Parliament. The draft policy currently serves as reference document for the Ministry of Education, Science and Technology.	• The institutional and human capacities of key ST&I related institutions are weak and need to be strengthened in order for them to meet their mandate. These include KENIA, NRF, and the Kenya National Academy of Sciences (KNAS). • There is very limited coordination of innovation activities across the sectors, in addition to low institutional collaborations, resulting in a fragmented approach to ST&I promotion. • Most of the key initiatives detailed in the development plans and approved policies have not been implemented yet or are behind schedule, severely limiting the attainment of the desired outcomes. Many policies are also outdated or pending legislative or cabinet approvals. In addition, many of the implemented programmes and flagship projects are uncoordinated, non-transparent and ineffective.

21 Government of Kenya (2013)

1.7 STRENGTHS AND WEAKNESSES ANALYSIS

	STRENGTHS	WEAKNESSES
FUNDING	• Government has legally committed to increasing research funding from the 0.8% in 2010 to 2% of GDP in line with the Science, Technology and Innovation Act.[22] This compares favourably to other sub-Saharan African countries. For example, rates in South Africa, Ethiopia, and Mali, 0.73% (2012), 0.61% (2013), and 0.66% (2010) respectively. Only Malawi was higher at 1.06% (2010).[23] • More funding available for research and innovation, with 40% of the funding coming from foreign sources.[23]	• Actual research funding has remained well below the 2% committed in the 2013 ST&I Act, at 0.8% in 2018. • The available limited research funding is not focused on commercialisation.[24] • Access to funding for doing business still remains a challenge.[25] • High tax rates are an impediment to business. Corporate tax rate stands at 30% and 37.5% for resident and non-resident companies respectively. This compares unfavourably with comparator countries, South Africa and Egypt, whose rates are 28% and 22.5% respectively. Kenya remains above the global average of 23.62%.[26]

22 National Treasury and Planning (2018)
23 UNESCO (2015)
24 International Telecommunications Union (2019)
25 World Economic Forum (2017)
26 Trading Economics, tradingeconomics.com

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1.7 STRENGTHS AND WEAKNESSES ANALYSIS

	STRENGTHS	WEAKNESSES
HUMAN CAPITAL/KNOWLEDGE ASSETS	• Protection of intellectual property: The Kenya Constitution 2010 expressly recognises intellectual property rights as property rights in Articles 260(c), 40(5) and 69(1)(c). • Digital literacy and connectivity as Kenya moves towards a knowledge-based economy. This includes implementation of the digital literacy programme, which provided laptops to Kenyan school-going children, trained teachers and developed digital curriculum, thereby integrating the use of digital technologies into the curriculum.[27] By September 2019, 1,148,160 devices had been installed in 21,232 schools, or 97.7% of the target.[28] • Strong researcher base, 6th in Sub-Saharan Africa with 318 researchers per million inhabitants in 2014, who were 3rd most productive in the region, with 30.2 articles per million inhabitants, trailing Gabon and Cameroon with 80.1 and 30.9 respectively.[29]	• As laid out in the National Policy on Industrialisation, 2013, a National Intellectual Property Policy was to be developed and the Intellectual Property Tribunal was to be strengthened. Both have not yet been accomplished. • Patent protection and resulting commercialisation in intellectual property remains very low, with only 10 resident patents granted in 2018, with a minimal contribution by universities and research institutes.[30] • Despite strong entrepreneurial interest, there is risk aversion, lack of required skills and limited resources hindering entrepreneurs from engaging with problems and developing appropriate business models.[31]

27 National Treasury and Planning (2018)
28 ICTA, http://icta.go.ke/digischool/milestones/
29 UNESCO (2015)
30 KIPI (2018a – l)
31 International Telecommunications Union (2019)

1.7 STRENGTHS AND WEAKNESSES ANALYSIS

	STRENGTHS	WEAKNESSES
HUMAN CAPITAL/KNOWLEDGE ASSETS	• Strengthening national ICT integrated information infrastructure and e-Government services between 2012-2017, including rolling out the e-Citizen platform for business, marriages, lands, immigration and civil registration services and e-Citizen payment gateway.[32] • Enactment of the Special Economic Zones Act 2015, providing a framework for the establishment of Special Economic Zones and Industrial Parks, as well as the enactment of the Public Private Partnership Act 2013, all aimed at strengthening and growing the manufacturing sector, with local and foreign private investors to be facilitated to invest within them.[33] • Between 2017 and 2018, installed electricity production capacity grew from 2,339 MW to 2,711 MW, driven by an additional 360MW from renewable energy sources.[34] Average electricity supply interruptions per 1,000 customers decreased from 7.5 per month in 2013 to 4.4 in 2017.[35]	• Corruption remains the single largest impediment to doing business with Kenya, ranked 144/180 on the Transparency International Corruption Perception Index in 2018.[36, 37] • Political uncertainty and violence leading up to, during and after election every five years, often accompanied by a lack of policy continuity from one administration to the next. • Between 2013 - 2017, the manufacturing sector grew by only 2.9% primarily due to the low competitiveness of Kenya's manufactured products. Implementation of public-private partnerships has remained low due to long, bureaucratic approval processes.[38] • Cost for industrial power remains high, averaging GBP 0.13 per KWh, making Kenya uncompetitive as compared to, for example, South Africa whose costs are GBP 0.046.[39]

32 National Treasury and Planning (2018)
33 Ibid.
34 Kenya National Bureau of Statistics (2019)
35 National Treasury and Planning (2018)
36 World Economic Forum
37 Transparency International (2018)
38 National Treasury and Planning (2018)
39 Ibid.

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1.7 STRENGTHS AND WEAKNESSES ANALYSIS

	STRENGTHS	WEAKNESSES
HUMAN CAPITAL/KNOWLEDGE ASSETS	• A framework has been developed for the establishment of a national ST&I Statistics Observatory for capturing, developing, sharing and storing national ST&I information. It is however yet to be actualised. [40] • Since 2015, the University of Nairobi and stakeholders have convened the annual Nairobi Innovation Week, which brings together stakeholders from the private sector, government, academia and development partners for a series of events and exhibitions with the aim of supporting and accelerating the innovation and entrepreneurship ecosystem.	• According to the United Nations Industrial Development Organisation (UNIDO), there are very weak linkages between research institutions and business enterprises; and business enterprises generally have low levels of innovation and are isolated from other actors in the national system of innovation. Also, knowledge-based institutions (for example universities) have highly restricted outlets through intermediation and commercialisation to demand markets; have poor market intelligence; are insufficiently aware of market needs; and their strategic research and development activities are not aligned to the needs of medium and high-technology industries.[41] • The yet to be established National Industrial Development Commission was to provide a framework for broader engagement among stakeholders in the public and private sectors to be able to play their respective roles in industrial development.[42] • National ST&I policy (draft) was developed in 2013 and is yet to be formally approved and adopted. • Although KENIA was established in 2014, there is no policy for mapping, monitoring and evaluation of the ecosystem.[43] • Weak intellectual property support, and research and development support, as well as the current tax regime as impediments to the growth of the ecosystem.[44]

40 National Treasury and Planning (2018)
41 UNIDO (2014)
42 Government of Kenya (2012)
43 UNIDO (2014)
44 International Telecommunications Union (2019)

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2.
CAPACITY BUILDING FOR INNOVATION IN KENYA

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2.1 MAPPING INNOVATION POLICYMAKERS: ASSESSING THE SIZE OF THE CORE AUDIENCE

In the table below, we estimate the number of policymakers employed in key institutions in innovation policy roles at each of four key levels of seniority. The numbers below are drawn from publicly available data on government employment, combined with insights from expert interviews.

CORE INNOVATION POLICYMAKERS PER LEVEL OF SENIORITY						
Country	L1	L2	L3	L4	L5	Total core innovation policymakers
Kenya	22	41	144	26	47	280

Note:

L1 Represents the number of cabinet members
L2 Represents principal secretaries in ministries with direct impact on innovation policy
L3 Represents the number of executive board members
L4 Represents the number of director generals of key institutions
L5 Represents the number of deputy director generals and directors of key institutions.

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2.2 INNOVATION POLICYMAKER 'PERSONAS'

Chief Executive Officer

Researcher and policy advisor in government for more than 12 years, especially in areas of science policy, industry-academia linkages, and innovation management.

PhD and MSc in Chemistry.

"Enhance institutional capacity of science, technology and innovation (ST&I) institutions, namely, KENIA, NRF and NACOSTI."

"Position ST&I in a ministry with an overarching mandate; for example, planning."

"There are many opportunities for sharing experiences with innovation policymakers in other countries."

KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- The current capabilities of organisations within the innovation system for the development of innovation policy is low due to human, institutional and financial capacity.
- Although policymakers are aware of personal development opportunities available to them, they do not take them up due to limiting bureaucracy in accessing the opportunities.
- The extent to which senior policymakers are aware of and able to utilise the latest thinking in approaches to policymaking from other countries is low, requiring a greater need for sensitisation, awareness creation and training.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- Effective innovation policy capacity building is required, especially in the areas of the innovation commercialisation process, intellectual property management, and the promotion of frugal innovations.
- For senior policymakers to take part in programmes that support the development and deployment of innovation policies, the programmes must offer a team approach to learning, including hands-on experience and sharing best practices.
- Training on how to smartly search for, and find, relevant and timely information and materials.

2.2 INNOVATION POLICYMAKER 'PERSONAS'

Chief Executive Officer

Has been at the helm of several government agencies, as well as being an active scientist and researcher.

PhD and MSc in Veterinary Medicine.

"Kenya has a large pool of creative and technically capable young innovators."

"The National Innovation Policy is not yet in place. The policy required to provide clarity on the support of innovations; how in the long run benefits may be tapped from the supported innovations; and how different players in the system should engage, especially the ever-increasing international players/hubs/accelerators/ventures."

"There seems to be confusion at high levels that innovation is ICT."

KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- There is weak interaction between institutions and limited and uncoordinated innovation support programmes.
- Inadequate funding in support of innovation programmes.
- There are inadequate capabilities within the organisation both in terms of staffing and skills.
- The biggest challenge is in enhancing technology transfer from universities. Researchers still do not view themselves as key sources of innovation.
- Policymakers do not have sufficient contact and exchange of information and knowledge with their peers in other countries.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- Training to enable technology transfer offices established in universities with training for research managers and researchers.
- Training should have a real-life project focus.

2.2 INNOVATION POLICYMAKER 'PERSONAS'

Chairman of the board

Has significant senior management experience in academia, government and non-governmental organisations.

PhD in Chemical Engineering.

"Capacity building and sensitisation of the key policymakers on the importance of ST&I on economic development are necessary key interventions for the ability of the government to drive innovation for economic growth."

"Several new ideas [to innovation policymaking from other countries] are coming up so fast that policymakers are not able to cope."

KEY INDIVIDUAL AND COLLECTIVE CHALLENGES

- The level of funding is at 0.8% of GDP, still lower than the legislated 2%.
- Weak institutions with core roles in the ecosystem, for example, NRF and KENIA not fully functional.
- Weak institutional structures and policies to support the application of knowledge.
- Weak linkages between academia and industry.
- Low contribution of the private sector to the funding of ST&I.
- Implementation of developed policies.

ASPIRATIONS AND EXPECTATION FROM INTERNATIONAL TRAINING PROGRAMMES

- Training that is unique and practical.
- Training with materials that are relevant to the current work of staff.

3.
ASSESSMENTS OF CURRENT AVAILABLE RANGE OF SUPPORT AND TRAINING FOR INNOVATION POLICYMAKERS IN KENYA

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ASSESSMENTS OF CURRENT AVAILABLE RANGE OF SUPPORT AND TRAINING FOR INNOVATION POLICYMAKERS IN KENYA

There are no established programmes that directly provide training to innovation policymakers. However, general training on policymaking is offered to all policymakers at the Kenya School of Government.

PROGRAMME	ASSESSMENT
Policy Formulation, Implementation and Analysis Seminar	Offered at the Kenya School of Government.

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4.
ASSESSMENT OF LIKELY AREAS OF FOCUS FOR A GLOBAL INNOVATION POLICY ACCELERATOR TEAM FROM KENYA

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ASSESSMENT OF LIKELY AREAS OF FOCUS FOR A GLOBAL INNOVATION POLICY ACCELERATOR TEAM FROM KENYA

1.

Removing the silos (communication, coordination issues)

There is a belief that government ministries, agencies, and departments tasked with innovation do not share information among themselves and with others, thus resulting in significant duplication of roles and information not getting to the intended users. A lot of strides can be made by eliminating the structural and behavioural barriers that prevent communication and collaboration.

2.

IP protection and commercialisation

Creating awareness, strengthening capacity and significantly increasing the levels of intellectual property protection and commercialisation both in the private sector, especially among micro and small enterprises, and among universities and research institutes. This should be coupled with robust frameworks for technology transfer from academia to the private sector for commercialisation.

3.

Identifying the players and actors in the innovation policymaking process

Innovation processes are complex; they involve linkages and feedback loops among a broad set of actors. Being able to identify the key players in innovation will help in that every actor will be adequately engaged in the policymaking process and ultimately be able to articulate their roles well.

4.

A National Innovation Policy

Separate from a National Science and Technology Policy, the Innovation Policy will seek to guide the development of the innovation ecosystem within the country, within the context of a unified framework. The new policy would seek to break down barriers to better collaboration between the different actors and stakeholders in the ecosystem. Also, it would guide not only the transfer of results from universities to industry but also the broader concept ranging from internal transfer within the organisation / corporation / institution to international technological transfer.

5.
DIAGNOSIS AND RECOMMENDATIONS

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1.

Coordination of actors in the innovation space

There is a lack of coordination of programmes, activities and policies from the Kenya Government in support of the development and growth of the innovation ecosystem. This is further constrained by fragmented and uncoordinated activities of development partner programmes and activities between themselves and with on-going government programmes. The major players in the private sector and academia also operate with the same silo mentality. To achieve significant gains in strengthening the national innovation ecosystem, a policy framework must be developed and implemented to achieve better linkages and synergies among programmes and activities seeking to positively impact the innovation ecosystem and their benefit to the country at large. The GIPA programme presents an opportunity to begin the development of such a policy.

2.

Awareness and capacity development on protection and commercialisation

Despite Kenya ranking high in the annual Innovation Index and being dubbed the 'Silicon Savannah', the economic benefit of innovation activities to micro and small enterprises that form the majority of Kenya's businesses remains very small. Part of this is due to lack of awareness, and capacity to protect intellectual property before commercialisation as reflected by the very low IP protection statistics. This results in innovative ideas entering the public domain without protection, making them globally available to all for exploitation without any benefit to the inventor. In addition, the levels of IP protection of research output from universities and research institutes is exceedingly low. Coupled with negligible technology transfer from academia to industry for commercialisation, these institutions' economic impact through the development of new technologies is hardly felt. Through the GIPA programme, policymakers have an opportunity to develop approaches to invigorate the pathways from ideation to protection and commercialisation, both within the private sector and from academia.

6.
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